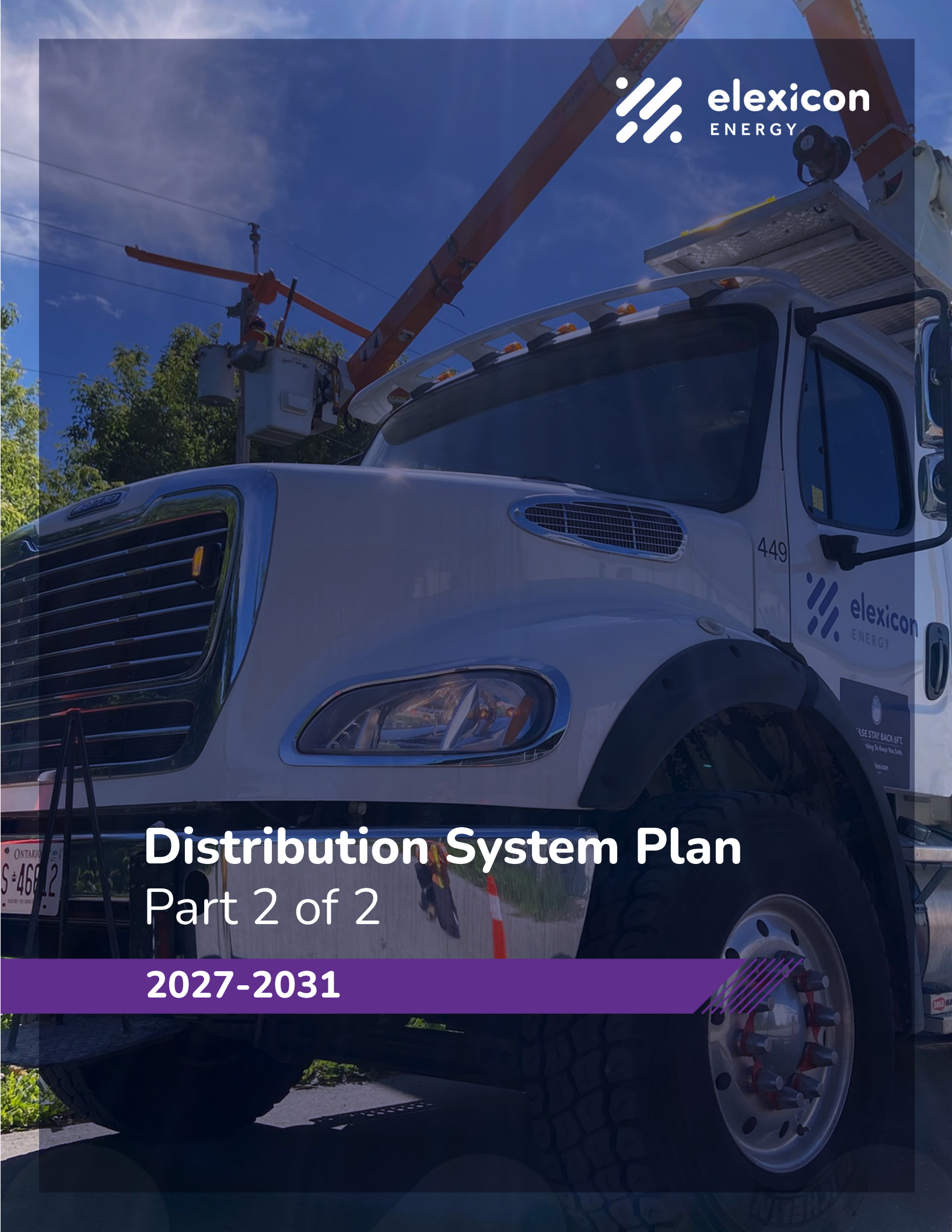



# Distribution System Plan

## Part 2 of 2

**2027-2031**

# CAPITAL EXPENDITURE PLAN

## 1. CAPITAL EXPENDITURE SUMMARY

Elexicon's 2027-2031 Distribution System Plan is guided by a set of key drivers including system capacity, asset renewal and reliability, and grid modernization. Increasing system capacity is critical to overcoming current system limitations and establishing a foundation for sustainable growth to meet customer load demand. Station capacity and load forecasts indicate that rapid growth, combined with current constraints, makes system capacity investment essential. Reliability and asset renewal are equally important investment drivers, ensuring prioritization toward assets that have the greatest impact on reliability to improve deteriorating reliability performance. Additionally, grid modernization focuses on strengthening system resiliency, supporting reliability, and facilitating the energy transition. Expanded workforce capabilities, along with robust cybersecurity and digital resilience programs, ensure that increased levels of capital investments and modernization initiatives are executed efficiently and supported by strong operational safeguards, enabling the organization to meet evolving customer needs. Together, these objectives support Elexicon on making informed investment decisions.

During 2020 to 2024, Elexicon allocated investments to address items such as equipment failure and weather-related damage, customer growth and load increases, and the fleet, facilities and operating systems necessary to ensure Elexicon continues to operate a safe and reliable system. Compared to the historical period, the forecast period of 2027-2031 shifts towards System Renewal and System Service investments to improve condition of assets as well as enhance long term reliability, resiliency and cost efficiency through grid modernization. Additionally, through targeted investments, Elexicon plans to alleviate existing system capacity constraints and accommodate further areas of customer growth within the service territory, sustaining Elexicon's capabilities to continue delivering safe, reliable and cost-effective electricity to the customers it serves.

This section provides an overview of Elexicon's investments for the 2020-2031 period, including detailed explanations of: 1) variances in plan versus actual in-service additions (ISA) over the 2020-2024 historical

period, 2) comparison of forecast capital expenditures versus historical expenditures across OEB-defined investment categories, and 3) modifications to the capital programs since previous DSP.

Table 1 below presents the planned and actual in-service additions (ISA) for this historical period (2020 – 2024), along with the planned ISA amounts for the bridge years (2025 - 2026). For previous regulatory filings, including the DSP and incremental capital module (ICM) applications, Elexicon reported capital investments on an in-service addition basis. To maintain consistency and comparability across the entire historical period, actual capitalized amounts continue to be shown as in-service additions in this table to allow for comparison against the previously submitted plan amounts. This approach enables a direct and consistent comparison for variance analysis between the historical planned amounts and the actual in-service additions.

**Table 1: Planned vs. Actual In-Service Additions (with ICM embedded)**

| Category | Historical Years | | | | | | | | | | | | | | | Bridge Years | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | | | **2021** | | | **2022** | | | **2023** | | | **2024** | | | **2025** | **2026** |
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Plan |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M |
| System Access | | | | | | | | | | | | | | | | | |
| Gross | 21.95 | 25.26 | 15.1% | 43.79 | 26.55 | (39.4%) | 66.99 | 27.23 | (59.4%) | 37.09 | 32.73 | (11.7%) | 28.79 | 17.56 | (39.0%) | 64.88 | 42.35 |
| Contributions | 13.50 | 16.34 | 21.0% | 32.48 | 16.30 | (49.8%) | 48.43 | 14.26 | (70.6%) | 27.72 | 14.47 | (47.8%) | 18.90 | 8.23 | (56.5%) | 34.63 | 20.57 |
| Net | 8.45 | 8.92 | 5.6% | 11.31 | 10.25 | (9.4%) | 18.56 | 12.97 | (30.1%) | 9.37 | 18.26 | 94.9% | 9.89 | 9.34 | (5.6%) | 30.26 | 21.78 |
| System Renewal | | | | | | | | | | | | | | | | | |
| Gross | 12.44 | 12.94 | 4.0% | 15.63 | 19.28 | 23.3% | 14.92 | 20.36 | 36.5% | 15.01 | 16.77 | 11.7% | 17.15 | 20.22 | 17.9% | 15.15 | 20.93 |
| Contributions | - | - | - | - | (0.80) | N/A[1] | - | - | - | - | 0.42 | N/A[1] | - | 0.30 | N/A[1] | - | - |
| Net | 12.44 | 12.94 | 4.0% | 15.63 | 20.07 | 28.4% | 14.92 | 20.36 | 36.5% | 15.01 | 16.35 | 8.9% | 17.15 | 19.92 | 16.2% | 15.15 | 20.93 |
| System Service | | | | | | | | | | | | | | | | | |
| Gross | 2.04 | 2.40 | 17.5% | 6.35 | 9.90 | 55.9% | 44.08 | 38.26 | (13.2%) | 8.52 | 5.72 | (32.9%) | 6.72 | 9.91 | 47.4% | 9.52 | 22.98 |

[1] Variance percentage is shown as 'N/A' where the planned ISA is zero, as the calculation is not applicable in these cases.

| Category | Historical Years | | | | | | | | | | | | | | | Bridge Years | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | | | **2021** | | | **2022** | | | **2023** | | | **2024** | | | **2025** | **2026** |
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Plan |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M |
| Contributions | - | - | - | - | 0.17 | N/A[1] | - | - | - | - | 0.44 | N/A[1] | - | 1.24 | N/A[1] | 0.96 | 0.37 |
| Net | 2.04 | 2.40 | 17.5% | 6.35 | 9.73 | 53.2% | 44.08 | 38.26 | (13.2%) | 8.52 | 5.28 | (38.0%) | 6.72 | 8.68 | 29.0% | 8.56 | 22.61 |
| General Plant | | | | | | | | | | | | | | | | | |
| Gross | 6.16 | 6.06 | (1.7%) | 12.07 | 6.67 | (44.7%) | 12.99 | 13.07 | 0.6% | 7.66 | 6.92 | (9.7%) | 5.26 | 4.95 | (5.9%) | 6.81 | 5.09 |
| Contributions | - | - | - | - | - | - | - | 0.08 | N/A[1] | - | 0.08 | N/A[1] | - | - | - | - | - |
| Net | 6.16 | 6.06 | (1.7%) | 12.07 | 6.67 | (44.7%) | 12.99 | 12.99 | 0.0% | 7.66 | 6.84 | (10.7%) | 5.26 | 4.95 | (5.9%) | 6.81 | 5.09 |
| Total Gross | 42.60 | 46.66 | 9.5% | 77.83 | 62.39 | (19.8%) | 138.97 | 98.92 | (28.8%) | 68.29 | 62.14 | (9.0%) | 57.92 | 52.65 | (9.1%) | 96.36 | 91.35 |
| Total Contribution | 13.50 | 16.34 | 21.0% | 32.48 | 15.67 | (51.8%) | 48.43 | 14.34 | (70.4%) | 27.72 | 15.40 | (44.4%) | 18.90 | 9.76 | (48.3%) | 35.58 | 20.94 |
| Total Net | 29.09 | 30.32 | 4.2% | 45.36 | 46.73 | 3.0% | 90.54 | 84.58 | (6.6%) | 40.57 | 46.74 | 15.2% | 39.03 | 42.89 | 9.9% | 60.77 | 70.41 |

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Table 2 below presents historical and bridge capital expenditures with year-over-year variances, including ICM and system O&M, illustrating how actual annual amounts have changed relative to the preceding year. This information is essential for identifying underlying trends in capital execution and understanding the factors contributing to observed variances. These insights support more informed decision making and reinforce the effectiveness of future planning and investment strategies.

**Table 2: Historical & Bridge Capital Expenditures with ICM and System O&M**

| Category | Historical Years | | | | | | | | | Bridge Years | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | | **2022** | | **2023** | | **2024** | | **2025** | | **2026** | |
| | Actual | Actual | YoY Var. | Actual | YoY Var. | Actual | YoY Var. | Actual | YoY Var. | Plan | YoY Var. | Plan | YoY Var. |
| | $M | $M | % | $M | % | $M | % | $M | % | $M | % | $M | % |
| System Access | | | | | | | | | | | | | |
| Gross | 22.10 | 33.08 | 49.7% | 42.19 | 27.6% | 58.67 | 39.1% | 44.73 | (23.8%) | 40.65 | (9.1%) | 45.72 | 1.3% |
| Contributions | 15.08 | 19.14 | 26.9% | 22.44 | 17.3% | 35.25 | 57.1% | 22.93 | (35.0%) | 17.83 | (22.2%) | 21.57 | (4.4%) |
| Net | 7.02 | 13.94 | 98.7% | 19.75 | 41.7% | 23.43 | 18.6% | 21.80 | (6.9%) | 22.83 | 4.7% | 24.15 | 5.8% |
| System Renewal | | | | | | | | | | | | | |
| Gross | 14.97 | 18.50 | 23.6% | 24.27 | 31.2% | 17.68 | (27.2%) | 24.97 | 41.2% | 21.24 | (14.9%) | 22.20 | 4.5% |
| Contributions | - | (0.81) | N/A[2] | 0.01 | (101.5%) | 0.42 | 3383.3% | 0.65 | 54.5% | 1.07 | 64.9% | - | (100.0%) |
| Net | 14.97 | 19.31 | 29.0% | 24.26 | 25.7% | 17.26 | (28.8%) | 24.33 | 40.9% | 20.17 | (17.1%) | 22.20 | 10.1% |
| System Service | | | | | | | | | | | | | |
| Gross | 6.69 | 13.31 | 99.1% | 22.14 | 66.3% | 4.85 | (78.1%) | 19.63 | 304.7% | 11.21 | (42.9%) | 30.79 | 174.7% |
| Contributions | - | 0.17 | N/A | 0.12 | (30.4%) | 0.32 | 176.1% | 2.19 | 578.6% | 0.61 | (72.4%) | 5.03 | 732.1% |
| Net | 6.69 | 13.14 | 96.6% | 22.02 | 67.6% | 4.53 | (79.4%) | 17.43 | 285.1% | 10.61 | (39.2%) | 25.76 | 142.9% |
| General Plant | | | | | | | | | | | | | |

[2] Year-over-year variance percentage is shown as 'N/A' where prior-year expenditure is zero, as the calculation is not applicable in such cases.

| Category | Historical Years | | | | | | | | | Bridge Years | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | | **2022** | | **2023** | | **2024** | | **2025** | | **2026** | |
| | Actual | Actual | YoY Var. | Actual | YoY Var. | Actual | YoY Var. | Actual | YoY Var. | Plan | YoY Var. | Plan | YoY Var. |
| | $M | $M | % | $M | % | $M | % | $M | % | $M | % | $M | % |
| Gross | 6.52 | 7.04 | 7.9% | 12.46 | 77.1% | 7.41 | (40.6%) | 5.31 | (28.3%) | 6.15 | 15.7% | 5.09 | (17.3%) |
| Contributions | - | - | - | 0.08 | N/A[2] | 0.08 | (4.9%) | - | (100.0%) | - | N/A[2] | - | - |
| Net | 6.52 | 7.04 | 7.9% | 12.38 | 75.9% | 7.33 | (40.8%) | 5.31 | (27.5%) | 6.15 | 15.7% | 5.09 | (17.3%) |
| Total Gross | 50.27 | 71.92 | 43.1% | 101.06 | 40.5% | 88.61 | (12.3%) | 94.64 | 6.8% | 79.25 | (16.3%) | 103.80 | 25.3% |
| Total Contribution | 15.08 | 18.49 | 22.6% | 22.65 | 22.5% | 36.07 | 59.2% | 25.77 | (28.6%) | 19.50 | (24.3%) | 26.60 | 13.2% |
| Total Net | 35.19 | 53.43 | 51.8% | 78.41 | 46.8% | 52.55 | (33.0%) | 68.88 | 31.1% | 59.75 | (13.2%) | 77.20 | 29.2% |
| System O&M | 13.98 | 14.93 | 6.8% | 15.71 | 5.2% | 15.55 | (1.0%) | 20.44 | 31.4% | 20.09 | (1.7%) | 21.27 | 5.8% |

1

Table 3 presents the capital expenditures for the historical and bridge (2020 – 2026) period, and the forecasted (2027 -2031) period, with system O&M and excluding ICM amounts, providing a clear representation of base capital investments over these periods.

**Table 3: Capital Expenditures and System O&M without ICM**

| Category | Historical Years | | | | | Bridge Years | | Forecast Years | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| | Actual | Actual | Actual | Actual | Actual | Plan | Plan | Plan | Plan | Plan | Plan | Plan |
| | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M |
| System Access | | | | | | | | | | | | |
| Gross | 21.90 | 33.06 | 37.06 | 55.68 | 44.66 | 40.65 | 45.72 | 99.89 | 66.09 | 63.38 | 70.20 | 74.59 |
| Contributions | 14.77 | 19.14 | 20.39 | 34.51 | 23.12 | 17.83 | 21.57 | 66.17 | 40.27 | 33.28 | 37.87 | 41.15 |
| Net | 7.13 | 13.93 | 16.67 | 21.17 | 21.54 | 22.82 | 24.15 | 33.73 | 25.82 | 30.10 | 32.33 | 33.44 |
| System Renewal | | | | | | | | | | | | |
| Gross | 14.97 | 18.49 | 23.65 | 17.36 | 23.97 | 19.60 | 15.36 | 31.31 | 53.66 | 56.02 | 68.76 | 70.22 |
| Contributions | - | (0.81) | 0.01 | 0.42 | 0.65 | 1.07 | - | - | - | - | - | - |
| Net | 14.97 | 19.30 | 23.64 | 16.94 | 23.33 | 18.54 | 15.36 | 31.31 | 53.66 | 56.02 | 68.76 | 70.22 |
| System Service | | | | | | | | | | | | |
| Gross | 3.35 | 5.94 | 5.06 | 3.47 | 8.74 | 6.13 | 13.66 | 44.57 | 39.83 | 46.80 | 35.39 | 72.17 |
| Contributions | - | 0.17 | - | 0.01 | (0.01) | 0.61 | 4.66 | - | - | - | - | - |
| Net | 3.35 | 5.77 | 5.06 | 3.46 | 8.74 | 5.52 | 8.99 | 44.57 | 39.83 | 46.80 | 35.39 | 72.17 |
| General Plant | | | | | | | | | | | | |
| Gross | 6.52 | 7.04 | 12.05 | 7.33 | 5.31 | 6.15 | 5.09 | 13.73 | 10.42 | 16.81 | 12.52 | 12.31 |

| Category | Historical Years | | | | | Bridge Years | | Forecast Years | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| | Actual | Actual | Actual | Actual | Actual | Plan | Plan | Plan | Plan | Plan | Plan | Plan |
| | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M |
| Contributions | - | - | - | - | - | - | - | - | - | - | - | - |
| Net | 6.52 | 7.04 | 12.05 | 7.33 | 5.31 | 6.15 | 5.09 | 13.73 | 10.42 | 16.81 | 12.52 | 12.31 |
| Total Gross | 46.74 | 64.53 | 77.81 | 83.84 | 82.69 | 72.53 | 79.82 | 189.50 | 170.00 | 183.02 | 186.88 | 229.29 |
| Total Contribution | 14.77 | 18.49 | 20.40 | 34.94 | 23.77 | 19.50 | 26.23 | 66.17 | 40.27 | 33.28 | 37.87 | 41.15 |
| Total Net | 31.97 | 46.03 | 57.41 | 48.90 | 58.93 | 53.03 | 53.59 | 123.34 | 129.73 | 149.74 | 149.01 | 188.14 |
| System O&M | 13.98 | 14.96 | 15.71 | 15.55 | 20.44 | 20.09 | 21.27 | 25.16 | 27.66 | 28.32 | 29.10 | 29.89 |

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Table 4 below presents the planned and actual capital expenditure values from 2020-2031, including the ICM and system O&M during historical and bridge periods (2020-2026). As Elexicon transitions to a capital expenditure-based representation for the forecast period (2027 – 2031), this table establishes a consistent basis for comparing historical, bridge, and forecast investment levels. Including ICM amounts within the historical actuals and bridge plan is necessary because these investments represent approved capital expenditure beyond base rates. The resulting financial figures capture the complete scope of capital activity and provide a baseline for evaluating future forecasts.

**Table 4: Capital Expenditures and System O&M with ICM**

| Category | Historical Years | | | | | Bridge Years | | Forecast Years | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| | Actual | Actual | Actual | Actual | Actual | Plan | Plan | Plan | Plan | Plan | Plan | Plan |
| | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M |
| System Access | | | | | | | | | | | | |
| Gross | 22.09 | 33.07 | 42.19 | 58.67 | 44.73 | 40.65 | 45.72 | 99.89 | 66.09 | 63.38 | 70.20 | 74.59 |
| Contributions | 15.08 | 19.14 | 22.44 | 35.25 | 22.93 | 17.83 | 21.57 | 66.17 | 40.27 | 33.28 | 37.87 | 41.15 |
| Net | 7.02 | 13.94 | 19.75 | 23.43 | 21.80 | 22.83 | 24.15 | 33.73 | 25.82 | 30.10 | 32.33 | 33.44 |
| System Renewal | | | | | | | | | | | | |
| Gross | 14.97 | 18.50 | 24.27 | 17.68 | 24.97 | 21.24 | 22.20 | 31.31 | 53.66 | 56.02 | 68.76 | 70.22 |
| Contributions | 0.00 | (0.81) | 0.01 | 0.42 | 0.65 | 1.06 | - | - | - | - | - | - |
| Net | 14.97 | 19.31 | 24.26 | 17.26 | 24.33 | 20.17 | 22.20 | 31.31 | 53.66 | 56.02 | 68.76 | 70.22 |
| System Service | | | | | | | | | | | | |
| Gross | 6.69 | 13.31 | 22.14 | 4.85 | 19.63 | 11.21 | 30.79 | 44.57 | 39.83 | 46.80 | 35.39 | 72.17 |
| Contributions | - | 0.17 | 0.12 | 0.32 | 2.19 | 0.61 | 5.03 | - | - | - | - | - |
| Net | 6.69 | 13.14 | 22.02 | 4.53 | 17.43 | 10.61 | 25.76 | 44.57 | 39.83 | 46.80 | 35.39 | 72.17 |

| Category | Historical Years | | | | | Bridge Years | | Forecast Years | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| | Actual | Actual | Actual | Actual | Actual | Plan | Plan | Plan | Plan | Plan | Plan | Plan |
| | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M | $M |
| General Plant | | | | | | | | | | | | |
| Gross | 6.52 | 7.04 | 12.46 | 7.41 | 5.31 | 6.15 | 5.09 | 13.73 | 10.42 | 16.81 | 12.52 | 12.31 |
| Contributions | - | - | 0.08 | 0.08 | - | - | - | - | - | - | - | - |
| Net | 6.52 | 7.04 | 12.38 | 7.33 | 5.31 | 6.15 | 5.09 | 13.73 | 10.42 | 16.81 | 12.52 | 12.31 |
| Total Gross | 50.27 | 71.92 | 101.06 | 88.61 | 94.64 | 79.25 | 103.80 | 189.50 | 170.00 | 183.02 | 186.88 | 229.29 |
| Total Contribution | 15.08 | 18.49 | 22.65 | 36.07 | 25.77 | 19.50 | 26.60 | 66.17 | 40.27 | 33.28 | 37.87 | 41.15 |
| Total Net | 35.19 | 53.43 | 78.41 | 52.55 | 68.88 | 59.75 | 77.20 | 123.34 | 129.73 | 149.74 | 149.01 | 188.14 |
| System O&M | 13.98 | 14.93 | 15.71 | 15.55 | 20.44 | 20.09 | 21.27 | 25.16 | 27.66 | 28.32 | 29.10 | 29.89 |

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## 1.1 Plan vs Actual Variances for the Historical Period (ISA)

This section examines the variances between the planned and actual in-service additions (ISA) for the historical period (2020–2024), focusing on variances that exceed the materiality threshold of $700K. The planned values are based on the EB-2022-0024 – Elexicon Energy Inc. ("Elexicon") Incremental Capital Module ("ICM") Application, with figures restated to reflect updated program classifications. Key reclassifications include consolidating Road Relocation and Customer Requested Work as Externally Initiated Plant Relocation, aligning Voltage & System Conversion under the System Service investment category, and merging Substation Upgrades, Feeder Enhancements, and System Reliability Improvements under the Grid Enhancements program.

### 1.1.1 System Access 2020-2024 Variance Analysis

**Table 5: System Access Historical Gross In-Service Additions**

| Category | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % |
| A1 Externally-Initiated Plant Relocation | 7.07 | 6.15 | (13.0%) | 25.05 | 4.40 | (82.4%) | 36.87 | 11.22 | (69.6%) | 8.13 | 14.81 | 82.3% | 3.87 | 9.14 | 136.4% |
| A2 Customer & Generation Connections | 10.37 | 14.77 | 42.5% | 8.94 | 18.60 | 107.9% | 8.96 | 9.96 | 11.1% | 11.48 | 14.51 | 26.5% | 11.58 | 5.64 | (51.3%) |
| A3 System Expansion | 3.23 | 3.10 | (4.0%) | 7.95 | 2.44 | (69.3%) | 19.43 | 5.24 | (73.0%) | 16.21 | 1.66 | (89.7%) | 10.86 | 0.58 | (94.6%) |
| A4 Metering & AMI 2.0 | 1.28 | 1.24 | (3.4%) | 1.84 | 1.12 | (39.4%) | 1.73 | 0.81 | (53.0%) | 1.27 | 1.74 | 36.9% | 2.48 | 2.20 | (11.3%) |
| System Access Total | 21.95 | 25.26 | 15.1% | 43.79 | 26.55 | (39.4%) | 66.99 | 27.23 | (59.4%) | 37.09 | 32.73 | (11.7%) | 28.79 | 17.56 | (39.0%) |

**Table 6: System Access Historical Net In-Service Additions**

| Category | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % |
| A1 Externally-Initiated Plant Relocation | 2.58 | 2.37 | (8.3%) | 3.97 | 1.74 | (56.0%) | 9.75 | 5.34 | (45.3%) | 2.79 | 9.17 | 228.3% | 2.05 | 5.01 | 144.2% |
| A2 Customer & Generation Connections | 4.13 | 5.13 | 24.2% | 5.51 | 7.39 | 34.2% | 4.12 | 5.68 | 37.9% | 5.31 | 6.36 | 19.9% | 5.36 | 2.45 | (54.4%) |
| A3 System Expansion | 0.45 | 0.18 | (59.5%) | - | - | N/A[3] | 2.96 | 1.14 | (61.6%) | - | 0.99 | N/A[3] | - | (0.32) | N/A[3] |
| A4 Metering & AMI 2.0 | 1.28 | 1.24 | (3.4%) | 1.84 | 1.11 | (39.4%) | 1.73 | 0.81 | (53.0%) | 1.27 | 1.74 | 36.9% | 2.48 | 2.20 | (11.3%) |
| System Access Total | 8.44 | 8.92 | 5.6% | 11.31 | 10.25 | (9.4%) | 18.56 | 12.97 | (30.1%) | 9.37 | 18.26 | 94.9% | 9.89 | 9.34 | (5.6%) |

During the 2020-2024 period, System Access net actual ISA amounts were $59.74M, representing 23.8% of the total ISA amount. Actual investments were 3.7% higher than planned, with Externally Initiated Plant Relocation being the largest contributor to the overspend.

Additionally, the Customer & Generation Connections program experienced significant increases, driven by continued growth in residential subdivisions, and accounted for 45.2% of all System Access net ISA amounts. Investments in this program were essential to maintain safe, reliable, and efficient access to the distribution system while meeting rising customer demand. These investments support regional housing and economic development objectives, enable customer generation connections along with renewable energy and storage initiatives, and ensure Elexicon meets established customer service standards.

Furthermore, Elexicon's System Expansion and Metering & AMI 2.0 programs have supported customer growth by expanding infrastructure and installing new meters for customer connections each year, accounting for 3.3% and 11.9% of all System Access ISA amounts respectively.

- **Externally Initiated Plant Relocation** net actual ISA amounts totalled $45.71M on a gross basis and $23.62M on a net basis from 2020–2024, representing a key component of System Access

[3] Variance percentage is shown as 'N/A' where the planned budget is zero, as the calculation is not applicable. No net budget was allocated for these years, as the total gross cost was assumed to be fully customer-contributed.

investments. These investments were primarily driven by road relocation projects and third-party requests requiring distribution asset relocations. Gross and net in-service totals operated below plan between 2020–2022 due to deferrals of major projects but accelerated in 2023–2024 as delayed projects were executed along with new projects. Similarly, on a net basis, investments were below plan by a total of $6.64M in 2021–2022 due to deferrals of major projects such as Durham-Scarborough Bus Rapid Transit (BRT) Highway 2 (Liverpool × Dixie) and Peter Matthews (Brock × Toronto Landfill). These projects were completed in 2023, resulting in in-service amounts above plan by $6.4M. In 2024, Elexicon in-serviced more than planned by $2.5M, primarily driven by new road relocation projects within the Durham Region where Elexicon did not receive initial commitments from the region at the time of budget development.

- **Customer & Generation Connections** net actual ISA amounts totalled $63.48M on a gross basis and $27.01M on a net basis from 2020-2024, with actual in-service amounts above plan from 2020 to 2023 and below plan in 2024. The program remains inherently volatile as it is primarily driven by external factors. Due to the customer driven nature of this program, customer timelines may change, resulting in variances year-over-year. Elexicon has observed a consistent and accelerating upward trend in customer connection activity, with average annual growth across all customer class rates over the 2015-2019 period at 1.2%, and 1.4% over the 2020-2024 period.

- **System Expansion** net actual ISA amounts totalled $13.02M on a gross basis and $1.99M on a net basis from 2020–2024. Actual gross in-service amounts were consistently below the planned gross budget across the historical period, while net results were generally below the plan except for 2023. The reduced gross in-service amount reflects project cancellations and timing delays driven by external parties, primarily in Ajax, Pickering and Whitby, whereas the smaller net variance — and the increase in 2023 — resulted from variances in customer contributions.

- **Metering & AMI 2.0** net actual ISA amounts totalled $7.11M both on a gross and net basis from 2020–2024, with actual in-service amounts below the planned budget in 2021 and 2022 by more than the materiality threshold. The variance was primarily driven by material constraints, as metering equipment was difficult to procure during this period due to delivery delays caused by global supply chain disruptions.

Elexicon's service territories continue to experience rapid development activity and corresponding load growth. Variances observed across programs in the historical period were driven by project deferrals associated with external coordination requirements and supply chain constraints. These deferrals necessitated an accelerated level of execution in 2023 to complete outstanding work and maintain alignment with ongoing customer growth. In the forecast period, Elexicon will continue to advance investments within the System Access category to accommodate future customer connections and fulfill non-discretionary obligations required to support growth and development across its distribution system.

### 1.1.2 System Renewal 2020-2024 Variance Analysis

**Table 7: System Renewal Historical Gross In-Service Additions**

| Category | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % |
| R1 Substation Renewal | 2.39 | 2.74 | 14.4% | 3.56 | 2.08 | (41.7%) | 5.88 | 1.73 | (70.6%) | 7.61 | 3.44 | (54.7%) | 4.72 | 5.35 | 13.3% |
| R2 Underground System Renewal | 3.53 | 3.40 | (3.7%) | 6.63 | 8.17 | 23.2% | 3.33 | 3.51 | 5.2% | 2.02 | 1.70 | (15.9%) | 4.47 | 0.53 | (88.3%) |
| R3 Overhead System Renewal | 4.20 | 4.26 | 1.3% | 3.53 | 7.12 | 101.7% | 3.86 | 7.33 | 90.0% | 3.54 | 5.47 | 54.6% | 4.59 | 3.70 | (19.5%) |
| R4 Reactive Capital | 2.32 | 2.55 | 9.9% | 1.91 | 1.91 | - | 1.85 | 7.80 | 321.0% | 1.85 | 6.15 | 232.9% | 3.37 | 10.65 | 216.4% |
| System Renewal Total | 12.44 | 12.94 | 4.0% | 15.63 | 19.28 | 23.3% | 14.92 | 20.36 | 36.4% | 15.01 | 16.77 | 11.7% | 17.15 | 20.22 | 17.9% |

**Table 8: System Renewal Historical Net In-Service Additions**

| Category | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % |
| R1 Substation Renewal | 2.39 | 2.74 | 14.4% | 3.56 | 2.88 | (19.3%) | 5.88 | 1.73 | (70.6%) | 7.61 | 3.03 | (60.2%) | 4.72 | 5.35 | 13.3% |
| R2 Underground System Renewal | 3.53 | 3.40 | (3.7%) | 6.63 | 8.17 | 23.2% | 3.33 | 3.51 | 5.2% | 2.02 | 1.70 | (15.9%) | 4.47 | 0.53 | (88.3%) |
| R3 Overhead System Renewal | 4.20 | 4.26 | 1.4% | 3.53 | 7.12 | 101.7% | 3.86 | 7.33 | 90.0% | 3.54 | 5.47 | 54.6% | 4.59 | 3.70 | (19.5%) |
| R4 Reactive Capital | 2.32 | 2.55 | 9.9% | 1.91 | 1.91 | 0.1% | 1.85 | 7.80 | 321.0% | 1.85 | 6.15 | 232.9% | 3.37 | 10.35 | 207.5% |
| System Renewal Total | 12.44 | 12.94 | 4.0% | 15.63 | 20.07 | 28.4% | 14.92 | 20.36 | 36.5% | 15.01 | 16.35 | 8.9% | 17.15 | 19.92 | 16.2% |

During the 2020-2024 period, System Renewal net actual ISA amounts were $89.65M, representing 35.7% of the total ISA amount. Investments in this area were 19.3% above the planned amounts. System Renewal investments continued to be challenged by the increasing rate of deteriorating assets – both condition and age – and the increasing reactive capital investment needs. These System Renewal investments reflect the need to address deteriorating assets and ensure critical infrastructure continues to operate safely and reliably.

There were significant increases in the Reactive Capital program occurring in 2022, 2023, and 2024, due to a combination of extreme weather events and a higher number of failures, with the Reactive Capital program accounting for 32.1% of all System Renewal in-service addition amounts. This further highlights the increased need for planned System Renewal investments in Overhead, Underground, and Substations to minimize the investment increases in Reactive Capital.

Overhead System Renewal net actual ISA amounts were consistently above the planned amounts in 2020 to 2023, with 2024 actual in-service amounts lower than planned values. Overhead System Renewal accounts for 31.1% of all System Renewal in-service amounts. Substation Renewal and Underground Renewal programs on average experienced fluctuations year over year, with investments varying depending on the need to reallocate funds to higher priority projects and programs. Together, these

programs accounted for approximately 17.5% and 19.3% of all System Renewal in-service additions respectively. Additionally, some investments in Substation Renewal were deferred due to delays in delivery of major equipment as a result of supply chain issues.

- **Substation Renewal** net actual ISA amounts totalled $15.72M during 2020-2024 and contributed to 17.5% of all investments in System Renewal. Actual amounts were below the planned budget on a net basis from 2021 to 2023, with only slight increases in 2020 and 2024. The net variance was driven by the deferral of several projects due to the need to reallocate funds to other higher priority projects and programs. Furthermore, Elexicon experienced delays in the delivery of equipment such as transformers and switchgear, which caused several substation renewal projects to be deferred. Notably in years 2022 and 2023, Elexicon in-serviced less than planned due to delayed switchgear replacements in Monarch MS and Liberty MS.

- **Underground System Renewal** net actual ISA amounts totalled $17.30M during 2020-2024 and contributed to 19.3% of all investments in System Renewal. Actual amounts were below the planned amounts in 2021, 2023 and 2024. The net variance underspend is primarily attributed to the deferral of planned underground cable replacement and rejuvenation work, as funds were reallocated to address other higher priority projects and higher-than-forecasted Reactive Capital work. Increased levels of underground primary cable failures and weather-related damage required immediate response under the Reactive Capital program to maintain service continuity to customers.

- **Overhead System Renewal** net actual ISA amounts totalled $27.89M during 2020-2024 and contributed to 31.1% of all investments in System Renewal. Investments in this area were largely driven by the need to address aging and failing infrastructure, which significantly affected system reliability and caused frequent outages. As defective equipment associated with overhead infrastructure was a major contributor to reliability, Elexicon made investments in projects to renew wood poles, overhead line switches, quick sleeves and porcelain insulators/cutouts, that

were negatively impacting Elexicon operations. The investments were critical to ensuring the safe and reliable operation of the overhead distribution system.

- **Reactive Capital** net actual ISA amounts totalled $28.76M during 2020-2024 and contributed to 32.1% of all investments in System Renewal. Actual in-serviced amount in the Reactive Capital program was above the plan on a net basis from 2022 to 2024. The variance is primarily attributed to unplanned work, driven by severe weather events and elevated levels of asset failures. In 2022, Reactive Capital in-service amount totalled $5.94M above plan, and $4.27M of this was attributed to the May 2022 derecho event that caused significant damage across southern Ontario. In 2023, Elexicon experienced a higher rate of underground primary cables, switches and overhead connections failures across its service areas. Moreover, a severe winter storm struck the Gravenhurst area in 2024, bringing heavy snowfall, strong winds, and blizzard conditions. The storm caused significant damage to Elexicon's assets, resulting in Gravenhurst reactive in-service amounts exceeding the planned budget by $1.54M (1329.7%). The rise in unplanned failures reflects the broader condition of assets in poor or very poor condition and approaching or beyond their TUL, resulting in increased reactive capital investment to restore service continuity.

Historically, planned investments within the System Renewal category were below system needs, increasing the rate of deteriorating assets in both age and condition leading to a decline in system reliability, and contributing to the growth in reactive spend. To address this, Elexicon plans to increase future investments in planned system renewal programs to more effectively manage system reliability and asset age and condition, stabilize long-term reactive spending, and reduce reliance on reactive replacements.

### 1.1.3 System Service 2020-2024 Variance Analysis

**Table 9: System Service Historical Gross In-Service Additions**

| Category | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % |
| S1 Substation Growth | - | 0.68 | N/A[4] | 1.23 | 4.93 | 301.2% | 39.51 | 36.39 | (7.9%) | 2.04 | 1.12 | (45.0%) | - | 7.36 | N/A[4] |
| S2 Grid Enhancements | 1.29 | 1.03 | (19.8%) | 4.62 | 4.01 | (13.2%) | 4.19 | 1.83 | (56.2%) | 6.48 | 4.60 | (29.1%) | 5.01 | 2.55 | (49.1%) |
| S3 Voltage & System Conversion | 0.75 | 0.69 | (8.6%) | 0.50 | 0.95 | 91.0% | 0.38 | 0.03 | (90.8%) | - | - | - | 1.71 | - | (100.0%) |
| System Service Total | 2.04 | 2.40 | 17.6% | 6.35 | 9.89 | 55.9% | 44.08 | 38.26 | (13.2%) | 8.52 | 5.72 | (32.9%) | 6.72 | 9.91 | 47.4% |

**Table 10: System Service Historical Net In-Service Additions**

| Category | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % |
| S1 Substation Growth | - | 0.68 | N/A[4] | 1.23 | 4.93 | 301.2% | 39.51 | 36.39 | (7.9%) | 2.04 | 1.12 | (45.0%) | - | 7.36 | N/A[4] |
| S2 Grid Enhancements | 1.29 | 1.03 | (19.8%) | 4.62 | 3.84 | (16.8%) | 4.19 | 1.83 | (56.2%) | 6.48 | 4.16 | (35.8%) | 5.01 | 1.31 | (73.8%) |
| S3 Voltage & System Conversion | 0.75 | 0.69 | (8.6%) | 0.50 | 0.95 | 91.0% | 0.38 | 0.03 | (90.8%) | - | - | - | 1.71 | - | (100.0%) |
| System Service Total | 2.04 | 2.40 | 17.6% | 6.35 | 9.73 | 53.2% | 44.08 | 38.26 | (13.2%) | 8.52 | 5.28 | (38.0%) | 6.72 | 8.68 | 29.0% |

During the 2020-2024 period, System Service net actual ISA amounts were $64.35M, representing 25.6% of the total ISA amount. This program in-serviced 5.0% less than the planned amounts, with 2021 exhibiting the highest level of variance with a net amount of 53.2% above the planned amount.

Substation Growth accounted for 78.5% of the System Service investments and in-serviced 18.0% more than planned, experiencing the largest investment increase among System Service programs. This increase

[4] Variance percentage is shown as 'N/A' where the planned ISA is zero, as the calculation is not applicable in these cases.

is attributed to land acquisition for the Seaton MTS and true-up payments to Hydro One for Whitby TS and Seaton MTS. Furthermore, Grid Enhancements and Voltage & System Conversion represented 18.9% and 2.6% of the System Service portfolio, with Grid Enhancements operating with 43.6% less than planned, accounting for the delay of feeder enhancement projects.

- **Substation Growth** net actual ISA amounts totalled $50.49M during 2020-2024 and contributed to 78.5% of all investments in System Service. The net actual ISA amounts in this program exceeded the plan in years 2021 and 2024, and below the planned amounts in 2022-2023. This was primarily due to true-up costs associated with Seaton MTS and Whitby TS totalling to $7.36M in 2024. These true-up costs result from differences between the assumptions in Elexicon's load forecasts relative to actual demand that occurred, triggering adjustments in the cost recovery agreements with Hydro One. Variance fluctuations for 2021 and 2022 are attributed to land acquisition for Seaton MTS since it was received and capitalized in 2021, one year earlier than planned. Additionally, the land costs exceeded initial estimates due to higher market valuations and compliance-related in-service amounts, adding to the overall Substation Growth program variance.
- **Grid Enhancements** net actual ISA amounts totalled $12.19M during 2020-2024 and contributed to 18.9% of all investments in System Service. Net actual ISA amount in Grid Enhancements was below plan from 2021 to 2024, and the variance is primarily attributed to the deferral of major feeder enhancement projects that were scheduled in coordination with regional customer expansion initiatives. Several planned projects were directly affected by dependencies on external development activity, including the Peter Matthews (Brock × Toronto Landfill) road relocation project, which was deferred in 2022. In 2023, major grid enhancement work experienced challenges that extended project timelines. Additionally, in 2024, Elexicon in-serviced less than plan due to the deferral of feeder enhancement projects to manage budget constraints. The need to manage overall spending also affected Grid Enhancement projects, as Elexicon prioritized other programs to manage system growth and reliability.
- **Voltage & System Conversion** net actual ISA amounts totalled $1.67M during 2020-2024 and contributed to 2.6% of all investments in System Service. This program in-serviced below the planned

budget in 2024 on a net basis. This variance primarily reflects the deferred phases 3 and 4 of the Cavan South Voltage Conversion projects in 2024, due to prioritization of other critical programs.

Elexicon's current system capacity constraints reflect the need for increased investment within the System Service program as electrical demand from new and existing customers continues to rise across the service regions. Deferrals in in-service grid enhancements and voltage conversion are accounted for through increased investment in System Service during the 2027-2031 period. This will allow Elexicon to support current and future customer load growth, grid modernization and maintain reliability.

### 1.1.4 General Plant 2020-2024 Variance Analysis

**Table 11: General Plant Historical Gross In-Service Additions**

| Category | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % |
| P1 Facilities Management | 0.94 | 0.79 | (16.2%) | 3.58 | 0.79 | (77.8%) | 6.12 | 5.45 | (11.0%) | 0.65 | 1.36 | 109.1% | 0.49 | 0.69 | 41.9% |
| P2 Fleet | 0.87 | 0.80 | (7.5%) | 1.86 | 1.50 | (19.4%) | 1.41 | 2.46 | 74.1% | 1.87 | 1.66 | (11.4%) | 1.50 | 0.88 | (41.3%) |
| P3 IT Systems | 3.67 | 3.78 | 3.0% | 4.88 | 3.00 | (38.4%) | 3.64 | 3.34 | (8.3%) | 3.49 | 2.87 | (17.8%) | 2.53 | 2.44 | (3.5%) |
| P4 Equipment | 0.19 | 0.16 | (14.0%) | 0.16 | 0.17 | 9.0% | 0.19 | 0.46 | 137.3% | 0.12 | 0.44 | 279.0% | 0.11 | 0.36 | 238.2% |
| P5 OT Systems | 0.50 | 0.53 | 5.4% | 1.59 | 1.20 | (24.3%) | 1.62 | 1.37 | (15.5%) | 1.54 | 0.60 | (61.0%) | 0.65 | 0.59 | (8.4%) |
| General Plant Total | 6.16 | 6.06 | (1.7%) | 12.07 | 6.67 | (44.7%) | 12.99 | 13.07 | 0.6% | 7.66 | 6.92 | (9.7%) | 5.26 | 4.95 | (5.9%) |

**Table 12: General Plant Historical Net In-Service Additions**

| Category | 2020 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. | Plan | Actual | Var. |
| | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % | $M | $M | % |
| P1 Facilities Management | 0.94 | 0.79 | (16.2%) | 3.58 | 0.79 | (77.8%) | 6.12 | 5.45 | (11.0%) | 0.65 | 1.36 | 109.1% | 0.49 | 0.69 | 41.9% |
| P2 Fleet | 0.87 | 0.80 | (7.5%) | 1.86 | 1.50 | (19.4%) | 1.41 | 2.46 | 74.1% | 1.87 | 1.66 | (11.4%) | 1.50 | 0.88 | (41.3%) |
| P3 IT Systems | 3.67 | 3.78 | 3.0% | 4.88 | 3.00 | (38.4%) | 3.64 | 3.34 | (8.3%) | 3.49 | 2.87 | (17.8%) | 2.53 | 2.44 | (3.5%) |
| P4 Equipment | 0.19 | 0.16 | (14.0%) | 0.16 | 0.17 | 9.0% | 0.19 | 0.46 | 137.3% | 0.12 | 0.44 | 279.0% | 0.11 | 0.36 | 238.2% |
| P5 OT Systems | 0.50 | 0.53 | 5.4% | 1.59 | 1.20 | (24.3%) | 1.62 | 1.29 | (20.5%) | 1.54 | 0.53 | (66.0%) | 0.65 | 0.59 | (8.4%) |
| General Plant Total | 6.16 | 6.06 | (1.73%) | 12.07 | 6.67 | (44.7%) | 12.99 | 12.99 | 0.0% | 7.66 | 6.84 | (10.7%) | 5.26 | 4.95 | (5.9%) |

During the 2020-2024 period, General Plant net actual ISA amounts were $37.51M, representing 14.9% of the total ISA amount. Investments in this area were 15.0% below the plan. This variance reflects timing shifts across several programs, largely driven by the need for extended solution analysis, system compatibility assessment, and integration planning related to IT and OT solutions. These activities were necessary to ensure that new investments aligned with long-term architecture requirements, supported interoperability, and met operational needs.

Investments totalling net $9.08M were attributed to Facilities Management, with a significant portion attributed to the Belleville Operations Center relocation. Additionally, investments totalling $15.43M were directed towards IT infrastructure to maintain on-premises systems while transiting towards new software infrastructure, ensuring operational efficiency.

Fleet, Equipment, and OT Systems experienced fluctuations year-over-year. Together, these programs accounted for approximately 19.4%, 4.2% and 11.0% of all General Plant in-service additions respectively.

- **Facilities Management** net actual ISA amounts totalled $9.08M during 2020-2024 and contributed to 24.2% of all investments in General Plant. Actual amounts were below the planned budget in 2021 and above in 2023, with only minor fluctuations in the remaining years. The primary driver of the variance was timing of activities related to the Belleville Operation Centre project. The relocation of the facility, originally budgeted at $2.60M in 2021, was deferred to 2022 due to

pandemic-related constraints. In addition, the SCADA communication upgrade was completed in 2023 to address critical communication network requirements in Belleville, contributing to the higher than planned ISA amounts in that year.

- **Fleet** net actual ISA amounts totalled $7.29M during 2020-2024 and contributed to 19.4% of all investments in General Plant. Actual amounts were above the planned budget in 2022, with only minor decreases observed in the remaining years. The variance is primarily attributed to higher than anticipated costs for vehicle replacements and equipment installations, driven by market price increases and updated vehicle specifications required to support operational needs.

- **IT Systems** net actual ISA amounts totalled $15.43M during 2020-2024 and contributed to 41.1% of all investments in General Plant. Actual amounts fell, with actual amounts below the planned budget in 2021. The variance is primarily attributed to deferrals in project execution resulting from extended solution evaluation procurement activities, and integration planning activities across several IT initiatives. In 2021, project delays occurred to allow for the selection and procurement of appropriate software solutions and supporting infrastructure. These adjustments continued to influence the pacing of subsequent projects, resulting in lower ISA amounts throughout the period.

- **Equipment** net actual ISA amounts totalled $1.58M during 2020-2024 and contributed to 4.2% of all investments in General Plant. Yearly variance in the Equipment program did not exceed the materiality threshold of 700K. The overall variance from 2021 to 2024 is primarily attributed to higher material and equipment costs and additional investments required to support field operations. Increased unit price for specialized tools, testing devices, and safety equipment contributed to higher ISA amounts, along with incremental purchases of metering equipment. These investments were necessary to ensure that crews remained properly equipped to undertake construction, maintenance, and testing activities safely and efficiently.

- **OT Systems** net actual ISA amounts totalled $4.13M during 2020-2024 and contributed to 11.0% of all investments in General Plant. Actual ISA amounts were below the planned budget in 2023. The variance is primarily attributed to deferred spending on operational technology equipment

and system implementations, including ADMS purchase and phased implementation, Callout Software, and GIS vendor migration. This paced approach allowed Elexicon to fully assess and refine the technology roadmap, ensuring that planned investments were future-proof, strategically sequenced, considered requirements across multiple platforms, and aligned with the Utility's long-term operational and regulatory needs.

Overall, the General Plant ISA amount variances primarily reflect project timing adjustments and the deferral of IT and OT initiatives to align with integration and sequencing requirements. These shifts resulted in lower than planned ISA amounts across multiple programs and created emerging gaps in supporting infrastructure and system readiness. Elexicon will continue investing in General Plant programs to maintain supporting infrastructure and ensure alignment with operational and system requirements in the 2027-2031 DSP period.

## 1.2 Forecast vs. Historical Expenditures

Table 13 presents the contribution of each investment category to the total net capital expenditure for the historical, bridge and forecast periods. Over the 2027–2031 forecast period, System Renewal represents the largest share of Elexicon's planned capital expenditures, accounting for 37.5% of total net capital spending. This is followed by System Service at 32.0%, System Access at 21.4%, and General Plant at 9.1%. Compared to the 2020-2024 rate period, there is a shift towards System Renewal and System Service in the forecast investments, including:

- Targeted improvement in both the age (typical useful life) and condition (poor and very poor) of assets through System Renewal program investments to improve grid reliability and resiliency;
- Capacity investments within System Service to alleviate existing capacity constraints and meet forecasted load growth demand across the service territory, while concurrently modernizing the grid to enhance resiliency and reliability.

**Table 13: Net Historical, Bridge, and Forecast Share of Total by Investment Category[5]**

| Category | Historical + Bridge Share of Total (%) | | | | | | | | Forecast Share of Total (%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **Avg.** | **2027** | **2028** | **2029** | **2030** | **2031** | **Avg.** |
| System Access | 19.9% | 26.1% | 25.2% | 44.6% | 31.7% | 38.2% | 31.3% | 31.0% | 27.3% | 19.9% | 20.1% | 21.7% | 17.8% | 21.4% |
| System Renewal | 42.5% | 36.1% | 30.9% | 32.9% | 35.3% | 33.8% | 28.8% | 34.3% | 25.4% | 41.4% | 37.4% | 46.1% | 37.3% | 37.5% |
| System Service | 19.0% | 24.6% | 28.1% | 8.6% | 25.3% | 17.8% | 33.4% | 22.4% | 36.1% | 30.7% | 31.3% | 23.8% | 38.4% | 32.0% |
| General Plant | 18.5% | 13.2% | 15.8% | 13.9% | 7.7% | 10.3% | 6.6% | 12.3% | 11.1% | 8.0% | 11.2% | 8.4% | 6.5% | 9.1% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

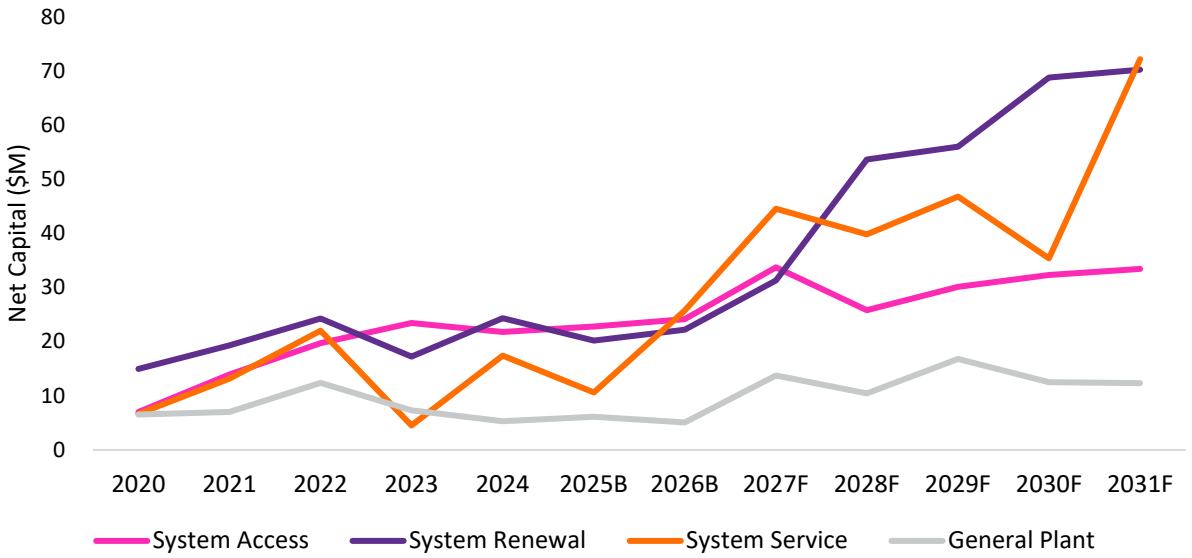
A comparison of Elexicon's capital expenditures in the DSP's forecast period as compared to the historical period is provided in the following subsections.

[5] Percentages may not sum exactly due to rounding

### 1.2.1 Overall Capital Expenditures

Figure 1 shows the net capital expenditure trends over the 2020 to 2031 period for underlying investment categories. The annual average net capital expenditures during the forecast period are projected to be approximately 143.5% higher than the combined annual average of the historical and bridge years. The projected increase in capital expenditures across the forecast period reflects targeted investments across all four major investment categories. Increase in System Access investments are to alleviate current capacity constraints while also accommodating future customer load growth within Elexicon's service territory. Similarly, increase in System Renewal investments are to replace aging and degraded assets to ensure continued safety and reliability of the electricity supply. System Service expenditures also increase to support capacity upgrades, feeder enhancements, reliability improvements and grid resiliency, including the construction of a new transformer station. Meanwhile, General Plant investments support the continued operation and growth of Elexicon's internal capabilities, including upgrades to fleet, IT/OT systems, tools, buildings, and equipment.

**Figure 1: Overall Expenditure Trends with ICM**




Over the historical and bridge period, net capital expenditures demonstrated notable yearly fluctuations. From 2020 to 2022, the net capital expenditure rose significantly and consistently with an average year-

over-year variance of 49.3%. This growth is mostly driving increases in System Access and System Service investments, specifically the Seaton MTS in 2022. However, a downward trend is shown for the 2022-2023 period where the net capital expenditures were reduced by $25.86M driven by a reduction in System Service investments. In the subsequent years, the trend showed periods of increase in 2024 attributed to the Monarch MS Switchgear Replacement along true-up costs to Hydro One. Beginning in 2026, a notable upward trend in expenditure is observed, driven primarily by large-scale initiatives such as substation growth and renewal, including the Sandy Beach Rebuild and the Belleville DESN 2 ICM projects. These investments are necessary to address aging infrastructure, capacity constraints, and to accommodate future customer load growth.

A notable step increase in net capital expenditures is forecasted in 2027, with a 59.8% expenditure increase from 2026. The primary drivers for this year-over-year step increase are due to the System Service (Substation Growth and Grid Enhancement), and System Renewal (Substation Renewal) investment categories. Another step increase in net capital expenditures is forecasted to be in 2031, with System Service (Substation Growth and Grid Enhancements) and System Renewal (Underground System Renewal) being the main drivers of the increase. The projected increase in capital expenditures across the forecast period reflects targeted investments across all four major investment categories with the GTA East Transformer Station project making up a large portion of the investment in the System Service category.

Overall forecasted expenditures are higher than historical average primarily driven by the System Renewal and System Service investment categories. Key contributors to the System Renewal budget include annual Substation Renewal projects from 2027 to 2031 and investments to underground and overhead assets to replace aging and deteriorating assets. Increased spending for the System Service investment category is primarily driven by station and feeder enhancements to meet the future customer load growth and to address system capacity constraints in Whitby, Ajax, Belleville, Uxbridge and Pickering. The GTA East Transformer Station is planned to be in service in 2031, which will enable greenfield communities and development in the North Pickering and North Whitby areas.

The following subsections describe the planned capital expenditures in each investment category in more detail. Together, these capital plans are designed to meet the four performance outcomes set by the OEB

and align with Elexicon's Asset Management (AM) objectives outlined in Exhibit 2B – Tab 3 – Schedule 1. The overarching objective is to continue delivering safe, reliable, and affordable electricity while supporting ongoing and future load growth in Elexicon's service area.

### 1.2.2 System Access

**Table 14: System Access: 2020-2031 Net Expenditures with ICM**

| Category | Actual ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| System Access | 7.02 | 13.94 | 19.75 | 23.43 | 21.80 | 22.82 | 24.15 | 33.73 | 25.82 | 30.10 | 32.33 | 33.44 |

Historically, Elexicon saw a general increase in System Access spending from 2020 to 2023 with a slight step down in 2024. New residential developments and Victoria Street West relocation were significant contributors to the increase in 2021. Multiple feeder expansions in Pickering and road relocation projects including The Bus Rapid Transit (BRT) relocation caused the step up in 2022. The final increase in 2023 is attributed to the Bowmanville Avenue relocation and the Whites Road expansion. 2024 saw a sharp increase in system expansion projects, which was offset by a decrease in relocation and connection spending.

Elexicon plans to increase its System Access investments during the 2027-2031 rate period by 63.7% compared to the historical plus bridge year average. System Access expenditures are largely driven by customer service requests for new connections and/or service upgrades, and mandated service obligations. These investments supporting customer connection requests, subdivision growth, and third-party driven projects (e.g., municipal expansions or infrastructure relocations) are essential to ensuring that Elexicon can support continued regional development across its fast-growing service territory.

The forecast increase reflects the significant acceleration of residential and economic growth expected across Durham Region and Elexicon's broader service area. Customer connection volumes, subdivision developments, and third-party infrastructure projects are projected to rise, consistent with the provincial housing targets and municipal growth plans.

Elexicon expects System Access expenditures to increase into the 2027-2031 rate period driven by key considerations below:

- **Sustained growth in customer connections:** Rising volumes of general service requests for customer connections and upgrades, driven by population growth, new subdivisions and commercial/industrial development across Elexicon's service territory.
- **Third-party and mandated relocations:** Relocation Elexicon's infrastructure to accommodate municipal roadworks, transit, and other infrastructure projects under the Public Service Works on Highways Act (PSWHA) and Building Transit Faster Act.
- **Infrastructure expansion:** Construction of new pole lines, switchgear, transformers, cable and accessories to support anticipated customer load growth due to household projections and Industrial/commercial developments
- **Integrate distributed generation:** Enabling the connection of customer owned generation and energy storage in accordance with the Electricity Demand Side Management Framework (eDSM) and provincial directives.
- **Regulatory compliance and service quality:** Maintaining Elexicon's ability to provide all customers with timely, cost-efficient, reliable, and safe access to the distribution system, as required by the OEB performance standards, DSC and applicable legislation.

Together, these System Access investments ensure Elexicon can continue to meet customer and regulatory requirements, support regional growth objectives, and facilitate the connection of emerging technologies such as distributed generation and energy storage.

### 1.2.3 System Renewal

**Table 15: System Renewal: 2020-2031 Net Expenditures with ICM**

| Category | Actual ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| System Renewal | 14.97 | 19.31 | 24.26 | 17.26 | 24.33 | 20.17 | 22.20 | 31.31 | 53.66 | 56.02 | 68.76 | 70.22 |

System renewal spending gradually increased from 2020 to 2022, before dropping in 2023, then returned to 2022 levels in 2024. The increase in 2021 was driven by cable rejuvenation and wood pole sustainment. There was a significant increase in reactive capital spending in 2022 attributed to windstorm repairs. 2024

saw an increase in reactive capital spending and substation renewal spending, driven by the Monarch switchgear replacement and transformer purchases for Fairport and Sandy Beach substation rebuilds.

Over the 2027-2031 rate period, Elexicon plans to increase investments in System Renewal by 175.1% compared to the historical plus bridge year average. System Renewal expenditures are strategic investments designed to proactively replace high-risk, aging, and poor-to-very poor condition infrastructure that has reached or exceeded its TUL. These strategic investments during the 2027-2031 rate period address deteriorated overhead, underground, and substation equipment. Replacing these assets with standardized equipment will allow for the risk of outages to be reduced, while improving operational efficiencies, enhancing system resiliency and restoring reliability to targeted performance levels. Condition (ACA) and age (TUL) results play a significant role in determining system renewal projects by providing asset age and health information for Elexicon to determine which investments are required over the DSP period.

System renewal projects will target those assets that are:

- At, approaching, or already exceeding their TUL (age),
- In Very Poor or Poor condition based upon in-field inspection & testing results (condition), and,
- Carry a high criticality of failure (risk).

During the historical period, investments in key System Renewal programs were constrained by competing funding requirements associated with mandatory customer-driven work. With many Elexicon assets now identified as being in poor and very poor condition and beyond their typical useful life, Elexicon has planned investments in renewal programs to address deteriorating asset age and condition to mitigate risk. The projected increase in expenditures in the forecast period reflects the need to address prior reductions and scaled-back projects.

Elexicon expects System Renewal expenditures to increase into the 2027-2031 rate period driven by key considerations below:

- **System reliability improvement:** Reduction of the frequency and duration of outages caused by equipment failure by proactively replacing aging and deteriorated distribution and station assets prior to failure.
- **Safety enhancements:** Minimization of safety hazards to the public and Elexicon's staff caused by catastrophic asset failure, such as arc flash explosions or fire, by proactively replacing assets likely to fail.
- **Environmental protections:** Installation of oil containment systems around power transformers, reducing the risk of oil spills.
- **Standardization of equipment and designs:** Upgrading legacy infrastructure to current standards to increase capacity, improve equipment protection, increase automation, increase safety features and ensure availability of spare parts for maintenance and repair. These projects include equipment standardization, such as replacing fused switches with circuit breakers in substations and moving legacy infrastructure out of customer rear-lots.
- **System resiliency and flexibility improvements:** System resiliency will be significantly enhanced through the deployment of newer assets. Modern infrastructure offers improved reliability and resiliency by reducing the risk of outages and improved restoration flexibility.
- **Cost escalation:** Rising material cost for assets in stations, underground systems and overhead systems.
- **Project optimization:** Elexicon prioritizes all projects to ensure that investments are directed toward areas of highest need, balancing risk, reliability, customer impact, and regulatory compliance.
- **Project backlog:** Growing backlog of underground, overhead, and station assets in need of replacement due to historically constrained renewal investments.

Together, these System Renewal investments enable Elexicon to enhance system reliability and resiliency, improve safety for staff and customers, and improve environmental protections.

### 1.2.4 System Service

**Table 16: System Service: 2020-2031 Net Expenditures with ICM**

| Category | Actual ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| System Service | 6.69 | 13.14 | 22.02 | 4.53 | 17.43 | 10.61 | 25.76 | 44.57 | 39.84 | 46.80 | 35.39 | 72.17 |

The increase in the 2021 System Service expenditure was driven by the Seaton MTS land purchase and William Lawler reliability enhancement projects. The Seaton MTS construction caused the peak in 2022. The increase in 2024 was driven by the Whitby TS and Seaton MTS true ups with Hydro One, ordering long-lead materials for Belleville DESN 2, and the Brock Road grid enhancement projects.

The forecast average for System Service is higher than the historical plus bridge year average (i.e., by 233.7%). System Service investments aim to enhance Elexicon's capability to meet current and future operational objectives, such as enabling customer load growth, improving system reliability and resiliency, enhancing automation and operational flexibility, and enabling better integration of Distributed Energy Resources (DERs). These investments are driven by the need to address various constraints, such as limited capacity to support customer load growth, and the increasing need for grid modernization to accommodate emerging technologies and evolving customer needs.

This increase is primarily driven by the key considerations below:

- **Capacity Expansion:** Invest in major substation projects including a new transformer station (GTA East TS) along with the associated feeder enhancements, enabling load growth in the north of Pickering and Whitby. In addition, this program invests in four new municipal stations in Whitby, Belleville, Port Hope, and Uxbridge, and one station upgrade in Bowmanville. These projects will address existing and emerging capacity constraints and contingency concerns and to enable service to new residential and commercial developments identified in regional growth plans.
- **System resiliency and flexibility improvements:** Acquisition of a mobile station will be used to support planned construction outages. Sufficient system capacity allows for timely customer service restoration in the event of an outage. Additionally, the new capacity provides greater

flexibility in scheduling planned outages for maintenance and the delivery of capital plans in general.

- **Cost Escalation and Project Complexity:** The costs to complete projects have increased since the last rate period, resulting in higher forecast expenditures primarily attributed to increasing materials costs.
- **Grid Modernization:** Deployment of advanced automation and monitoring devices, including SCADA-enabled switches, smart reclosers, and communicating fault indicators, to enable faster fault isolation, remote switching, and improve outage restoration times.
- **Reliability and Safety Enhancements:** Replacement of aging protection relays and obsolete substation equipment will mitigate the risk of mis-operations, enhance worker safety, and align with modern protection and control practices.
- **Voltage Standardization:** Conversion of legacy 4.16 kV and 8.32 kV systems to standardized 13.8 kV and 27.6 kV systems to improve capacity, system redundancy, operational flexibility, system efficiency and safety, while improving compliance with current design standards.

Collectively, these System Service investments will enable Elexicon to alleviate existing capacity constraints, accommodate forecasted load growth, improve safety performance, enhance reliability and resiliency of the grid, and prepare for the future integration of DERs and other grid modernization technologies.

### 1.2.5 General Plant

**Table 17: General Plant: 2020-2031 Net Expenditures with ICM**

| Category | Actual ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| General Plant | 6.52 | 7.04 | 12.38 | 7.33 | 5.31 | 6.15 | 5.09 | 13.73 | 10.42 | 16.81 | 12.52 | 12.31 |

The General Plant spending was generally consistent over the historical period. However, spending increased in 2022, driven by the Belleville Operations Centre relocation.

Over the 2027-2031 rate period, Elexicon plans to increase General Plant investments by 84.9% compared to the historical plus bridge year average. General Plant investments, while representing a smaller portion

of the capital plan, are critical to sustaining Elexicon's operational capabilities. These expenditures include investments in fleet, IT systems, facilities, and tools – resources necessary to support field operations and overall utility performance.

Elexicon continues to use its planning process outline in to address critical issues needed within the General Plant program, including the drivers below:

- **Safety enhancements:** Improve staff safety by performing repairs, replacements and upgrades to components of Elexicon's facilities, vehicles, tools and equipment based on condition and current standards.
- **Growing workforce:** Planned growth in Elexicon's workforce will require additional accommodations as the existing main offices in Ajax and Whitby are at capacity and there is an insufficient number of vehicles for new staff requirements.
- **Support for capital plan execution:** Growth in the capital work plan requires investment in warehousing storage as there is currently no capacity at the Ajax and Whitby offices. Additionally, well maintained vehicles are required for delivery of the capital plan, system maintenance and reactive responses to outages.
- **Environmental protections:** Decrease environmental impact of vehicles by acquiring new more fuel-efficient vehicles and investing in electric vehicles when possible, including electric SUV's and Electric Power Take-off (ePTO).
- **Improved efficiency:** Replace legacy systems with modern options to enhance operational efficiency, scalability, performance of critical applications, improve cost efficiency and ensure vendor support.
- **Cyber security:** Invest in both IT and OT systems to mitigate the risk of cyber attacks and safeguard Elexicon's network. Ensuring compliance with OEB cyber security framework, insurance requirements and duties, and maintains cyber security reporting requirements tied to LDC licencing (RRR) for both IT and OT systems;

- **Customer satisfaction:** Increase customer satisfaction through investment in customer end user tools, such as billing and outage reporting, which the legacy systems may be unable to support as the customer base grows.
- **Grid Modernization:** Reduce response times to power outages and increase reliability through investing in OT systems, including SCADA software, that will allow for quick and reliable responses to system outages.
- **Project backlog:** Growing backlog of investments and improvements to mechanical tools, truck tools, and equipment due to historically constrained investment budget.

Together, these General Plant investments will enable Elexicon to execute the capital and maintenance plans by accommodating forecasted workforce growth, improving worker safety and efficiency and preparing for the expansion of the SCADA system.

#### 1.2.6 Investments with Project Lifecycle Greater than One Year

For capital projects spanning multiple years, costs remain under construction work-in-progress until the capital project is in service. Therefore, capitalization will only occur at the end of the project once it is in service.

## 1.3 Important Modifications to Capital Programs Since Last DSP

**System Access:** Key reclassifications include consolidating Road Relocation and Customer Requested Work as Externally Initiated Plant Relocation. Continued growth in customer and generation connections, primarily in the Durham Region, new investments in AMI 2.0 to begin to modernize metering equipment and systems to improve operational flexibility and enable the expanded use of customer data in operations and planning. Full implementation of AMI 2.0 is forecasted to stretch beyond this rate period. Forecasted net investment during the 2027-2031 period totals to $155.42M for the System Access category.

**System Service:** Voltage and System Conversion projects have been moved from System Renewal to System Service to better align with OEB Chapter 5 filing requirements. The construction of a new GTA East TS in the North Pickering / North Whitby area, necessary to enable greenfield development in the area, represents the single largest investment within the System Service investment category. Forecasted net

investment during the 2027-2031 period totals to $238.77M for the System Service category. A major portion of the investment is dedicated to constructing new stations and upgrading of existing municipal stations. Paced implementation for replacement of legacy assets and targeted voltage conversion projects are included in the Capital Expenditure Plan, which were not included in the previous DSP. Grid Enhancement projects to invest in distribution and station modernization, system capacity and reliability improvements and targeted station relay upgrades are also planned, merging historical Substation Upgrades, Feeder Enhancements, and System Reliability Improvements programs under Grid Enhancements going forward.

**System Renewal:** Significant, targeted renewal investments are planned in the station and distribution assets that are in poor or very poor condition and beyond typical useful life leading to increased failure risk. Forecasted net investment during the 2027-2031 period totals to $279.98M for the System Renewal category, is necessary to address system reliability and resiliency.

**General Plant:** Investments will be directed toward Elexicon's existing facilities in Ajax and Whitby to address staff requirements and expand space for materials supporting forecasted capital projects, along with increased Fleet spending to replace end-of-life assets at anticipated market prices. Forecasted net investment during the 2027-2031 period totals to $65.80M for the General Plant category.

# FORECAST IMPACT OF SYSTEM INVESTMENTS ON SYSTEM O&M COSTS

## 1. OVERVIEW

In the development of Elexicon's Capital Expenditure Plan, consideration was made concerning the impacts created by those investments in System Operations and Maintenance (O&M), where possible. As shown in Table 1, Elexicon is forecasting increased System O&M expenditures. Planned System Renewal spending, which focuses on replacing high-risk assets to address reliability, safety or environmental concerns, will not keep pace with the expected rate of assets reaching or exceeding their TUL along with deteriorating asset condition. This can ultimately contribute to higher O&M expenditures from testing, inspection and maintenance requirements on these assets. System Service investments aimed at increasing system capacity, supporting grid enhancement, and voltage and system conversion will inherently increase O&M costs due to the growing number of assets to be maintained. Similarly, System Access investments will also expand the asset base, leading to greater maintenance demands and, consequently, higher O&M costs.

**Table 1: Forecast System O&M Expenditures**

| Category | Forecast System O&M ($M) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Bridge Years | | Test Year | Forecast | | | | **Average 2027-2031** |
| | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | |
| System O&M | 20.09 | 21.26 | 25.16 | 27.66 | 28.32 | 29.10 | 29.88 | 28.02 |
| Total OM&A | 58.59 | 62.25 | 77.73 | 84.54 | 86.50 | 88.95 | 91.33 | 85.81 |
| Total Gross Capital Expenditure | 79.25 | 103.80 | 189.50 | 170.00 | 183.02 | 186.88 | 229.29 | 191.74 |
| System O&M as a percentage of Total Gross Capital | 25.4% | 20.5% | 13.3% | 16.3% | 15.5% | 15.6% | 13.0% | 14.7% |
| Total OM&A as a percentage of Total Gross Capital | 73.9% | 60.0% | 41.0% | 49.7% | 47.3% | 47.6% | 39.8% | 45.1% |

System O&M expenditures are integral to the safe and reliable operation of Elexicon's distribution system. System O&M is primarily driven by asset and system maintenance needs, compliance obligations, and system support needs. Capital investment in the system categories also have an impact on the total system O&M required. For example, specific investments in Substation Renewal projects are also evaluated with consideration to managing O&M impacts, favouring alternatives that drive operational efficiencies and reduce O&M needs. Please see Substation Renewal Material Narrative for more information (Exhibit 2B - Tab 4 – Schedule 3 – Appendix E).

O&M expenditures can also impact capital programs. Increasing maintenance activities are a proactive approach to improve reliability and safety of the system. For example, vegetation management investments in LiDAR scanning in the forecast period will identify critical areas of the system that will be proactively trimmed. This is anticipated to reduce tree-related outages and will contribute to improved reliability and customer service. See the Vegetation Management segment for more information (Exhibit 4 – Tab 1 – Schedule 4). Another example is Distribution Maintenance. Maintenance inspections and testing for early detection of minor repairs will reduce replacements due to asset failures. These expenditures in O&M can reduce System Renewal Reactive Capital investment needs by proactively addressing areas of potential failure prior to an outage occurring.

The impact of O&M on system reliability and capital investment needs depends entirely on the amount, timing, and adequacy of available funding. An underfunded renewal program cannot be compensated by O&M activities, and vice versa. Achieving improved reliability requires a balanced approach — aligning funding with well-timed investments in both system renewal and maintenance. Accordingly, the observations in this section are based on the proposed capital investments outlined in this DSP and the O&M forecasts presented in Exhibit 4 – Tab 1 – Schedule 1.

## 2. TREND ANALYSIS

### 2.1 Historical System O&M

System O&M as a percent of Total Gross Capital show a downward trend over the historical term of 2020-2024. System O&M over this period was increasing slightly, however Total Gross Capital trends were

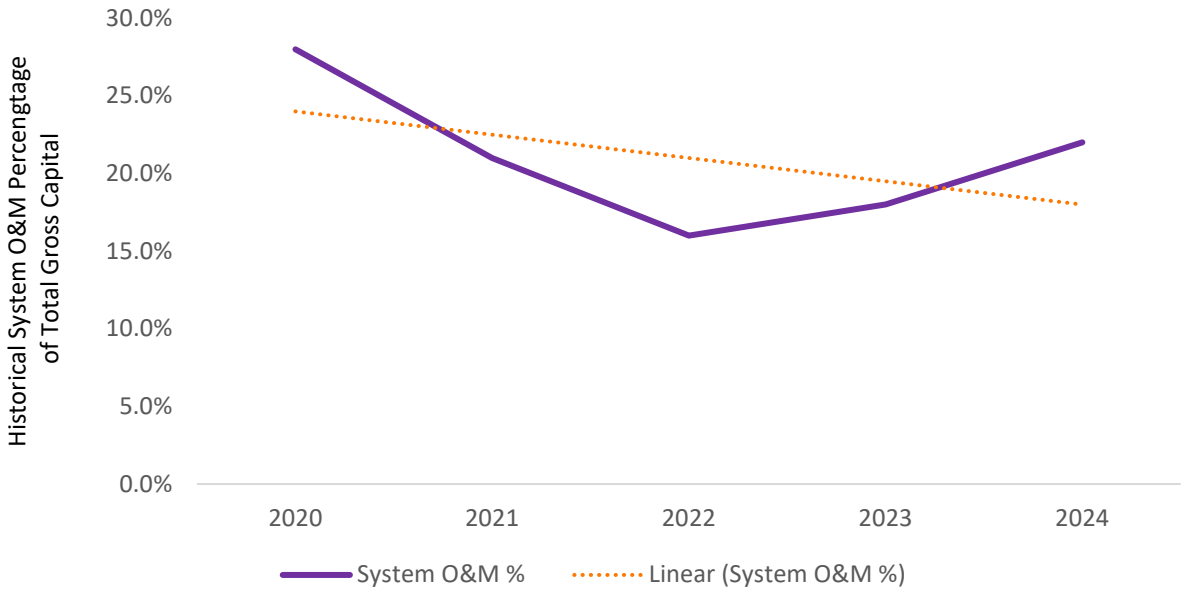
growing faster and with more year over year variation, contributing to a slight downward trend shown in Table 2 and Figure 1 below.

**Table 2: Historical System O&M Expenditures (2020-2024) including ICM**

| Category | Historical System O&M ($M) | | | | | |
|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **Average** |
| System O&M | 13.98 | 14.93 | 15.71 | 15.55 | 20.44 | 16.12 |
| Total OM&A | 42.65 | 43.30 | 45.30 | 47.07 | 54.73 | 46.61 |
| Total Gross Capital Expenditure | 50.27 | 71.92 | 101.06 | 88.61 | 94.64 | 81.30 |
| System O&M as a percentage of Total Gross Capital | 27.8% | 20.8% | 15.5% | 17.6% | 21.6% | 20.6% |
| Total OM&A as a percentage of Total Gross Capital | 84.8% | 60.2% | 44.8% | 53.1% | 57.8% | 60.2% |

As illustrated in Table 2, over the 2020-2024 period, the average System O&M percent relative to Total Gross Capital is 20.6%.

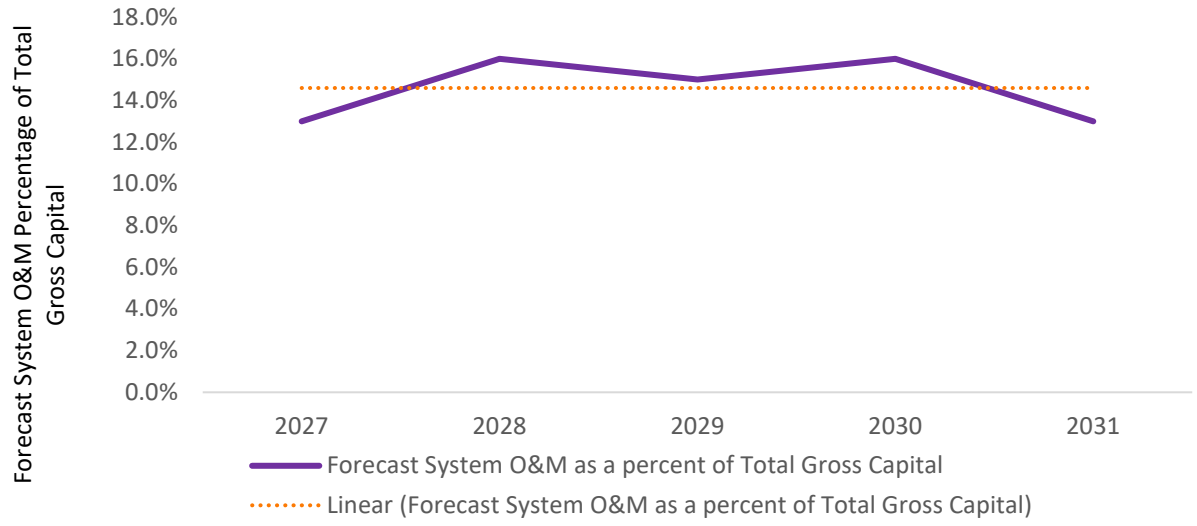
**Figure 1: Historical System O&M as a % of Total Gross Capital**



## 2.2 Forecast System O&M

System O&M as a percent of Total Gross Capital shows a flat trend over the forecast term of 2027-2031 based on data in Table 1, above. System O&M over this period increases slightly, however Total Gross Capital trends are growing in proportion and with more year over year variation, contributing to a generally flat trend shown in Figure 2 below. These trends, even with the forecasted increase in O&M spend over the forecast period will keep the average System O&M relative to Total Gross Capital to approximately 14.7% over the 2027-2031 period.

**Figure 2: Forecast System O&M as a % of Total Gross Capital**




Further details on historical and forecast OM&A amounts are provided in Exhibit 4 - Tab 1 - Schedule 1.

# NON-DISTRIBUTION ACTIVITIES

Elexicon has not included any expenditures for non-distribution activities in the budget.

# MATERIAL INVESTMENTS

Table 1 below presents Elexicon's proposed capital investment programs for the 2027 to 2031 period, organized by investment category. Further details for each program are provided in the corresponding material narratives referenced in Table 1.

**Table 1: Proposed Capital Investments during 2027-2031**

| Category | Program Code | Program Description | 2027-2031 Net Planned Expenditure ($M) |
|---|---|---|---|
| System Access | A1 | Externally Initiated Plant Relocation | $28.82M |
| | A2 | Customer & Generation Connections | $41.21M |
| | A3 | System Expansion | $54.15M |
| | A4 | Metering & AMI 2.0 | $31.24M |
| System Renewal | R1 | Substation Renewal | $109.88M |
| | R2 | Underground System Renewal | $84.15M |
| | R3 | Overhead System Renewal | $55.72M |
| | R4 | Reactive Capital | $30.23M |
| System Service | S1 | Substation Growth | $147.33M |
| | S2 | Grid Enhancements | $67.80M |
| | S3 | Voltage & System Conversion | $23.64M |
| General Plant | P1 | Facilities Management | $14.77M |
| | P2 | Fleet | $17.85M |
| | P3 | IT Systems | $10.25M |
| | P4 | Equipment | $5.41M |
| | P5 | OT Systems | $17.52M |
| **Total Expenditure on Material Programs Between 2027-2031** | | | **$739.96M** |

## 1. LIST OF ATTACHMENTS:

- Appendix A: A1 Externally Initiated Plant Relocation
- Appendix B: A2 Customer and Generation Connections
- Appendix C: A3 System Expansion
- Appendix D: A4 Metering and AMI 2.0
- Appendix E: R1 Substation Renewal
- Appendix F: R2 Underground System Renewal

- Appendix G: R3 Overhead System Renewal
- Appendix H: R4 Reactive Capital
- Appendix I: S1 Substation Growth
- Appendix I-1: GTA East TS Business Case
- Appendix J: S2 Grid Enhancements
- Appendix K: S3 Voltage & System Conversion
- Appendix L: P1 Facilities Management
- Appendix L-1: Cresa Report
- Appendix M: P2 Fleet
- Appendix N: P3 IT Systems
- Appendix O: P4 Fleet
- Appendix P: P5 OT Systems

# A1 EXTERNALLY INITIATED PLANT RELOCATION

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $29.74M | 2025-2026 Plan: $7.37M | 2027-2031 Forecast: $28.82M |
| Primary Driver: Mandated Service Obligations | | |
| Secondary Drivers: Customer Service Requests, | | |
| Outcomes: Customer Focus, Financial Performance, Public Policy Responsiveness | | |
| Segments: Externally Initiated Plant Relocation | | |

Elexicon's Externally Initiated Plant Relocation program covers the mandatory costs incurred by Elexicon to relocate and reconstruct its distribution equipment to address infrastructure conflicts arising from construction projects initiated by third parties.

Elexicon's infrastructure is generally constructed within the public right-of-way, typically within road allowances. Road allowances within Elexicon's service area are managed by several public Road Authorities, including:

- Region of Durham
- Municipalities within Durham Region
- Municipality of Clarington
- Municipality of Port Hope
- Municipality of Muskoka
- City of Belleville
- Ministry of Transportation of Ontario ("MTO")

Under the Public Service Works on Highways Act (PSWHA), Road Authorities have statutory authority to require Elexicon to relocate and reconstruct infrastructure within a road allowance when such relocation is necessary for the Road Authority to carry out its work. Elexicon may also relocate its infrastructure for other third-party groups, such as Metrolinx, as well as for commercial, industrial, or residential customers.

The scope and timing of road relocation projects are established by the Road Authorities, and Elexicon is obligated to work collaboratively to support their requirements. Changes in circumstances and third-party

discretion can alter schedules and project scopes. As a result, these projects have historically created and may continue to create considerable variances between forecasted and actual costs within this program.

To mitigate these variances, Elexicon participates in planning and ongoing project status discussions with Road Authorities. This collaboration ensures Elexicon can provide guidance and recommendations before final decisions on road works are made, helping to reduce schedule and budget disruptions. Elexicon also holds regular planning meetings with the various Authorities within its service area to ensure that the scope and number of Authority projects are consistently updated.

An important driver of continued expenditures under this program is population growth and related housing and infrastructure development within Elexicon's service territory. This growth continues at a pace consistent with provincial and municipal housing and employment targets, which are fundamental drivers supporting transportation and land development plans.

Elexicon forecasts the total net investments within the program to be $28.82M over the 2027-2031 DSP period. The average annual capital expenditures related to plant relocation during the 2027-2031 DSP period is forecasted to be $5.76M, comparable to the historical and bridge years, which averaged to $5.30M annually.

## 2. INVESTMENT DESCRIPTION

The Externally Initiated Plant Relocation Program addresses mandatory relocations of Elexicon infrastructure to accommodate construction by Road Authorities and other third parties within the public right-of-way. These projects often involve like-for-like replacements using current standards and, where feasible, synergies with other capital projects are considered.

Cost-sharing arrangements are governed by the Public Service Works on Highways Act (PSWHA), with labour typically split and incremental costs borne by the requesting party. For projects led by transit agencies such as Metrolinx, full cost recovery from the initiating party is expected in accordance with established relocation agreements and applicable legislation.

Population growth and intensification across Elexicon's service area, particularly in the Durham Region, will drive municipal projects such as road widenings and intersection upgrades, increasing the need for relocations. Concurrently, major transit initiatives like the Durham-Scarborough Bus Rapid Transit (BRT) will require significant coordination and investment. Annual expenditures are based on historical trends, known project scopes, and timing, rather than population growth alone.

Elexicon's objective is to execute relocations safely, cost-effectively, and in compliance with PSWHA and the Distribution System Code, while leveraging opportunities to align mandatory work with planned system improvements.

## 2.1 Summary of Investment Outcomes and Benefits

Table 1 provides a summary of outcomes and benefits achieved by Externally Initiated Plant Relocation program.

**Table 1: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Value | Replacing aged assets with new assets built to the latest standards reduces the risk of outages and service interruptions compared to aging infrastructure.<br>Coordination of asset relocation, reduces the frequency and duration of service interruptions associated with road or transit construction.<br>Delivers timely, cost-efficient system relocations to support growth and improve access, reducing construction-related disruptions for local residents. |
| Safety | Relocates electrical infrastructure away from construction activity, reducing electrical hazards for third-party workers and the public.<br>Ensures all work adheres to Elexicon's safety standards and applicable regulatory requirements. |

| Outcome | Investment Benefits and Objectives |
|---|---|
| Financial/ Efficiency | Applies cost-sharing principles under the PSWHA and the Distribution System Code to ensure fair allocation of costs between Elexicon and the initiating party.<br>Leverages opportunities to coordinate relocation work with planned capital projects, optimizing construction efficiencies and reducing future disruption. |
| Public Policy | Ensures compliance with legislated obligations, including the PSWHA and the Metrolinx & Infrastructure Ontario Utility Relocation Guideline.<br>Demonstrates adherence to Section 3.1 of the Distribution System Code by addressing relocation requests in a fair, reasonable, and transparent manner.<br>Supports government-led transportation and infrastructure initiatives that advance community development objectives. |
| Co-ordination / Interoperability | Promotes collaboration with Road Authorities, municipalities, and transit agencies to align schedules and avoid construction conflicts.<br>Facilitates integrated planning and execution of infrastructure projects within public rights-of-way.<br>Ensures timely project delivery that supports regional and municipal infrastructure goals. |

## 3. INVESTMENT DRIVERS & NEED

The need for Externally Initiated Plant Relocation projects is driven by mandated service obligations and customer service requests. These projects typically arise from requests made by Road Authorities and other third-party proponents within Elexicon's service territory, including regional and municipal governments, transit agencies such as Metrolinx, and private developers undertaking residential, commercial, or industrial construction. When public infrastructure or transportation projects are initiated, Elexicon is required under applicable legislation to relocate its distribution assets to enable the Road Authority to complete its work. Similarly, private development projects such as new subdivisions, commercial plazas, or industrial facilities often require the relocation or modification of existing Elexicon infrastructure to accommodate site access, grading, or servicing requirements.

These investments ensure that Elexicon fulfills its legislated obligations while responding to external relocation requests in a timely and coordinated manner. Table 2 below summarizes the drivers for Externally Initiated Plant Relocation.

**Table 2: Summary of Investment and Need**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| Mandated Service Obligations (Primary) | Compliance with the PSWHA, which requires Elexicon to relocate distribution assets when requested by a Road Authority to facilitate construction or infrastructure improvements within public rights-of-way.<br>Compliance with the Building Transit Faster Act and adherence to the Metrolinx and Infrastructure Ontario Utility Relocation Guideline, which establish coordination requirements and cost-sharing principles for transit-related relocations.<br>Enables Elexicon to fulfill statutory obligations while maintaining safe and reliable service to customers during major public infrastructure projects.<br>Ensures compliance with regulatory standards and minimizes potential legal or financial exposure associated with non-compliance. |
| Third-Party Relocation Requests (Secondary) | Compliance with Section 3.1.10 of the Distribution System Code (DSC), which requires distributors to respond to requests from third parties for relocation of distributor-owned assets in a fair and reasonable manner.<br>Supports residential, commercial, and industrial development where existing electrical infrastructure conflicts with new construction. |

## 3.1 Mandated Service Obligations

The primary driver of work in this Program is to comply with obligations under the Public Service Works on Highways Act (PSWHA) and Building Transit Faster Act (BTFA) to relocate Elexicon's infrastructure to facilitate infrastructure project carried out by Road Authorities, which often involves large-scale road relocations, and Crown agencies initiating transit projects. Cost sharing arrangements with Road Authorities are apportioned under the PSWHA unless otherwise agreed. Where a distributor-owned asset has not reached its end-of-life and is replaced at the request of a customer, the distributor shall recover a

capital contribution from the customer. The capital contribution shall be equal to the remaining net book value of the replaced asset plus the advancement cost.

Transportation plans and major inter-regional transportation projects are the biggest drivers of road relocation projects. These are outside of Elexicon's control, and the utility is mandated to carry out this work under the PSWHA. Metrolinx and the MTO road authorities, including Durham Region, municipalities, and individual cities and towns, initiate relocation of utility assets as they pursue their community infrastructure plans. The most expensive relocations arise from the requirement to relocate and reconstruct underground infrastructure. Road Relocation projects may impact all users on the right of way and become complicated due to the need to coordinate with multiple public and private companies.

In addition to large road relocation work and transit work which can require significant infrastructure relocation or reconstruction, the program includes the capital expenses to respond to requests from developers to relocate distribution facilities in support of large-scale development projects. Many smaller projects are also included in this program which require smaller sections of infrastructure, including poles and lines to be relocated on customer's request.

Elexicon's role in these projects is to ensure that the relocation of distribution system assets does not compromise its ability to provide safe and reliable service to customers while maintaining the performance and integrity of the existing system. Through this program, Elexicon fulfills its regulated service obligations by supporting Road Authority infrastructure projects and customer development work in a technically sound and economically compliant manner.

### 3.2 Third Party Relocation Requests

Transit expansion projects initiated by Road Authorities to accommodate growing transportation needs are a major driver of the Externally Initiated Plant Relocation Program. These projects often require significant relocation of Elexicon's infrastructure to enable the construction of new transit corridors and related road improvements.

Separate from these Road Authority initiatives, most third-party customer relocation requests are driven by residential, commercial, and industrial developments, as well as smaller projects that support

community improvements. These requests typically involve relocating distribution assets to facilitate new subdivisions, commercial plazas, industrial facilities, or localized enhancements.

Projects can range in size from large-scale developments requiring complete relocation and reconstruction of underground and overhead infrastructure to smaller-scale work involving the relocation of poles, overhead transformers, and overhead wires. Elexicon is obligated under the Distribution System Code (DSC) to respond to these requests in a timely and reasonable manner. In these cases, the initiating third party typically funds 100 percent of the relocation costs, as stipulated under the DSC: *"where a customer requests the relocation of a distributor-owned asset, the distributor shall recover from that customer the cost of relocating that asset, except to the extent recovery is limited under law."* Plant relocation requests from third parties may provide Elexicon with an opportunity to complete other necessary enhancement work at the same time, creating synergies for customers and reducing disruption on the road allowance. In such cases, Elexicon establishes a reasonable cost-sharing arrangement. Planning for customer-requested work is performed when the request is initiated and evaluated. As a result, forecasting this work is highly dependent on customer needs, and capital plans and project schedules are subject to change at the sole discretion of third parties. When Elexicon receives a customer request to perform work or relocate plant, the work is typically completed internally. For more complex projects that Elexicon cannot fulfill, third-party contractors are engaged to execute the work.

Project planning includes gathering information about the customer's location, the distribution system, and the equipment involved. The requirements for execution depend on the ownership demarcation point agreed upon by Elexicon and the customer. Road relocation projects must comply with the Distribution System Code (DSC) while coordinating with Road Authorities. As per Section 3.1.10 of the DSC: *"When a customer requests the relocation of a distributor-owned asset, the distributor must recover the relocation costs from that customer, except where legislation requires cost-sharing."* Third-party plant relocation requests often provide Elexicon with an opportunity to complete necessary system enhancements simultaneously, creating customer synergies and reducing disruption within road allowances. When these projects present opportunities to maximize construction efficiencies and increase system capacity rather than performing like-for-like replacements, a reasonable cost-sharing arrangement is implemented. When

Elexicon expands infrastructure to accommodate future load growth as part of an externally initiated relocation project, this is considered an "expansion" under the program. These expansion costs for the associated project are allocated to the System Expansion Program (Exhibit 2B – Tab 4 – Schedule 3 – Appendix C).

### 3.2.1 Key Regional and Municipal Infrastructure Initiatives

The following section outlines key regional, municipal, and transit infrastructure initiatives that are expected to drive continued demand for externally initiated plant relocations within Elexicon's service territories. These initiatives reflect the ongoing population growth and land development across the Region of Durham and surrounding municipalities, which in turn require significant transportation and infrastructure expansion. The projects summarized below, including major road widenings, transit corridor developments, and municipal servicing works, illustrate the scale and timing of external construction activity anticipated to influence Elexicon's relocation requirements over the 2027–2031 DSP period.

**Region of Durham Transportation Master Plan ("DTMP")**

Within the proposed 2017 DTMP, over 50 road expansion projects were recommended in phases from 2017 to 2031. Several of these projects have been completed in the 2020-2024 period, while others are expected to be completed in 2025, 2026, and over the 2027-2031 DSP period. The implementation of the DTMP by Durham Region continues with the approval of Envision Durham in September 2024 and the Transit Oriented Development Strategy in May 2024[1]. These initiatives provide guidelines and direction to Elexicon to support continuing design and development of infrastructure to support transportation needs outlined in the DTMP.

Examples of road works detailed in this plan include:

**2022–2026**

- Central Street (Canso Dr/William St to Brock Rd): Urbanize and improve corridor

[1] Durham Region, "Transit-Oriented Development Strategy", (May 2024)

Bayly Street (Liverpool Rd to Brock Rd): Widen from 5 to 6/7 lanes

- Bayly Street (Westney Rd to Harwood Ave): Widen from 5 to 7 lanes

**2027–2031**

- Brock Road (Finch Ave to Taunton Rd): Widen from 5 to 7 lanes
- Brock Road (Taunton Rd to Whitevale Rd): Widen from 4 to 6 lanes
- Brock Road (Whitevale Rd to Hwy 7): Widen from 4 to 6 lanes
- Simcoe Street (King St to Greenway Blvd): Widen from 2 to 3 lanes
- Taunton Road (York-Durham Line to Brock Rd): Widen from 4 to 6/7 lanes
- Taunton Road (Brock Rd to Brock St): Widen from 5 to 6/7 lanes
- Taunton Road (Brock St to Simcoe St): Widen from 5 to 6/7 lanes

North Street (CPR to Concession Rd 3): Construct new alignment and widen from 2 to 3 lanes

- Bayly Street (Brock Rd to Westney Rd): Widen from 5 to 7 lanes

**Belleville Transportation Master Plan**

The City of Belleville Transportation Master Plan was produced in 2014 and outlines the city's future vision for transportation[2]. Belleville's population is expected to grow by 7% from 2025 to 2031, while employment is expected to increase by 6% over the same period. This population growth has driven plans for improved transit in the area, such as the GO East Expansion reaching Belleville. Population growth leads to increased transit expansion and road improvements which can result in road relocation requests.

The City of Belleville Transportation Master Plan was produced in 2014 and outlines the city's future vision

[2] Belleville "Transportation Master Plan", (2014) - https://www.belleville.ca/en/city-hall/transportation-master-plan.aspx

for transportation. Belleville's population is expected to grow by 24% from 2014 to 2031, while employment is expected to increase by 32% over the same period.

**Scugog**

Scugog's population is forecast to grow 32% by 2051 compared to 2021[3]. To accommodate this growth, Highway 7A upgrades are ongoing (widening and intersection improvements) as it is the main artery through Port Perry. Within Port Perry, Scugog has plans for new local roads in expansion areas and improved traffic flow on Queen Street to mitigate congestion from growth. These projects will likely involve investment to relocate Elexicon services.

**Uxbridge**

Uxbridge is expected to experience moderate growth over the DSP period and small improvements to infrastructure are planned and ongoing. Uxbridge continues to upgrade Quaker Village Drive, Brock Street, and other arterials to handle new subdivisions being planned and developed and will require moderate investment from Elexicon to accommodate.

**Metrolinx 2041 Regional Transportation Plan**

The Metrolinx 2041 Regional Transportation Plan outlines projects expected to enhance transportation around the Greater Toronto and Hamilton Area. Three major transportation projects that are highlighted in the report include the Lakeshore Go East Rail extension to Bowmanville Go, GO Electrification, and the BRT project from Durham to Scarborough.

**GO East Rail Extension**

On February 20, 2020, the GO East Rail Extension was approved by the Metrolinx Board of Directors, and on December 11, 2023, a "Notice to Proceed" was issued by the Minister of the Environment, Conservation and Parks, and construction began on Eastern Avenue bridge to widen the rail corridor. By November 2024, trains were operating on new rails in east Toronto.

[3] Township of Scugog, "Development Services Annual Report", (2022)

**Figure 1: GO East Extension at Eastern Avenue**[4]



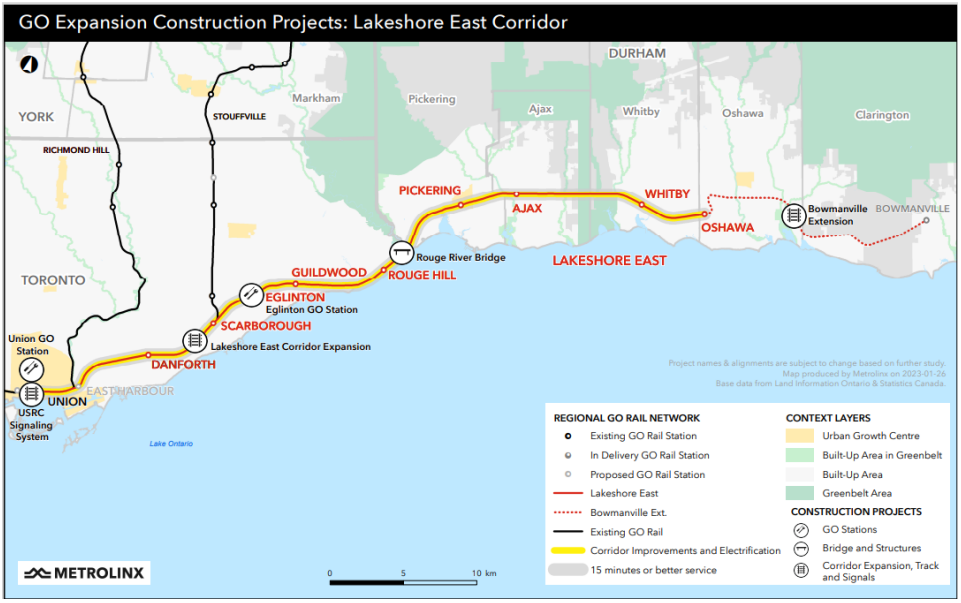
Four new GO Stations are planned along the east rail line as part of this extension initiative: Thornton's Corner East Station, Ritson Road Station, Courtice Station and Bowmanville Station. Of these, only Bowmanville Station lies within Elexicon's service territory. In June 2023, Metrolinx announced Bowmanville Construction Partners (BCP) as the construction manager for the project. Although construction schedules are not yet been released, geotechnical work is already being conducted at various locations across the GO rail network through Durham Region. This work involves collecting data on the soil type, texture, structure, density, and absorbency via borehole drilling.

[4] Metrolinx, "Bridge construction reaches milestone in Toronto's east end", (November 2024) - https://www.metrolinx.com/en/discover/bridge-construction-reaches-milestone-in-toronto-s-east-end

**Figure 2: GO Stations proposed for the east rail line**[5]




**Figure 3: Proposed rail extension and GO Station in Bowmanville**[6]




[5] Global News, "Bowmanville on track for GO transit to come to the region", (February 2020) - https://globalnews.ca/news/6548364/bowmanville-go-transit-durham-region/

[6] Metrolinx, "Oshawa to Bowmanville Rail Service Extension", (2023)

**Figure 4: Property effects in Bowmanville**

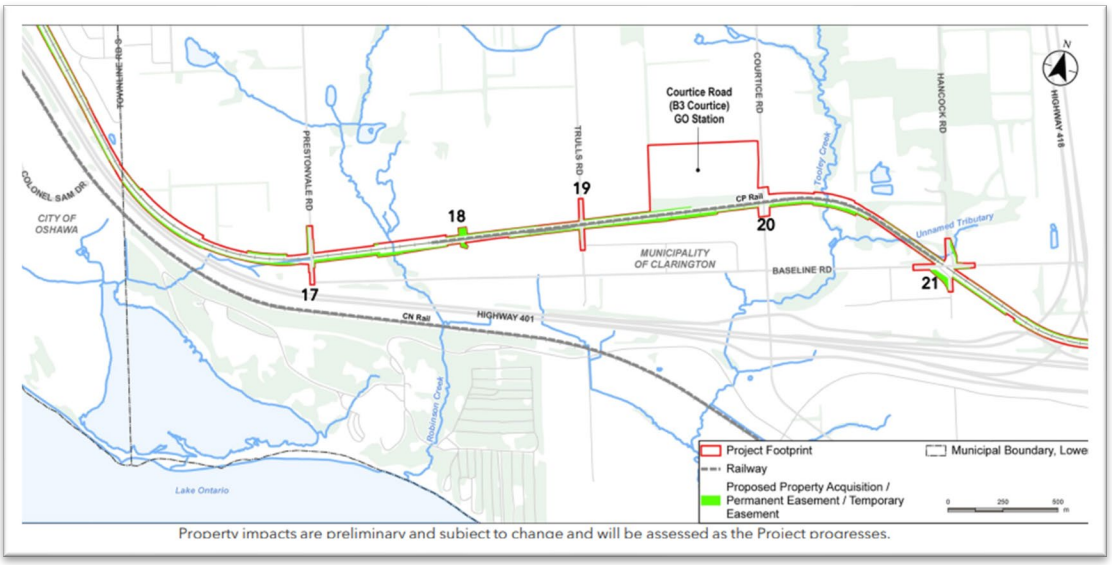
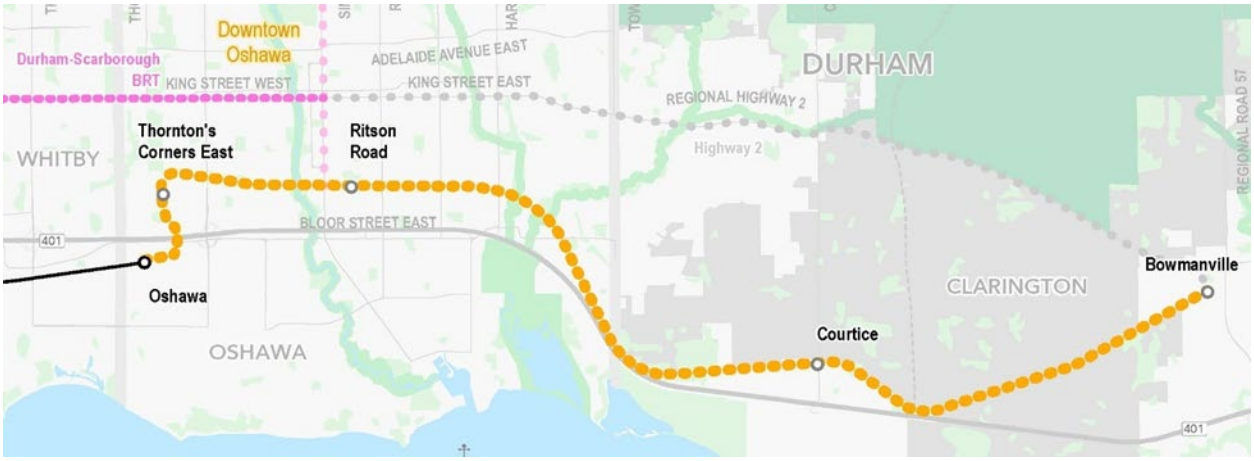



**Figure 5: Oshawa to Bowmanville Go East Expansion Plan**




**BRT Project**

The Durham-Scarborough Bus Rapid Transit (BRT) is an approximate 36-kilometre bus rapid transit corridor that will serve Oshawa, Whitby, Ajax, Pickering, and Scarborough.

Construction has started and is expected to continue over the 2025-2031 period, affecting the following road corridors along Kingston Road in Pickering:

- Altona Road to Steeple Hill
- Steeple Hill to Merritton Road
- Merritton Road to Dixie Road
- Dixie Road to Bainbridge Drive
- Bainbridge Drive to Notion Road

The Regional Municipality of Durham is moving ahead with plans for the construction of the Kingston Road Median Bus Rapid Transit (BRT) project in Ajax, with work anticipated to begin in July 2025 and continue through to the end of 2026[7].

[7] Durham Post, "Works on Kingston Road BRT project to start July: Region", (August 2025) - https://durhampost.ca/works-on-kingston-road-brt-project-to-start-july-region

**Figure 6: Durham-Scarborough BRT Project**[8]




Metrolinx, Infrastructure Ontario and the Ministry of Transportation developed the Metrolinx & Infrastructure Ontario Utility Relocation Guideline[9] (the "Guideline") to provide clarity on the facilitation and cooperation of utility relocation works pertaining to all projects undertaken by Metrolinx. The guideline states "at a high level, the new utility relocation process developed by the Metrolinx, Infrastructure Ontario and the Ministry of Transportation, including key steps of engagement, and respective templates that will be utilized by Metrolinx, Utility Companies and respective third parties for coordinating relocation works." [10]

The guideline is intended to provide a balanced and consistent process for coordinating utility relocation works while ensuring that all parties mutually operate under predictable conditions, with timely and pertinent information sharing, and in the spirit of partnership and collaboration. By adhering the

[8] Durham Region, "Durham-Scarborough Bus Rapid Transit", https://www.durham.ca/en/doing-business/Durham-Scarborough_Bus_Rapid_Transit_.aspx

[9] Metrolinx, "Metrolinx & Infrastructure Ontario Utility Relocation Guideline", (August 2021)

[10] Metrolinx, "Metrolinx & Infrastructure Ontario Utility Relocation Guideline", (August 2021)

Guideline, Elexicon demonstrates its commitment to completing necessary works to accommodate transit improvements and enhance the customer experience of its constituents.

# 4. INVESTMENT TIMING & PACING

## *4.1* Summary of Expenditures

**Table 3: Summary of Expenditures (2020-2031)**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Gross | 6.53 | 11.85 | 15.07 | 35.35 | 15.34 | 9.44 | 6.61 | 7.62 | 8.69 | 8.83 | 9.03 | 8.91 |
| Contributions | 4.60 | 6.09 | 6.80 | 23.81 | 13.10 | 6.64 | 2.05 | 2.52 | 2.88 | 2.92 | 2.99 | 2.95 |
| Capital (Net) | 1.93 | 5.75 | 8.27 | 11.55 | 2.24 | 2.81 | 4.56 | 5.10 | 5.82 | 5.90 | 6.04 | 5.96 |

Elexicon forecasts a net investment of $28.82M ($5.76M average) in the Externally Initiated Plant Relocation program over the 2027 to 2031 period. The forecast reflects a combination of known and anticipated relocation projects and draws on the observed spending patterns from historical years. Historical expenditure between 2020 and 2024, together with planned expenditure for 2025 and 2026 bridge years, results in an average net annual expenditure of approximately $5.30M.

The expectation is that investments in ongoing projects (e.g. Durham-Scarborough BRT) necessitate increased spending in bridge years but will decline to historical averages over the DSP period. A variety of factors affect the actual investment amount needed in any given year, however on average we expect spending levels to follow historical trends.

Relocations associated with Metrolinx and Durham-Scarborough Bus Rapid Transit (BRT) projects undertaken during the historical and bridge years are fully reimbursable and therefore reflect higher contribution levels from third parties. In contrast, the 2027–2031 forecast is primarily based on Road Authority and third-party customer relocation projects governed by cost-sharing arrangements under the PSWHA and the DSC. These agreements typically require Elexicon to fund a portion of the relocation costs, resulting in a lower contribution ratio in the forecast period compared to historical period.

**Investment Timing**

Projects in this Program are primarily driven by timing and scope requirements established by external agencies. Where possible, Elexicon works to coordinate proposed projects with its other programs subject to scheduling conflicts and resourcing challenges.

Large-scale projects initiated by Road Authorities, transit agencies, or major private developments typically take precedence in Elexicon's scheduling process, given their broader public impact and coordination requirements. Where feasible, Elexicon works with customers to negotiate schedule adjustments that optimize the overall capital program and minimize operational conflicts.Excluding large transit projects, which have costs largely reimbursed by the transit authority, Elexicon carried out several large development projects, large road relocation projects and other smaller projects on customer requests over the historical period that required relocation and reconstruction of its infrastructure with an average annual net expenditure of $5.95M.  Elexicon believes that the pace of development is now at a level consistent with the region's growth plans that will be sustained to 2031 and beyond.

**Bridge Years**

Net capital expenditures under this program for the bridge years of 2025 and 2026 are $2.81M and $4.56M, respectively. This includes ongoing projects and new work planned for the coming bridge period.

Currently planned and ongoing major relocation projects for bridge years are summarized in the table below:

**Table 4: Bridge-Year Active and Anticipated Relocation Projects (2025-2026)**

| Start Year | Project Name |
|---|---|
| **2025** | Dowty Rd to Hunt St Sidewalk Relocation |
| **2025** | Bowmanville Avenue (Baseline x King) Road Relocation |
| **2025** | Krosno Creek Culvert Road Relocation |
| **2026** | Liberty St (Baseline Rd to King St) Road Relocation |
| **2026** | BRT Hwy 2 (Bainbridge to Notion) Road Relocation |
| **2026** | Rossland Rd (Westney x Salem) Relocation |
| **2026** | Westney (Magill x Ravenscroft) Road Relocation |
| **2026** | Whitevale (Altona x Golf Club Road) Road Relocation |

**Future Expenditures (2027 – 2031)**

Elexicon's forecast net capital expenditure in the 2027-2031 plan period is $28.82 million, which is based on the five-year historical average spending over the 2020-2024 period, including known committed capital plans from the road authorities, and other third parties.

**Figure 7: Forecast (Net) spending for Plant Relocations over DSP Period**

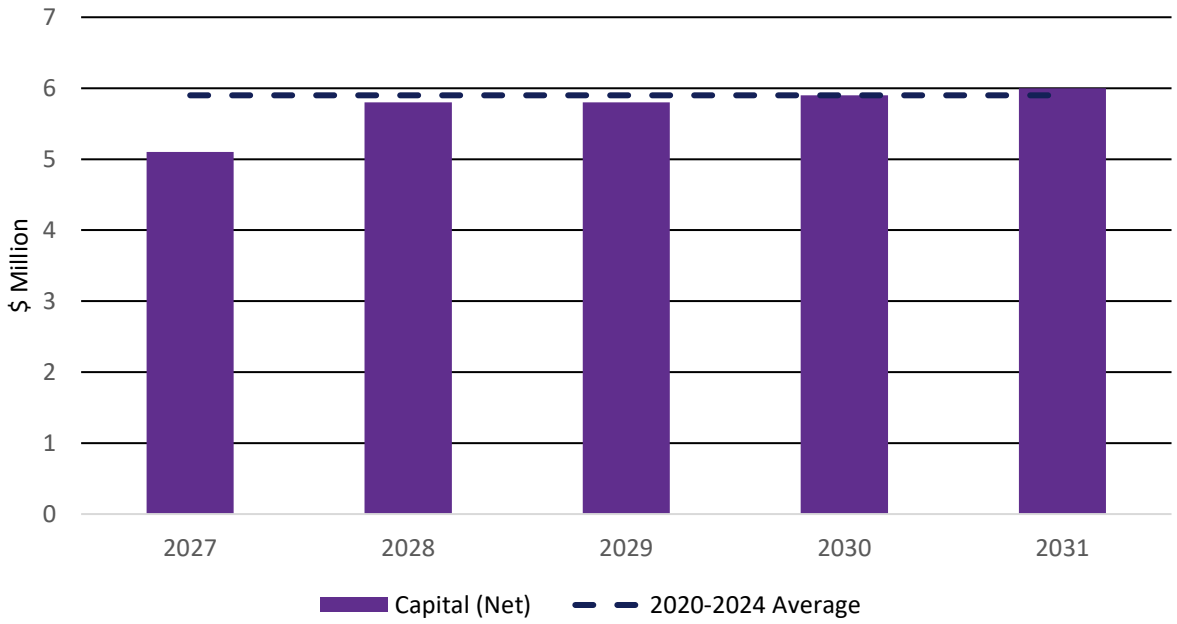



Table 5 below identifies anticipated projects for 2027 that are currently known based on available information from municipal partners and transportation agencies. These projects form the initial basis for relocation.

**Table 5: Anticipated Relocation Projects (2027)**

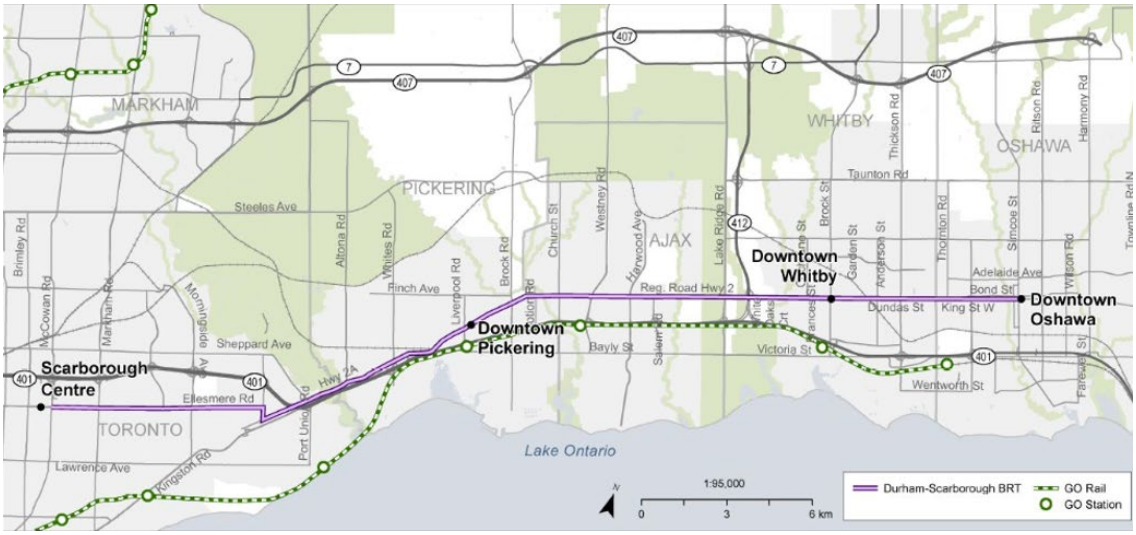
| Start Year | Project Name |
|---|---|
| **2027** | Sandy Beach (Montgomery x Bayly) Road Relocation |
| **2027** | Kingston Rd BRT – Altona Rd to Steeple Hill |
| **2027** | Sidney (Between CPR x College) Road Relocation |
| **2027** | Radom (Douglas x St. Martins) Road Relocation |
| **2027** | Dundas Bridge (Front x Coleman) Road Relocation |
| **2027** | Whitby Harbor (Brock x Water St) Road Relocation |
| **2027** | Harwood (Taunton x Rossland) Road Relocation |
| **2027** | Avonlough SPS Road Relocation |

Elexicon identified several major projects that are expected to impact the 2027-2031 plan period. Some of these projects have already underway, while others are in various stages of design or environmental assessment. The key initiatives anticipated to drive relocation requirements over the forecast period are summarized below.

**Major Projects**

The BRT project, which is described in Section 3.2 above, continues to expand through the Durham Region with expected relocation requirements over the 2027-2031 period. Relocations due to this project are expected to be a major contributor to overall relocation spend through the DSP period.

**Figure 8: Metrolinx BRT- Pickering Regional Bus Rapid Transit**[11]

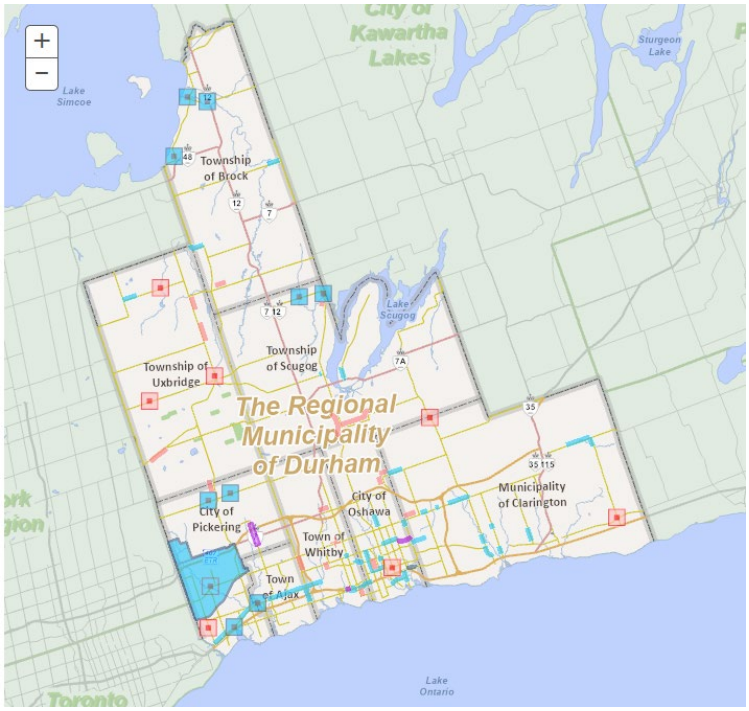



**Municipal Projects**

Several municipal transportation and infrastructure projects are in various stages of development in the Elexicon's service area. Some in construction, and others in design or environmental assessment stages. Details about impact on relocation requirements are not yet available, however, Elexicon expects most of the requirements to resemble historical projects. Where known, approximate dates for these projects is provided in the summaries below.

[11] Metrolinx, "Durham-Scarborough Bus Rapid Transit Project", (January 2022)

**Figure 9: Municipal projects in process in Elexicon's service** [12]




**Ajax**

The Town of Ajax has several ongoing and upcoming municipal projects, including[13];

- GTA East Industrial Park
- Ajax Water Supply Plant Expansion
- Municipal Housing Infrastructure Program
- Downtown Community Improvement Plan (Ongoing)
- Greenfield growth in NE (Mulberry/Wyndham) and NW (Nottingham)
- Widen Lake Ridge Road from Kingston Road to Dundas St. (2028)
- ~9,700 new residents via intensification by 2031

[12] Durham Region, "Public Works Projects Map" - https://maps.durham.ca/PublicWorksMap/default.html
[13] Town of Ajax, "Official Plan Office Consolidation", (October 2022)

**Pickering**

- Central Pickering Development Plan (Ongoing)
- Kingston Road Bus Rapid Transit (BRT) in preliminary design stage with expected construction start in 2025, with completion during the plan period
- Water Storage and Pumping Facilities to Service North Whitby and North Oshawa in Environmental Assessment stage
- Whites Road widening and HOV lanes (2025 – 2026)
- Liverpool Road and Finch Ave. widening and water supply works (2028)
- Widening of Brock Road from Finch Ave. to Taunton Rd. (2030 – 2034)
- Widening of Brock Road from Taunton Rd to Alexander Knox Rd. (2026)

**Uxbridge**

- Provision of Additional Water Supply Capacity to service the Uxbridge Urban Area in Environmental Assessment stage
- Road and bridge rehabilitation, culvert replacement, and watermain replacements in detailed design stage expected start in 2026
- Highway 47 widening and reconstruction (2026 – 2029)

**Whitby**

- North Whitby and North Oshawa Sanitary Sewer Diversion Strategy in Environmental Assessment Stage
- Courtice TOC
- Highway 12 Widening (2028)
- Downtown Whitby Intensification (2026)
- Brooklin Neighbourhood along Winchester Road (2025)
- Brooklin Neighbourhood along Thickson Road (2030 – 2034)
- Port Whitby (GO Station Area)
- West Whitby Expansion (Ongoing)

- Brooklin Urban Expansion (Ongoing)
- Victoria St. / Brock St. Intersection modifications (2028)
- ~18,000 new homes by 2031

**Clarington**

- Bowmanville & Courtice Widening (2025 – 2028)
- Courtice Southwest & Bowmanville West
- Taunton Rd. Rehabilitation (2025 – 2028)
- Widening Liberty St. from Baseline Rd. to King St. (2026 – 2027)
- Newcastle fringe subdivisions

**Scugog**

- Simcoe Street Intersection modifications

Elexicon gathers information on anticipated capital projects through direct consultation with external agencies, engagement with the Region of Durham and the municipalities within the region, and reviewing government and public agency publications, including Durham Region's Strategic Plan[14], public works projects in various stages of development, and Metrolinx Projects & Programs for the Durham Region[15]. These capital plans and project schedules are subject to change at the sole discretion of the sponsor agencies, and changes impact the timing and execution of Elexicon's relocation and expansion work. There is a risk that the Transit-Oriented Communities (TOCs) for Bowmanville could develop quicker than anticipated impacting relocation forecasts near the end of the forecast period.

Large infrastructure projects are inherently subject to uncertainty in scope and timing, particularly where coordination with municipalities and third parties is required. These factors can influence capital planning and delivery within this Program. To manage this uncertainty and maintain alignment with long-term

[14] Durham Region, "Durham Region's 2025-2035 Strategic Plan" - https://www.durham.ca/en/resources/CAO-Office/2025-Strategic-Plan-Final.pdf
[15] Metrolinx, "Projects and Programs" - https://www.metrolinx.com/en/projects-and-programs

objectives, Elexicon applies a planning approach that incorporates historical expenditure trends from 2020–2024, supplemented by adjustments for anticipated relocation requests. This methodology supports a balanced forecast while enabling flexibility to respond to emerging needs. Although annual spending may fluctuate due to external dependencies, Elexicon remains committed to optimizing investment decisions to ensure reliability, resilience, and alignment with customer and system requirements throughout the DSP period.

## 4.2 Investment Pacing and Prioritization

Projects in this Program are primarily driven by timing, scope requirements and construction schedules established by external agencies, which are outside of Elexicon's control. Where possible, Elexicon coordinates proposed projects from its other programs, subject to scheduling conflicts and resource challenges.

Large projects associated with road authorities are primarily located in Durham Region and typically form the foundation of the program's work schedule. Other agency and third-party requests are integrated into the program schedule to ensure effective allocation of resources and coordination with suppliers, contractors, and other stakeholders. Each year, as new projects emerge, they are incorporated into the program schedule for subsequent years along with any carryover work from prior periods. Smaller relocation requests that arise during the year are assessed, negotiated with the initiating party, and integrated into the schedule where resources and dependencies allow, in order to maintain overall program efficiency and minimize conflicts.

Customer impact and benefits are also considered whenever a new project is proposed. Where possible, work is scheduled and executed in a way that minimizes community disruption and maximizes benefits in collaboration with the party that is driving the need for the relocation work such as a road authority.

## 4.3 Execution Approach

As part of program execution, Elexicon applies several procedures in order to manage emerging risks that may occur, to ensure that projects are executed in a timely and optimal manner. This includes the following risk mitigations as summarized in Table 6.

**Table 6: Summary of Program Risks & Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| External Schedule and Design Dependencies: Need to manage reliance on third party schedules and design requirements, which influence project timing, sequencing, and the ability to advance work as planned. | • Early Coordination: Engagement with Road Authorities and other third parties during scoping and design phases to align work sequencing, reduce rework, and support timely project advancement. |
| Late Emerging Requests and Carry Over Work: Need to accommodate unplanned additions, scope adjustments, and outstanding work from prior years. | • Flexible Work Integration: Incorporation of late-year additions and outstanding tasks through structured intake processes that allow adjustments to sequencing, resource deployment, and annual work plans while maintaining focus on critical relocation requirements. |
| Resource Allocation and Cost Management Variability: Need to balance internal and external labour requirements while managing year over year cost fluctuations caused by shifting project timing and scope. | • Resource Planning: Use of project scheduling and tracking tools to forecast labour needs, coordinate with contractors through established Master Services Agreement (MSA), and manage expenditures within planned targets. |
| Execution Risks Related to Field Conditions: Need to address constructability challenges created by road works, civil activities, system constraints, and site-specific conditions that may affect project readiness and execution timelines. | • Constructability Review: Assessment of field constraints during design development to confirm that proposed relocation activities can be executed efficiently and safely under expected site conditions. |

| Risk | Mitigation Methods |
|---|---|
| Program Variability and Uncertainty: Need to account for inherent fluctuations in externally driven relocation programs that create variability in annual work volumes, expenditure levels, and scheduling stability. | • Portfolio Oversight: Program level monitoring to balance annual workloads, coordinate sequencing across initiatives, and maintain alignment between planned expenditures and actual delivery progress. |
| Scope of Schedule Changes Resulting in Cost Increases: Need to address situations where third party driven modifications to project scope or timelines create cost pressures and adjustments to planned work execution. | • Cost Recovery Mechanisms: Application of legislated provisions and established cost sharing agreements to recover incremental costs that arise when third party driven scope or schedule changes affect project delivery requirements. |

# 5. OPTIONS ANALYSIS

## 5.1 Options for Externally Initiated Plant Relocations

Not applicable – The Externally Initiated Plan Relocation program represents demand-driven, non-discretionary investment that responds to customer driven work. Investment decisions are made in accordance with applicable legislation and DSC requirements and therefore are not subject to alternative options analysis or discretionary prioritization frameworks.

# A2 CUSTOMER AND GENERATION CONNECTIONS

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $30.24M | 2025-2026 Plan: $12.07M | 2027-2031 Forecast: $41.21M |
| Primary Driver: Customer Service Requests | | |
| Secondary Drivers: Mandated Service Obligations | | |
| Outcomes: Customer Focus, Operational Effectiveness, Safety, Environmental, Public Policy Responsiveness | | |
| Segments: Load Connections; Generation Connections | | |

The Customer and Generation Connections program enables customers to connect loads, generation, and storage facilities to Elexicon's distribution system. Investments include connection services and connection assets designed to provide timely, cost-efficient, reliable, and safe access to the distribution system, in accordance with Elexicon's Customer service objectives, the Distribution System Code ("DSC"), and applicable legislation.

The Customer and Generation Connections program includes two segments:

- **Load Connections**: This segment enables mandatory connections to the distribution system, including new load connections and modifications to existing load connections.
- **Generation Connections:** This segment includes work necessary to connect distributed energy resources ("DER"), including generation and energy storage, to the distribution system.

Together, these two segments ensure Elexicon meets its regulatory obligations while supporting customer growth, regional development, and the integration of emerging technologies.

Elexicon's service area, especially within the Region of Durham, continues to experience significant residential, commercial, and industrial growth, making it one of Ontario's fastest-growing regions. Customer connection requests have increased from recent historical years due to population growth, housing growth, and continued investments in employment lands. Employment lands are designated areas intended to accommodate major job growth while restricting non-employment uses. These areas include zones for manufacturing, distribution centres, warehousing, and office facilities, thereby supporting economic development and industrial activity. Major residential developments at Seaton in Pickering, and

Brooklin in Whitby, along with numerous new residential developments in Ajax, Pickering, Clarington, and Whitby continue into the 2027 to 2031 rate period. These developments align with provincial housing targets and economic policies, including Ontario Regulation 580/22 ("Provincial Priorities") and the 2024 Provincial Policy Statement.

Elexicon forecasts the total net investment within the Customer and Generations Connections program to be $41.21M over the 2027 to 2031 period. Elexicon forecasts to connect approximately 18,000 new customers and 236 new generation connections over the 2027 to 2031 rate period. Residential customer growth is expected to average 1.9% annually, and commercial and industrial customer growth is projected at 0.8% annually. These projections reflect ongoing housing completions, population increases, and economic growth throughout the region.

From 2022 to 2024, Elexicon's service area experienced a 140% increase in the number of connection applications and inquiries over 1 MW, rising from 15 requests in 2022 to 36 in 2024. More notably, the total load requirements surged from 28 MW in 2022 to 166 MW in 2024. This growth was driven primarily in Pickering, which saw its load requests jump from 6 MW to 107 MW, and Whitby, which maintained consistently high volumes of load requests. The data reflects a significant acceleration in development activity and electrical demand across the region. Elexicon has also seen an increase in requests for large load connections over 5 MW in 2024 and 2025, to support new distribution centres and manufacturing facilities, attracted by efficient access to the Greater Toronto Area ("GTA") and major highways.

In summary, Customer and Generation Connections program investments are essential to maintain safe, reliable and efficient access to the distribution system while meeting growing customer demand. These investments directly support regional housing and economic policies, enable customers' generation connections and renewable energy and storage initiatives, and ensure that Elexicon can continue to meet or exceed customer service standards expected by its customers and prescribed by the OEB.

## 2. INVESTMENT DESCRIPTIONS

### 2.1 Load Connections

Load connections include both new customer connections and modifications/upgrades for existing customers. These activities ensure that customers across all classes can connect safely and reliably to Elexicon's distribution system in accordance with the Distribution System Code ("DSC") and Elexicon's

Conditions of Service. This program is non-discretionary, as Elexicon is obligated to connect customers per the DSC, and as such the costs of the program are externally driven and not within the utility's control.

New connections include a range of customer types such as residential, general service, temporary, and third-party connections (e.g., communications, streetlighting, and traffic-signal installations). Depending on system conditions, the work can be established as basic connections, with overhead or underground connections to existing distribution lines with existing capacity and suitable voltage, or connections that require some amount of upgrade to infrastructure. These upgrades may include increased cable ampacity or increased transformer capacity. In some cases, load connections require significant planning and engineering to assess capacity constraints and expand the distribution system to accommodate the connection. Load connections that require distribution expansion investments are part of Elexicon's System Expansion program.

Existing connections and other service requests include customer-initiated modifications such as service upgrades, generator transfer-switch installations, and new net-metering connections.

Overhead and underground connection assets include civil infrastructure, service wire and cable, metering equipment, switches, connectors, poles, transformers, and associated hardware. Typically, new residential service connections will be installed underground. Elexicon will proceed with overhead service connections in situations where ground conditions or terrain make underground installations technically or economically impractical, or where pre-existing overhead infrastructure exists.

Elexicon's primary objectives in this segment are to meet customer service requests in a timely and efficient manner, meeting or exceeding all regulatory requirements, while maintaining system reliability.

Customer and Generation Connections typically include the following stages:

- Applications Processing: processing of applications for new or modified service connections, ensuring all required documentation is submitted, reviewed, and that proposed designs comply with Elexicon's current standards and Conditions of Service.
- Load Studies: Conducting load impact assessments to evaluate how new connections or service upgrades may affect existing infrastructure, system capacity, and reliability.

- Customer Connection Agreements ("CCA"): Establishing formal agreements outlining the terms and conditions for connecting to the electrical grid.
- Offer to Connect ("OTC"): Where a system expansion is required to accommodate the new connection, an OTC will be prepared and presented to the customer.
- Construction and Installation: Managing the construction and installation of electrical infrastructure required for new connections, which may include poles, transformers, conductors, metering equipment, and other associated components.
- Commissioning: Performing commissioning activities to verify that all installed systems meet safety, operational, and technical standards prior to energization.
- Energizing: The process of connecting the infrastructure to the electrical grid and providing power to the new service.

There are significant projects currently in the application and development stage including several key residential developments, industrial, mixed-use developments and subdivisions in Pickering, Ajax, Clarington, and Whitby. Elexicon anticipates that most of these projects will be in service over the next 3-7 years based on the average completion rate and the number of units proposed for the region. Please refer to System Expansion program (Exhibit 2B – Tab 4 – Schedule 3 – Appendix C) for notable developments in Elexicon's service territory and Asset Management Process (Exhibit 2B – Tab 3 – Schedule 1) for further discussion on economic growth. Load connections are closely tied to system expansion projects; once expansions are completed, the loads require services.

Over the 2027 to 2031 period, Elexicon will engage in higher volumes of these activities compared to historical volumes to support expected customer growth. In addition to higher volumes of connection-related activities, customers will benefit from the newest technical standards, installation methods, more efficient transformers, and the latest advanced metering infrastructure ("AMI") metering technology (Refer to Exhibit 2B - Tab 4 - Schedule 3 - Appendix D for further details).

## 2.2 Generation Connections

Investments in the generation connections segment are required to facilitate the integration of generation sources, including renewable DERs, energy storage systems, and non-renewable technologies, into the

distribution grid. The following type of generation sources are included in the generation connections segment:

- Renewable: includes solar photovoltaic, wind turbine, and bio-gas generators
- Energy Storage: includes technologies to capture energy such as batteries, compressed air and pumped
- Non-Renewable: includes natural gas generators and combined heat and power technologies

Generation and storage equipment ranges from smaller rooftop solar systems for residential and commercial customers to large scale photovoltaic ("PV") systems, battery energy storage systems ("BESS"), synchronous generator systems ("SG") and combined heat and power systems ("CHP") for commercial and industrial customers.

Elexicon must ensure that safety and technical reliability of the system for existing customers, and regulatory compliance are maintained when connecting generation and storage facilities to the grid. Formal procedures have been established and are specified in the Distributed Energy Resources Connection Procedures ("DERCP") issued by the OEB.

Generation project types are defined as follows:

- **Micro-Embedded Generation:** refers to generation projects with ≤ 10 kW capacity, typically rooftop solar PV systems installed by residential or small commercial customers. These projects follow a connection process, including the submission of Pre-Generation Application form, technical assessment, and execution of Micro Generation Agreements as outlined in the Distributed Energy Resource Micro Connection Information Package.
- **Non-Micro Generation:** refers to generation projects with > 10 kW capacity, and follows a structed review process, including the submission of Preliminary Consultation Information Requests (PCIR). Next, a formal Connection Impact Assessment (CIA) is required to assess the technical feasibility, risks, and infrastructure needs of the project. These steps, including design submission, SCADA integration (if applicable), and protection and coordination (if applicable) are detailed in the DER Non-Micro Generator Connection Package.

Engineering and planning effort for large PV, BESS, SG, and CHP can be substantial and generally includes the following activities:

- Preliminary Consultation
- Conducting Connection Impact Assessments
- Reviewing installation plans, technical specifications, and CCAs
- Witnessing of commissioning, coordination of ESA inspections, executing connection agreements, and ongoing coordination of telemetry, dispatch and billing.

Timelines for connecting and assessing generation facilities include:

- **Micro-Embedded Generation:** As outlined in DSC sections 6.2.7 and 6.2.7A, Elexicon must connect micro-embedded generation facilities within five business days, 90% of the time annually, once all service conditions are met, or at a later mutually agreed date.
- **Generation Connection Impact Assessments ("CIA"):** Section 25.37 of the Electricity Act requires that CIAs for renewable energy generation be completed within prescribed timelines, with quarterly reporting to the OEB on compliance as detailed in Ontario Regulation 326.

A range of customer types, including households, schools and large commercial businesses submitted more than 150 applications over the 2020-2024 period for DER connections and Elexicon expects interest will continue at a higher pace over the 2027-2031 period based on recent activity, on-going incentives, and improving technology. Elexicon expects an additional 236 DER connections and 25MW capacity over the 2027 to 2031 period. Most connections are expected to be rooftop solar photovoltaic technology, with continued interest in PV, BESS, and CHP as described in more detail in Section 3.2.

## 2.3 Summary of Investment Outcomes and Benefits

Table 1 lists the outcomes this program is intended to deliver including a summary of the associated benefits and objectives of the investment.

**Table 1: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Focus | • Ensures Elexicon continues to meet its customer service objectives as stipulated in the DSC for timely connections.<br>• Customers are supported in the connection process so that appropriate facilities and connections are provided that meet current standards and regulatory requirements.<br>• Enabling DER;<br>  ○ supports customer choice and opportunity to participate in $CO_2$ reduction initiatives,<br>  ○ Reduces household energy consumption from the distribution system and associated costs, and<br>  ○ Supports efficiencies in commercial and industrial businesses; lowering consumption from the distribution system and associated demand charges. |
| Operational Effectiveness | • Expands system capacity and facilitates new connections and service upgrades in a way that maintains system reliability.<br>• Provides an opportunity to install assets meeting the latest standards for efficiency, and operational performance.<br>• Grid resilience, DER and related technologies improve overall load management and enable capacity for additional DERs and electrification. |
| Safety | • Supports safety objectives by:<br>  ○ Complying with Ontario Regulation 22/04,<br>  ○ Ensuring service connections meet applicable codes; and<br>  ○ Obtaining Electrical Safety Authority connection permits prior to connecting new or upgraded customers' service entrance equipment. |
| Environmental Responsibility | • Integrating renewable energy resources into the grid helps reduce greenhouse gas emissions. |

| Outcome | Investment Benefits and Objectives |
|---|---|
| Public Policy Responsiveness | • Supports O.Reg. 580/22: Provincial Priorities to build 1.5 million homes by December 2031[1].<br>• Supports meeting the 2031 municipal housing targets established by the Ministry of Municipal Affairs and Housing[2]<br>• Supports Provincial energy policies on Customer choice, reduction of greenhouse gases, green alternatives, and climate change initiatives. |

## 3. INVESTMENT DRIVERS & NEED

Table 2 describes the primary and secondary drivers of investment in load and generation connections.

**Table 2: Summary of Primary & Secondary Program Drivers**

| Load Connections | |
|---|---|
| Investment Driver | Reasoning & Investment Benefits |
| Primary Driver: Load Connection Request | Projected increase in load connections driven by the following:<br>1. Customer Growth<br>• Sustained historical growth in customer connections.<br>• Population and household growth across Elexicon's service area.<br>• Ministry of Finance population forecasts for Durham Region.<br>• Elexicon's 2027–2031 customer growth forecast.<br>2. Regional, Provincial, and Municipal Housing Targets<br>• O.Reg. 580/22 – Provincial Priorities to build 1.5 million homes by 2031.<br>• Provincial Planning Statement<br>3. Developments Contributing to Customer Growth<br>• Increased volume of customer connection applications.<br>• Major residential and mixed-use projects such as Seaton (Pickering), Brooklin (Whitby), Pickering City Centre, and GO East transit-oriented communities. |

[1] O.Reg.520/22 Provincial Priorities, December 20, 2022
[2] 2031 Municipal Housing Targets – Phase 2 Updates, October 4 2023 - https://ero.ontario.ca/notice/019-7281

| Load Connections | |
|---|---|
| Investment Driver | Reasoning & Investment Benefits |
| Secondary Driver: Mandated Service Obligations | Fulfilling customer service requests as mandated by Sections 7.2 (customer connections) of the Distribution System Code ("DSC"), *Electricity Act, 1998* (Electricity Act), and *Ontario Energy Board Act, 1998* (OEB Act); and Elexicon's Conditions of Service and OEB Electricity Distribution License. |
| Generation Connections | |
| Investment Driver | Reasoning & Investment Benefits |
| Primary Driver: Generation Connection Request | Fulfilling customer service requests as mandated by Sections 6.2.4 (generation connections) of the Distribution System Code ("DSC"), *Electricity Act, 1998* (Electricity Act), and *Ontario Energy Board Act, 1998* (OEB Act); and Elexicon's Conditions of Service and Electricity Distribution License. |
| Secondary Driver: Public Policy Responsiveness | Connecting generation customers continues to be responsive to public policy themes of affordability, beneficial electrification, and expanding customer choice as expressed through the Electricity Demand Side Management Framework[3] ("eDSM"), and the directive issued by the Minister of Energy on December 19, 2024[4] emphasizing the benefits of non-wires alternatives, distributed energy resources ("DER"), grid reliability and resilience. |

## 3.1 Load Connections

Elexicon's investments in Load Connections are primarily driven by continued customer growth across its service territory. The Region of Durham remains one of Ontario's fastest-growing areas, with sustained residential, commercial, and industrial expansion driving increased demand for new and upgraded connections.

Elexicon customer classes include the following:

- General Service < 50kW

[3] IESO. Electricity Demand Side Management (eDSM) Framework. https://www.ieso.ca/Sector-Participants/Engagement-Initiatives/Engagements/Electricity-Demand-Side-Management-Framework

[4] Letter of Direction from the Minister of Energy and Electrification to the Chair, Dec 19, 2024. https://www.oeb.ca/about-oeb/corporate-governance-and-reports/letters-direction-formerly-mandate-letters

- General Service >= 50 kW and <=4,999 kW
- Large User >4,999 kW
- Residential

Population and employment growth in the Region of Durham continues to increase. Large-scale community developments such as Seaton in Pickering, Brooklin in Whitby, and the Pickering City Centre Master-Planned Community are expected to add thousands of new residential units. Significant intensification is also underway around Major Transit Station Areas ("MTSA"s) in Ajax, Whitby, and Clarington, aligned with regional transportation investments such as the GO East rail extension to Bowmanville. These developments, along with new employment lands are resulting in a steady increase in connection requests and service upgrades, including a rising number of large-load (> 1 MW) applications.

The primary investment driver for Load Connections is therefore customer service requests associated with this ongoing growth. The secondary driver is mandated service obligations under the Distribution System Code (DSC) and Elexicon's Conditions of Service, which require the utility to provide timely and compliant connections for all customers requesting access to the distribution system. These mandatory investments are critical for meeting new service demands and supporting regional housing and economic growth.

### 3.1.1 Customer Growth

**Customer Growth Forecast**

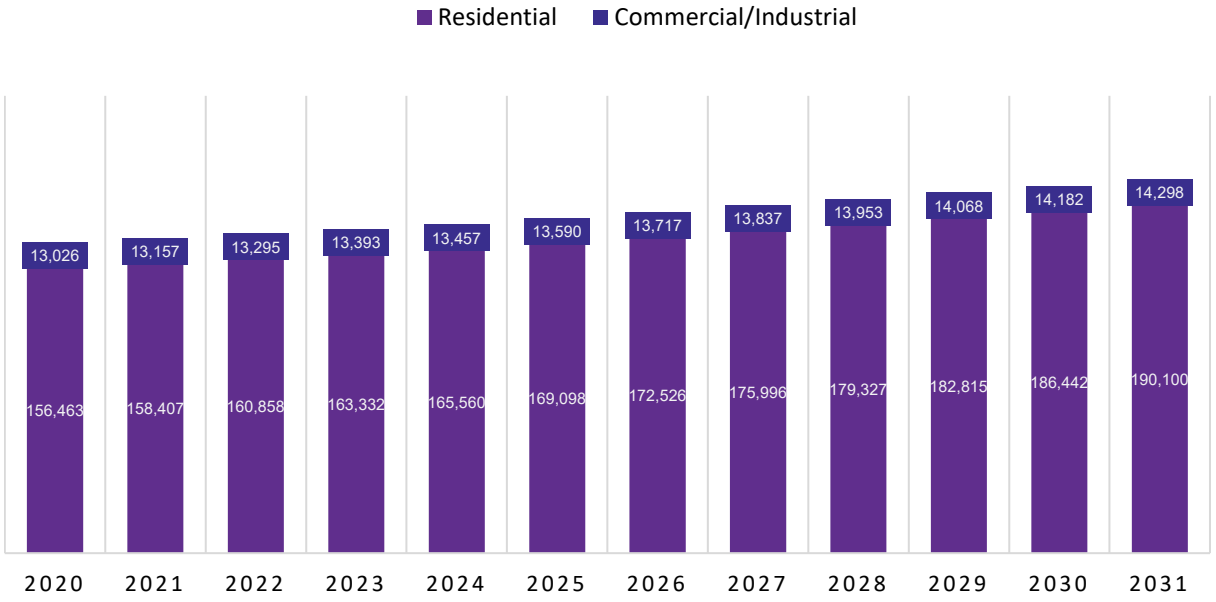
The customer growth forecast forms a key input to understanding projected connection activity over the 2027 to 2031 rate period. Elexicon developed its forecast using multiple drivers, including historical connection trends, population and household growth, and the provincial growth outlook published by the Ontario Ministry of Finance.

By integrating these variables, Elexicon has established expected growth rates for all customer classes over the 2027 to 2031 period (Refer to Exhibit 3 - Tab 1 - Schedule 1). The resulting forecasted customer counts are summarized in Table 3, with a comparison of historical and forecast growth trends illustrated in Figure 1.

**Table 3: Elexicon Forecast Customer Counts**

| | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| **General Service < 50 kW** | 12,092 | 12,199 | 12,306 | 12,415 | 12,525 | 12,635 | 12,747 |
| **General Service ≥ 50 kW <=4,999 kW** | 1,492 | 1,512 | 1,523 | 1,529 | 1,534 | 1,538 | 1,542 |
| **Large User >4,999kW** | 7 | 8 | 8 | 10 | 10 | 10 | 12 |
| **Residential** | 169,098 | 172,526 | 175,995 | 179,328 | 182,817 | 186,443 | 190,100 |
| **Total** | 182,689 | 186,245 | 189,832 | 193,282 | 196,886 | 200,626 | 204,401 |
| **Annual Change %** | 2.05% | 1.95% | 1.93% | 1.82% | 1.86% | 1.90% | 1.88% |

**Figure 1: Historical and Forecast Customer Growth**




Overall, the forecast reflects sustained growth across all customer classes within Elexicon's service territory. The number of residential customers is expected to increase by an average of approximately 1.9% per year, supported by continued housing development and population growth in the Region of Durham and surrounding municipalities. Commercial and industrial customers are forecast to grow by about 0.8% per year, consistent with historical trends and ongoing regional economic expansion. These projections provide a reasonable outlook that takes into consideration municipal planning assumptions and provincial demographic forecasts for the 2027 to 2031 rate period.

**Historical Growth in Customer Connections**

Average annual growth across all customer class rates over the 2015-2019 period was 1.16%, and 1.41% over the 2020-2024 period, as illustrated in Table 4.

Table 4**: Elexicon Historical Customer Counts**[5]

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|
| **General Service < 50 kW** | 11,088 | 11,211 | 11,274 | 11,389 | 11,535 | 11,585 | 11,689 | 11,888 | 11,952 | 11,979 |
| **General Service >= 50 kW** | 1,435 | 1,426 | 1,458 | 1,425 | 1,403 | 1,437 | 1,464 | 1,405 | 1,436 | 1,473 |
| **Large User** >4,999 kW | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 5 |
| **Residential** | 147,753 | 149,071 | 150,220 | 151,914 | 154,711 | 156,463 | 158,407 | 160,856 | 163,332 | 165,560 |
| **Total** | 160,279 | 161,711 | 162,955 | 164,732 | 167,653 | 169,489 | 171,564 | 174,153 | 176,725 | 179,017 |
| **Annual Change %** | -- | 0.9% | 0.8% | 1.1% | 1.8% | 1.1% | 1.2% | 1.5% | 1.5% | 1.3% |

Elexicon has observed a consistent and accelerating upward trend in customer connection activity, particularly in the deployment of large-scale transformers. Since 2020, the number of transformers rated at or above 1 MVA has increased significantly — from 7 new installations in 2020 to 19 in 2024, as shown in Table 5. This represents nearly a threefold increase over five years, underscoring the growing demand for higher-capacity infrastructure.

Notably, the composition of these connections has shifted toward larger transformer sizes. While the majority of installations between 2020 and 2024 fell within the 1,000 kVA to 2,999 kVA range (45 units), there has been a marked rise in the number of transformers exceeding 5 MVA. In 2024 alone, five transformers over 5 MVA were connected, compared to none in the years prior to 2023. This trend reflects a growing prevalence of large user applications and signals a shift in the nature of customer demand toward more energy-intensive operations.

Table 6 further illustrates this trend, showing a substantial increase in the total connected transformer capacity for customers over 1 MVA. Aggregate capacity rose from 13 MVA in 2020 to 61 MVA in 2024. This growth is distributed across multiple municipalities, with Ajax, Belleville, and Whitby contributing

[5] Elexicon OEB Scorecard

significantly to the overall capacity increase. For instance, Ajax saw its connected capacity grow from 2 MVA in 2020 to 22 MVA in 2024, while Belleville added 20 MVA in 2024 alone. These developments highlight a clear shift in Elexicon's customer base toward larger, more energy-intensive connections.

**Table 5: Transformers Connected Over 1 MVA from 2020 to 2024**

| Transformer Size | 2020 | 2021 | 2022 | 2023 | 2024 | Total |
|---|---|---|---|---|---|---|
| 1,000 kVA to 2,999 kVA | 6 | 11 | 7 | 7 | 14 | 45 |
| 3,000 kVA to 4,999 kVA | 1 | 4 | 3 | 6 | 0 | 14 |
| Over 5,000 kVA | 0 | 0 | 0 | 1 | 5 | 6 |
| Total | 7 | 15 | 10 | 14 | 19 | 65 |

**Table 6: Connected Transformer Capacity of Customers Over 1 MVA from 2020 to 2024**

| Municipality | 2020 (kVA) | 2021 (kVA) | 2022 (kVA) | 2023 (kVA) | 2024 (kVA) | Total (kVA) |
|---|---|---|---|---|---|---|
| Ajax | 2,000 | 9,500 | 9,500 | 6,000 | 22,000 | 49,000 |
| Belleville | 0 | 0 | 2,000 | 20,000 | 26,000 | 48,000 |
| Bowmanville | 0 | 0 | 0 | 0 | 1,500 | 1,500 |
| Newcastle | 0 | 1,500 | 0 | 0 | 0 | 1,500 |
| Pickering | 8,250 | 7,000 | 1,500 | 0 | 4,500 | 21,250 |
| Port Hope | 0 | 0 | 0 | 8,500 | 0 | 8,500 |
| Whitby | 3,000 | 10,000 | 8,250 | 13,500 | 7,000 | 41,750 |
| Total | 13,250 | 28,000 | 21,250 | 48,000 | 61,000 | 171,500 |

**Population and Household Growth from Durham Region**

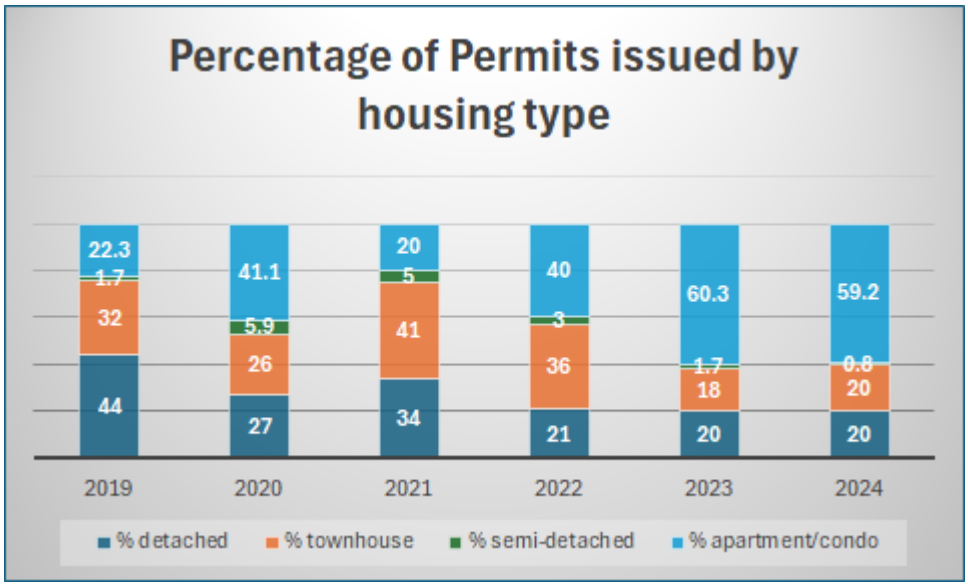
The Region of Durham continues to serve as the major centre of growth for Elexicon's service territory. According to the Region's 2025 Monitoring of Growth Trends Report[6] the population reached an estimated 780,065 residents as of December 2024, up from 732,210 in 2021, representing an average annual growth rate of 2.1% in residents.

Household growth has kept pace, increasing by approximately 4,860 new households from 2023 to 2024, a 1.9% annual increase and averaging 1.6% per year between 2020 and 2024. These increases reflect continued high levels of housing completions and new building-permit activity across the Region's municipalities. The Region of Durham development reports[7] that 20,512 residential permits were issued

[6] Monitoring of Growth Trends, May 23, 2025 – Regional Municipality of Durham
[7] Envision Durham – Regional Official Plan – December 13, 2024

over the 2020-2024 period. Figure 2 illustrates the percentage of permits associated with each housing type for 2019-2024.

**Figure 2: Percentage of Permits per Housing Type[7]**




In 2024, housing starts increased by 3% to 3,980, and completions rose by 1.7% to 5,014[8]. A significant portion of new residential units were in multi-residential forms, with 79.2% being townhouses and apartments/condominiums. These trends show a substantial shift towards higher-density condominium living with declines in townhouses and detached homes.

**Ministry of Finance Population Growth Rate in the Region of Durham**

The Province of Ontario's long-term population projections indicate a steady growth trajectory across the province. According to the Ontario Government's Demographic Trends and Projections 2024 Report[9], the Region of Durham is projected to grow by approximately 33.5% over the 2024–2051 period. This aligns with the Region of Durham Official Plan – Envision Durham Report[10] which estimate the population will reach around 1.3 million residents by 2051.

[8] Regional Municipality of Durham Information Report – June 27, 2025
[9] Ministry of Finance, Ontario's Long-Term Report on the Economy 2024-46 – May 2024
[10] Envision Durham Regional Official Plan – Dec 13, 2024

For Elexicon, these projections serve as a key demographic driver for forecasting future new connections. By leveraging this data, Elexicon ensures that its connections planning for the 2027 to 2031 rate period is informed by the region's underlying demographic momentum.

### 3.1.2 Regional, Provincial and Municipal Housing Targets

**O.Reg 580/22: Provincial Priorities**

Customer service connections are also expected to increase due to Ontario Government regulations. In 2022, the Province of Ontario issued O.Reg. 580/22: Provincial Priorities, establishing the goal of building 1.5 million new homes by December 2031. This regulation identifies housing construction, transit, utilities, and other infrastructure as provincial priorities to support population and economic development. To implement these priorities, the province introduced a framework that includes:

- Strong-mayor powers to accelerate local planning and approvals
- $1.2 billion Building Faster Fund to incentivize municipalities meeting housing targets
- Streamlined approval pathways under the Planning Act for standardized housing designs.

Additionally, the province implemented the "More Homes Built Faster" plan and the Provincial Policy Statement (PPS 2024)[11], which integrates previous planning policies and directs municipalities to allocate sufficient serviced land for housing, employment, and infrastructure over the long term.

**Provincial Planning Statement**

The Provincial Planning Statement (PPS 2024) came into effect on October 20, 2024, merging the previous PPS 2020 and A Place to Grow: Growth Plan for the Greater Golden Horseshoe[12] into a single province-wide framework. The PPS provides direction on housing, development, infrastructure, and resource management. The PPS directs municipalities to plan for sufficient serviced land over a 20–30-year horizon and reinforce housing targets and density objectives.

Within Elexicon's service territory, municipal housing targets to 2031 include:

[11] Provincial Planning Statement, 2024
[12] A Place to Grow – Growth Plan for the Greater Golden Horseshoe – August 2020

**Table 7: Housing Targets for Municipalities within Elexicon Service Region under the PPS**

| Municipality | PPS Housing Target (units built by 2031) |
|---|---|
| Town of Whitby | 18,000 |
| Town of Ajax | 17,000 |
| City of Pickering | 13,000 |
| Municipality of Clarington | 13,000 |
| City of Belleville | 3,100 |
| Total | 64,100 |

Collectively these municipalities have a target to create 64,100 new homes over the 2022-2031 period, approximately 7,122 units per year.

### 3.1.3 Developments Contributing to Growth

**Major Transit Station Areas ("MTSA") and Transit-Oriented Communities ("TOC")**

MTSAs are areas designated within a 10-minute walk of a transit station. It is intended to support transit-oriented development through ridership volume and includes a mix of land uses and intensities of development. TOCs are a broader concept that encompass the entire area around a transit station, intending to create vibrant mixed-use communities with more housing and jobs within a short distance of transit.

The Town of Whitby is in the process of an Official Plan Review, including marking out a Protected Major Transit Station Area ("MTSA") around the Whitby GO Station. A statutory meeting was held in October 2024 to present draft recommendations for the Whitby MTSA and other Strategic Growth Areas.

Intensification in the MTSAs continues in Pickering and Ajax. Between 2022 and 2024, in separate proposals, a total of 13 mixed-use and residential towers ranging in height from 40-55 storeys were proposed or approved in the MTSA near the Go Station in Pickering, and two towers over 55 storeys were approved in the Ajax MTSA.

Additional TOCs are being proposed in Courtice and Bowmanville as part of the east GO line extension currently in construction in east Toronto. More than 40 projects are in various stages of development in Clarington.[13] The Courtice and Bowmanville MTSAs are illustrated in Figure 3 and Figure 4, below.

**Figure 3: Courtice MTSA[14]**

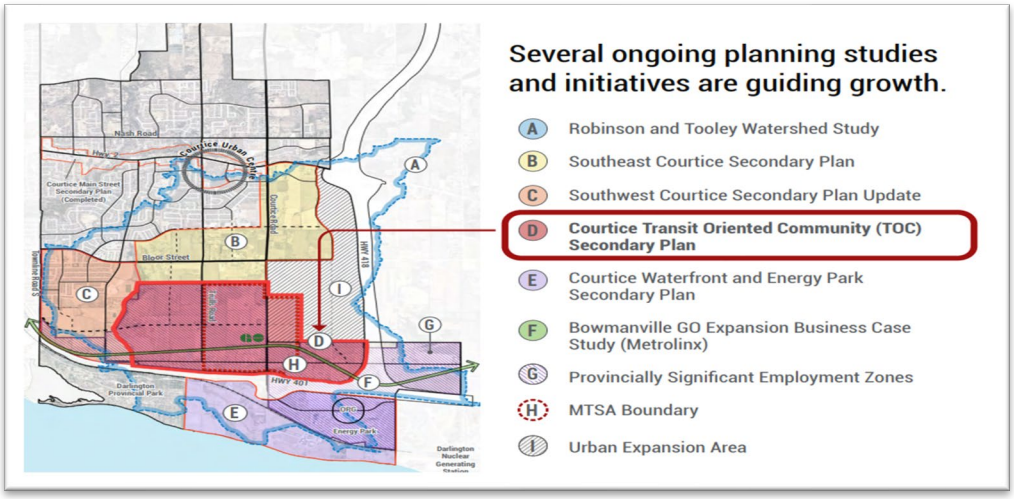
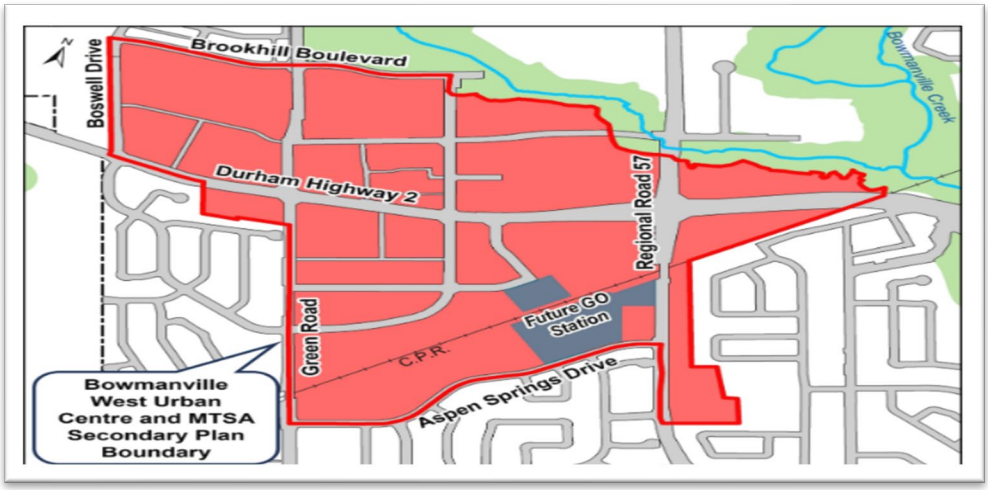



**Figure 4: Bowmanville MTSA[15]**




[13] Current Development Proposal, Municipality of Clarington – https://www.clarington.net/en/business-and-development/Current-Development-Proposals.aspx?_mid_=22922
[14] Courtice Transit Oriented Community (TOC) Secondary Plan, March 22, 2022
[15] Courtice Transit Oriented Community (TOC) Secondary Plan, March 22, 2022

**Requests Received from Developers**

Developers submit requests to Elexicon for load connections, seeking estimates for the proposed connected loads. It is essential to note that these requests are preliminary and do not constitute a commitment to proceed with development; rather they are intended to assist the developer in validating a business case for potential investments in the service area.

Upon receiving a request, Elexicon assesses the proposed load and provides an estimate based on the current capacity and infrastructure availability. Should the developer choose to move forward, Elexicon will subsequently prepare an Offer to Connect (OTC), outlining the terms and conditions for the connection.

**Volume of Requests**

The volume of connection requests serves as an indicator of future development activity within Elexicon's service area. Table 8 and Table 9 below summarize the connection applications and inquiries received with load requirements over 1 MW over the past three years including the volume of connection inquiries and the associated loading. This illustrates the growing demand for electrical connections and the potential for upcoming developments.

Table 8**: Number of Connection Applications and Inquiries Over 1 MW from 2022 to 2024**

| Municipality | 2022 | 2023 | 2024 |
|---|---|---|---|
| Ajax | 6 | 6 | 5 |
| Belleville | 1 | 1 | 2 |
| Bowmanville | 0 | 0 | 0 |
| Gravenhurst | 0 | 0 | 1 |
| Pickering | 4 | 2 | 18 |
| Port Hope | 0 | 0 | 0 |
| Uxbridge | 0 | 0 | 1 |
| Whitby | 4 | 10 | 9 |
| Total | 15 | 19 | 36 |

Table 9**:Load Requirements for Connection Applications and Inquiries Over 1 MW from 2022 to 2024**

| Municipality | **2022 (MW)** | **2023 (MW)** | **2024 (MW)** |
|---|---|---|---|
| Ajax | 12 | 19 | 15 |
| Belleville | 3 | 1 | 12 |
| Bowmanville | 0 | 0 | 0 |
| Gravenhurst | 0 | 0 | 5 |
| Pickering | 6 | 4 | 107 |
| Port Hope | 0 | 0 | 0 |
| Uxbridge | 0 | 0 | 4 |
| Whitby | 7 | 30 | 24 |
| Total | 28 | 54 | 166 |

**Future Development Activity**

The inquiries outlined above highlight a diverse range of developments, from residential projects to commercial establishments. The cumulative proposed load indicates a strong demand for electrical services, reflecting the growth potential within Elexicon's service area. As these developers move forward with their plans, Elexicon anticipates an increase in OTCs being issued, which will further necessitate infrastructure enhancements and capacity planning.

This anticipated surge in development activity underscores the importance of Elexicon's role in ensuring reliable and adequate electrical service to meet the needs of both current and future customers. By understanding the volume of connection requests, Elexicon is better equipped to align its resource allocation and strategic planning efforts to accommodate the evolving demands of the community.

## 3.2 Generation Connections

Elexicon supports connecting DERs to the distribution system in alignment with the DSC and in coordination with Hydro One and the IESO. As of the end of 2024, Elexicon had responded to over 700 inquiries from customers and developers seeking to connect generation under various programs such as the IESO programs, Net-Metering, Energy Storage, Combined Heat and Power, and Load Displacement.

### 3.2.1 Existing Generation Connections

A wide range of proponents submitted project applications, including many schools, housing managers, large grocery stores, condominium corporations, and department stores. As a result, Elexicon connected

150 generators to its distribution system over the 2020-2024 period for a total capacity of 27.0 MW, as illustrated in Table 10, below.

Table 10: **Generation Connections and Installed Capacity (kW)**

| Generation type | **2020** | **2021** | **2022** | **2023** | **2024** | Total # Units | Total Capacity (kW) |
|---|---|---|---|---|---|---|---|
| BESS | 1 | 4 | 1 | 1 | 0 | 7 | 20,483 |
| CHP | 0 | 2 | 0 | 0 | 0 | 2 | 2,095 |
| PV | 1 | 3 | 2 | 1 | 3 | 10 | 2,498 |
| Sync Gen | 1 | 0 | 0 | 0 | 0 | 1 | 800 |
| Roof top Solar | 5 | 9 | 13 | 57 | 46 | 130 | 1,081 |
| Total | 8 | 18 | 17 | 58 | 49 | 150 | 26,957 |

Elexicon saw relatively low uptake in DERs in the years immediately following the conclusion of the Feed-in-Tarriff (FIT) program in 2018. However, a growing interest in net-metering rooftop solar was observed over the period, particularly post COVID-19, accounting for 87% of the number of connections. Elexicon expects to connect more that 40 roof top solar generators during 2025, based on the first 6 months connections, which is consistent with recent historical volumes.

As of October 2025, 3 PV installations are planned for connection in 2025 for 595 kW capacity, 4 PV installations are planned for 2026 for 1,340 kW, 1 diesel generator with 2,000 kW capacity planned for 2026, and 1 BESS system planned for Q1 2027 with 11.5 MW capacity.

### 3.2.2 Generation Forecast

Durham's Community Energy Plan[16] ("DCEP") outlines the benefits and outcomes expected from its plans for the Region. Among the objectives is a growth in renewable energy to support up to 56% of its energy requirements by 2050. Its plan covers all sectors of the economy including residential, commercial, industrial, institutional, agriculture and transportation.

Elexicon expects applications for renewable DERs including rooftop solar connections over the 2027 to 2031 rate period to continue at the higher rate seen in recent years as supported by several current policies and economic factors including:

[16] The Clean Energy Economy in Durham: Seizing the Opportunity

- Net metering,
- Clean Technology Investment Tax Credit for businesses announced in 2022 (allows up to 30% capital cost rebate for solar PV and energy storage),
- Accelerated Investment Incentive (allows businesses to deduct up to three times the normal depreciation in the first year for eligible solar equipment),
- Home Renovations Savings Program started on January 28, 2025, (provides for up to $10,000 in rebates for solar panels and battery storage systems),
- Canada Greener Homes Loan offers interest-free financing up to $40,000 for solar panel installation,
- Durham Greener Homes Rebate offers up to $10,000 for solar PV systems, and
- Lithium-Ion Battery Costs have decreases up to 70% over the past 10 years[17]

Elexicon expects continued interest in BESS at the distribution level in part as a result of recent work by the OEB to remove barriers to storage integration including; the new Non-Wires Solutions Guidelines ("NWS"), modernizing, standardizing and streamlining connection requirements, as well as procedures for storage and other DERs, release of the Framework for Energy Innovation, enabling distributors to use storage to meet system needs, and on-going support through the OEB Innovation Sandbox.[18] Based on market projections, BESS connections are expected to increase in Ontario by 2050, as the technology matures and prices continue to fall, supported by Provincial incentives through the Home Renovations Savings Program.[19]

Based on the assumption that existing incentives remain, and that no new policies or incentives are made available to businesses and homeowners, Elexicon expects renewable generation connections to continue at a rate consistent with the most recent 3-year average, and non-renewable generation to continue at a rate consistent with the past 5-year average.

[17] PV Magazine BNEF: Lithium-ion battery pack prices drop to record low of $115/kWh, December 11, 2024 - https://www.pv-magazine.com/2024/12/11/bnef-lithium-ion-battery-pack-prices-drop-to-record-low-of-115-kwh/
[18] OEB Innovation Sandbox, April 18, 2022 - https://www.oeb.ca/newsroom/2022/enabling-storage-ontarios-electricity-system
[19] Home Renovations Savings Program https://www.homerenovationsavings.ca/

DER projects in Elexicon's service area are expected to add another 91 connections over 2025 and 2026, and 236 over the 2027-2031 period. Based on 2025, and 2026 known information, and average historical generator capacity per unit, Elexicon expects to add an additional 25.2 MW to the distribution system over the 2027-2031 period. Based on historical requests, Elexicon expects BESS and PV requests will require expansion or capacity increases. Table 11 below shows the forecast DER for 2025-2031.

Table 11**:** **Forecast DER Connections**

| | DER Connection Forecast | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **Total** |
| Number | 41 | 50 | 48 | 46 | 48 | 47 | 47 | 327 |
| Capacity (kW) | 2401.7 | 2892.3 | 14271.8 | 2688.6 | 2784.3 | 2748.2 | 2740.4 | 30527.4 |

# 4. EXPENDITURE FORECAST

## 4.1 Summary of Expenditures

Historical, Bridge, and Forecast expenditures are presented in Table 12 and Table 13.

Table 12: **Summary of Expenditures ($M)**

| | Historical ($M) | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|
| Year | **Annual Average 2020-2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Gross | 14.36 | 15.48 | 12.60 | 16.79 | 17.75 | 18.68 | 19.87 | 20.35 |
| Contributions | 8.32 | 8.80 | 7.21 | 9.38 | 9.92 | 10.44 | 11.10 | 11.37 |
| Net | 6.05 | 6.68 | 5.39 | 7.40 | 7.83 | 8.24 | 8.76 | 8.97 |

Table 13: **Historical Actual Expenditures**

| | Historical Year ($M) (Actuals) | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **Total** | **Annual Average** |
| Gross | 11.18 | 17.10 | 16.11 | 16.52 | 10.90 | 71.82 | 14.36 |
| Contributions | 7.42 | 10.12 | 6.97 | 9.75 | 7.31 | 41.56 | 8.32 |
| Net | 3.76 | 6.98 | 9.14 | 6.78 | 3.58 | 30.24 | 6.05 |

Elexicon forecasts the 2025 and 2026 bridge years expenditures to be $6.68M net, and $5.39M net, respectively, based on 2025 activity to date, and expected connection requests in 2026.

Elexicon forecasts $41.21M net investment in this program over the forecast period, driven by forecast growth in number of customer connections as described in Section 3.1. Average expected contribution rates for the forecast period are 56%, aligned with the 2022-2024 average historical contribution rates between of 56%.

Forecast expenditures over 2027-2031 are $10.97M higher than 2020-2024 historical expenditures reflecting the continued growth in connections over the bridge years, and much higher than historical development activity forecast over the 2027-2031 period.

Variability in year-to-year expenditures results from externally driven variables. Economic factors and overall confidence in the economy including government policy have an impact on housing and business development. These factors can contribute to variability of customer connection expenditures as well as

the number, type, size and location of customer connection requests, as indicated in Elexicon's 2020 to 2024 Customer and Generation Connections program expenditures.

COVID-19 significantly impacted housing in Ontario. Initially, real estate activity saw sales dropping drastically in early 2020, which is reflected in Elexicon's 2020 expenditures. As restrictions eased, pent-up demand, historically low interest rates, housing initiatives and a shift to remote work drove a surge in housing market activity in 2021, 2022, and 2023.[20] Elexicon experienced this surge in housing activity over the next three years driven by growth in new residential housing including Seaton and Brooklin developments adding more than 7,200 new customers. A dip in housing growth, triggered by economic uncertainty associated with tariff announcements resulted in a significant drop in expenditures for 2024.

Customer contributions are another factor that can vary considerably as they depend on the outcome of the economic evaluation for each service request. Where a new, expanded, upgraded or otherwise improved infrastructure is required, Elexicon will require one or more of the following from the customer:

- A connection cost, and/or,
- A capital contribution cost, and/or,
- Letter of credit or surety bond, and/or
- An expansion deposit.

The mix of projects and available capacity where projects are proposed, in any given year, will result in capital contributions that reflect the degree to which improved infrastructure costs were triggered by the projects, which were not covered by the expected distribution revenue. During the 2022-2024 period, the average contribution rates were 56%, and these rates have been used to calculate the forecasted contribution rates for the 2027-2031 rate period.

## 4.2 Investment Pacing and Prioritization

The level of planned spending in this program is largely driven by factors that are external to Elexicon. A significant increase in volume of annual connections is expected over the forecast period. The planned expenditures for this program are based on a reasonable assessment of future connections that balances

[20] Five Years Later: How Pandemic Trends Are Still Affecting Canada's Housing Market, April 11, 2025 - https://www.crea.ca/cafe/five-years-later-how-pandemic-trends-are-still-affecting-canadas-housing-market/

Elexicon's historical connections trends with the forward-looking drivers that are expected to contribute to a higher rate of connections activity in the 2027 to 2031 period.

## 4.3 Execution Approach

Elexicon's execution framework ensures that all approved projects and programs are delivered safely, efficiently, and in accordance with regulatory, technical, and financial requirements. It integrates cross-departmental coordination between Planning, Engineering, Operations, and Supply Chain to ensure that resources, materials, and schedules are aligned with Elexicon's annual investment targets. Elexicon's capital execution process is described in Exhibit 2B - Tab 3 - Schedule 1.

Customers make an application for connection in accordance with Elexicon's Conditions of Service which provides for a systematic and streamlined process. This includes exchange of technical and schedule information and culminates in an OTC provided to the customer once required information is received. A load analysis is performed as part of the process to ensure the system is available and able to support the connection, and if not, other studies may be conducted.

Elexicon must respond to customer requests for connections in accordance with its regulatory obligations and aims to connect customers from the most feasible access point available. Depending on the system and customer conditions (e.g. requirements, size, location, and timelines), capacity or access may not be immediately available. In such cases, Elexicon will consider alternative solutions to connect the customer. Such alternatives may include, but are not limited to, transferring existing customers to an alternative feeder to free capacity on the feeder closest to the service, or upgrade, extend, or install feeders, transformers, switches or other relevant equipment, as required. Should multiple options exist to connect a customer, options are reviewed with the customer, and any differences (financial or technical) are explained to the customer to allow for an informed decision. Elexicon must respond to customer requests for connections in accordance with its regulatory obligations and aims to connect customers from the closest access points available where possible.

Elexicon manages several risks in the execution of the work as illustrated Table 14.

**Table 14: Risks and Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| Safety: Death or injury to employees or the public. | • Use an "engineered by design" approach for both planning and construction activities.<br>• Regularly update planning and engineering standards to ensure they remain compliant with industry Codes and practices.<br>• Ensure Tradespeople are certified, well trained, experienced and use proper equipment, tools, personal protective equipment, and safe work practices.<br>• Establish safe work areas while completing connection work. |
| Compliance: Risk of unsafe connections or poor connection performance. | • Follow established engineering and construction standards. Ensure ESA Inspections completed prior to energization.<br>• Ensure customers follow the Conditions of Service in their connection designs. |
| Short Circuit Capacity Constraints: When connecting large loads or distributed generation, the short circuit contribution from new equipment can exceed the fault level limits at Hydro One's transmission stations or lines. This can lead to non-compliance with protection coordination standards and system safety requirements. | • Engage Hydro One during feasibility and design stages to identify constraints.<br>• Perform detailed short circuit and protection coordination studies early in the connection process. |

## 5. OPTIONS ANALYSIS

There is no optionality in spending for this program, as expenditures are externally driven. The Customer and Generation Connections program is a mandatory program for Elexicon to meet customer service requests in accordance with the DSC.

# A3 SYSTEM EXPANSION

## OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $18.84M | 2025-2026 Plan: $24.22M | 2027-2031 Forecast: $54.15M |
| Primary Driver: Mandated Service Obligations | | |
| Secondary Drivers: Customer Service Requests | | |
| Outcomes: Efficiency, Customer Value, Reliability, Safety, Public Policy | | |
| Segments: System Expansion | | |

System Expansion investments are undertaken to connect new customers or enable service upgrades for existing customers. These projects are initiated in areas where the existing distribution infrastructure does not exist, lacks sufficient capacity, or requires upgrades to accommodate the requested load. These investments are demand-driven and initiated in direct response to customer connection requests. They are mandatory service obligations under the Ontario Energy Board's Distribution System Code (DSC), which requires distributors to respond to and fulfil connection requests in a timely and efficient manner.

Projects within the System Expansion program are essential to enabling customer growth while maintaining reliability and quality of service across the network. In accordance with Section 3.2 of the DSC, project costs are subject to an Economic Evaluation to determine the appropriate customer capital contribution. The reported net expenditures therefore reflect Elexicon's share of costs after accounting for these customer contributions.

Elexicon is experiencing continued growth across its service territory, driven by residential, commercial, and industrial developments. The System Expansion program supports this growth through major or minor distribution system upgrades such as feeder expansions, construction of new substations, pole line extensions or upgrades, upgrading transformer capacity, and connecting new feeder into the distribution network as required to serve new developments or service upgrades for existing customers in capacity constrained zones.

Municipalities within Elexicon's service area, including Ajax, Whitby (including Brooklin), Pickering (including Seaton), Belleville, and Bowmanville, are experiencing accelerated development timelines as provincial planning authorities empower local and municipal authorities to fast-track housing and employment projects to meet provincial goals, particularly within Transit-Oriented Communities (TOCs) and other intensification zones.

Elexicon forecasts the total net investments within the System Expansion program to be $54.15M over the 2027-2031 DSP period. These projects will involve installation of standardized distribution assets such as pole lines, conductors, transformers, switchgear, cables, and accessories to provide safe and reliable service to new and expanding customer developments. Several of these expansions build upon projects initiated in 2025–2026, with completion and in-service dates expected within the 2027–2031 rate period.

## 1. INVESTMENT DESCRIPTION

The System Expansion program fulfils Elexicon's mandated service obligations under the DSC by providing the necessary expansions required to connect new customers or accommodate customer-requested load increases. Where existing distribution infrastructure lacks sufficient capacity or does not extend to a new development area, Elexicon must expand its system to meet the customer's capacity requirements at their location.

Expansion work is a non-discretionary investment initiated solely in response to connection requests or development activity within Elexicon's service area. Expansion projects ensure that adequate electrical infrastructure is available to serve new developments as they are constructed. Project scope and complexity vary by location and customer requirements, ranging from localized cable and transformer upgrades to large-scale feeder buildouts and related civil works. Typically, feeder expansion activities include construction of new pole lines, conductor upgrades, sectionalizing switches, and protective and communication equipment. For new underground developments, work typically involves trenching, duct installation, cable pulling, and terminations at both substation and customer interfaces. These activities provide the infrastructure necessary to integrate new customer load safely and reliably into the distribution network.

Elexicon currently has several System Expansion projects in progress, with in-service dates primarily between 2027 and 2031. Table 1 below summarizes key projects likely to proceed in the 2027-2031 rate period currently in design or early execution stages across Ajax, Pickering, Whitby, Uxbridge, and Bowmanville. In several cases, particularly in Ajax, Pickering, and Whitby, expansions from the 27.6 kV system are required due to capacity constraints on the 44 kV system, resulting in longer timelines and increased expansion costs (Refer to Exhibit 2B - Tab 4 - Schedule 3 - Appendix I for more details on Substation Growth).

**Table 1: Summary of In-Progress System Expansion Projects**

| District | Est. Connection Year | Load (MW) | Total Cost Estimate | Description |
|---|---|---|---|---|
| Ajax | **2029** | 14.8 | $15.50M | • Multiple high-rise residential developments and transit growth in Ajax require 14.8 MW by 2029, requiring a 9.7 km of feeder expansion from the 27.6kV system due to capacity constraints on the 44kV system. |
| Bowmanville | **2030** | 4 | $2.80M | • A large customer is undergoing an expansion and relocation to an adjacent site, requiring 4 MW of additional capacity. To support this load and ensure redundancy, a 1.25 km feeder expansion from the 44kV system is planned. |
| Pickering | **2027** | 25 | $12.00M | • An industrial customer located within the Pickering Innovation Corridor has requested 25 MW of power by 2028. To meet this demand, a new 7.4 km pole line will be constructed, incorporating at least two 27.6kV feeders. The project includes a major highway crossing, adding to its complexity and cost. |

| District | Est. Connection Year | Load (MW) | Total Cost Estimate | Description |
|---|---|---|---|---|
| Pickering | **2028** | 40 | $49.83M | • A large industrial/commercial developer in South Pickering has requested 40 MW of power by 2028. Supplying this load will require significant infrastructure expansion, including construction of two new poles lines spanning a total of 24.9 km with two feeders on each pole line from separate stations. The expansion involves multiple major highway crossings, making it a complex and high-cost project. |
| Pickering | **2027** | 16 | $8.00M | • An industrial customer in Northeast Pickering has requested 16 MW of power by 2027, necessitating two 27.6kV feeder expansion of approximately 6 km. This expansion will include construction of a new pole line along with the use of existing infrastructure. |
| Pickering | **2028** | 20 | TBD | • An existing industrial customer in Northeast Pickering has requested 20 MW of additional power by 2028 for future expansion of the facility. |
| Uxbridge | **2027** | 0.9 | $0.63 | • A community building in Uxbridge requires 0.9 MW of power, necessitating a 500 m expansion from the 44kV system due to connection size limitations of the nearby 4.16 kV feeders. |

| District | Est. Connection Year | Load (MW) | Total Cost Estimate | Description |
|---|---|---|---|---|
| Uxbridge | **2027** | 4.9 | $8.00M | • A large customer and a residential/commercial will require 4.9 MW of additional capacity. Due to limitations of the existing 4.16kV system, this demand cannot be met without infrastructure upgrades. To accommodate the load, a 44kV feeder expansion is required. Additionally, an adjacent community building has requested increased capacity to support electrification initiatives and is expected to share the same feeder expansion. |
| Whitby | **2031** | 30-50 | $35.00M | • A commercial developer has requested between 30 and 50 MW of capacity to support the development of a mixed-use site in southwest Whitby. The existing 44kV system in the area is currently at capacity, and the site will need to be serviced by feeders from the planned GTA East Transformer Station (TS). This will require significant infrastructure expansion, including the construction of new pole lines and multiple major highway crossings. |
| Whitby | **2031** | 35 | TBD | • A high-rise residential development in South Whitby, consisting of multiple towers, is projected to require 35 MW of capacity over the next 10 years. Phase 1 of the development is expected to connect to existing infrastructure; however, future phases will require additional capacity that will be supplied through feeder expansions from the planned GTA East Transformer Station (TS). |

In addition to the projects currently in progress, Elexicon is actively engaged in pre-consultations for several new large-scale developments that will require system expansions. These projects represent a subset of anticipated expansion needs based on formal inquiries received from residential, commercial, and industrial customers. Table 2 below summarizes known projects in the pre-consultation stage; however, it does not capture all future system expansion requirements, as additional requests continue to emerge through ongoing development activity and municipal growth.

**Table 2: Summary of System Expansion Projects in Pre-Consultation**

| District | Est. Connection Year | Load (MW) | Total Cost Estimate | Description |
|---|---|---|---|---|
| Ajax | **2031** | 30 | TBD | • A high-rise condominium developer has submitted a request for 30 MW of capacity by 2028. To accommodate this load, upgrades to the existing distribution infrastructure are required, including feeder expansion from the 27.6 kV system to bring additional capacity to the area. |
| Belleville | **2029** | 20 | TBD | • A large industrial customer has submitted a request for 20 MW of power. To meet this demand, feeder expansion from the new Belleville TS DESN 2 will be required, as the existing feeders in the area are currently at capacity |
| Pickering | **2029** | 6 | $1.89M | • An existing commercial customer plans to install a 6 MW Battery Energy Storage System (BESS), which will require an expansion of the 27.6kV feeder system to facilitate the connection due to limitations of existing 8.32kV system. |

| District | Est. Connection Year | Load (MW) | Total Cost Estimate | Description |
|---|---|---|---|---|
| Pickering | **2031** | 16 | $7.50M | • Multiple high-rise residential developments in Southwest Pickering have requested a combined capacity of 16 MW by 2031. To connect these developments, an expansion is required from the 27.6 kV system to bring additional capacity to the area. |
| Port Hope | **2027** | 3.5 | TBD | • An existing industrial customer is planning to expand its facility and has inquired about adding 3.5 MW of additional capacity by 2027. The current distribution system is not capable of supporting this increased load, and a system expansion will be required to accommodate the demand. |
| Port Hope | **2029** | 50 | TBD | • A large commercial developer has submitted an inquiry requesting 50 MW of capacity by 2029. Supplying this load will require extensive system expansion and significant upgrades to the existing distribution infrastructure. |

Elexicon anticipates continued system expansion projects throughout the 2027–2031 period, driven by residential, commercial, and industrial load growth across its service territory (Refer to Exhibit 2B - Tab 4 - Schedule 3 - Appendix B and Appendix I; and Exhibit 2B - Tab 3 - Schedule 1) for more details on load growth and customer forecasts).

## 1.1 Summary of Investment Outcomes and Benefits

Table 3 below provides a summary of outcomes and benefits achieved by the System Expansion program.

**Table 3: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Value | • Targeted investments in new feeder construction and transformer capacity additions to serve developing communities and facilitate customer connections in areas where system capacity is constrained<br>• Connecting distributed generation (DG) facilities to the distribution system as mandated by sections 25.36, 25.37, and section 26 of the *Electricity Act,* 1998, without extensive delays or adverse impacts to existing customers.<br>• Investments will accommodate expected housing growth through Provincial municipal housing policies such as the New Provincial Planning Statement (PPS), 2024.<br>• Public policy established by municipalities relate to the development plans in their respective territories. Feeder expansion projects support new development within Elexicon's service area, which supports economic development. |
| Reliability | • Expands system capacity to facilitate anticipated connections and service upgrades in a way that maintains system reliability.<br>• Additional capacity also enhances operational flexibility by increasing the number of available pathways for load transfer and isolation, which helps minimize outage durations during planned work or unplanned events. |
| Efficiency | • Joint planning of feeder expansion and distribution infrastructure upgrades in high-growth areas to optimize resource use and minimize project mobilization costs.<br>• Applying standard design templates and cost estimation methods improves planning accuracy and reduces engineering effort. |

## 2. INVESTMENT DRIVERS & NEED

Table 4 below summarizes the key drivers for System Expansion investments. The need for system expansion projects is driven primarily by new residential, commercial, and industrial developments within Elexicon's service territory. As new subdivisions, commercial plazas, and industrial facilities are constructed, expansions are required to connect these developments to Elexicon's distribution system where existing infrastructure either is inadequate or lacks sufficient capacity to serve the additional load. These investments are undertaken to fulfil Elexicon's mandated service obligations and in response to customers service requests for new connections or existing service upgrades.

**Table 4: Summary of Investment and Need**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| Mandated Service Obligations (Primary) | Fulfilling customer service requests as stipulated by:<br>• Sections 6.2.4 (generation connections) and 7.2 (customer connections) of the Distribution System Code ("DSC")<br>• Electricity Act, 1998 ("Electricity Act")<br>• Ontario Energy Board Act, 1998 ("OEB Act")<br>• Elexicon's Conditions of Service and Electricity Distribution License |
| Customer Service Requests (Secondary) | • Load growth associated with large housing, commercial and industrial developments planned for Elexicon's service area<br>• To meet demand for housing associated planning developments promoting densification including from major transit projects |

### 2.1 Mandated Service Obligations

As outlined in Sections 6.2.4 (Generation Connections) and 7.2 (Customer Connections) of the DSC, Elexicon is required to connect customers and generators requesting access to the distribution system in a manner that maintains the reliability and quality of service for the existing customers. These obligations are further supported by the Electricity Act, 1998, the Ontario Energy Board Act, 1998, and Elexicon's Conditions of Service and Electricity Distribution License.

Under these provisions, Elexicon is obligated to perform system expansion work when an approved customer connection request cannot be accommodated by existing distribution infrastructure. Such expansions are not discretionary; they are initiated in response to customer connection requests and proceed in accordance with the economic evaluation and cost-sharing requirements prescribed under Section 3 of the DSC. The customer typically contributes to the cost of expansion based on the forecasted revenue and the results of the economic evaluation.

Elexicon's role in these projects is to ensure that the distribution system is expanded or reinforced to provide safe and reliable service to the new customer while maintaining the performance and integrity of the existing system. Through the System Expansion Program, Elexicon fulfils its regulated service obligations by enabling customer connections in a technically sound and economically compliant manner.

Forecasted developments in Elexicon's service territory, such as new residential subdivisions, industrial customers, and mixed-use developments, continue to generate connection requests that trigger these expansion activities. Each expansion is planned and executed in coordination with developers and municipalities to align with construction timelines and ensure compliance with the OEB's connection standards and service quality requirements.

## 2.2 Customer Service Requests

Continuing growth in residential, commercial, and industrial developments within Elexicon's service area is a key driver of the System Expansion Program. Many new developments require new or modified connections to Elexicon's distribution system, and as development activity continues to accelerate, both the number of customer service requests and the size of individual connection requirements are on a rising trend and expected to increase. Additionally, the repurposing of existing developments in densely built areas currently served by the 44 kV system which is capacity constrained is further driving the need for major system expansions from the 27.6 kV system particularly in Ajax, Pickering, and Whitby.

Under the Distribution System Code (DSC), Elexicon is obligated to respond to all eligible connection requests within its service territory and to issue Offers to Connect ("OTCs") in accordance with OEB timelines and standards. Where existing infrastructure cannot accommodate the requested load, Elexicon

must undertake system expansion work to enable the connection. These projects ensure that new customers are connected safely, reliably, and in compliance with regulatory service obligations.

System Expansion projects are therefore directly linked to forecasted customer connection activity and share the same underlying drivers as the Customer & Generation Connections Program. In anticipation of development and load growth, system expansions are planned and constructed in areas where existing capacity is limited or new infrastructure is required to meet customer load demand.

To establish the forecast of system expansion requirements, Elexicon draws on several key information sources, including:

- Household growth projections and actual growth trends
- Provincial policy direction on housing and infrastructure development,
- Regional and municipal Official Plans and secondary plans,
- Transit agency plans supporting major transit station areas,
- Co-ordination meetings with municipalities,
- Active development applications and subdivision approvals, and
- Feeder capacity and system loading assessments.

Direct engagement with developers also plays a central role in identifying and timing expansion needs. Developers typically approach Elexicon for the connection of new residential subdivisions or large commercial and industrial loads that may require feeder expansion or system reinforcement. Elexicon is currently engaged in several proposed and on-going projects primarily across Ajax, Pickering, and Whitby, where significant residential, commercials, and industrial developments are driving the need for new or expanded feeders. Other areas of Elexicon's service territory are expected to experience moderate levels of residential growth over the DSP period relative to the Durham Region.

To support the forecast of customer-driven expansion needs, Elexicon considers expected development activity and growth trends across all municipalities in its service area. Section 3.2.1 below summarizes anticipated residential, commercial, and industrial growth, including key municipal initiatives and planned

developments that are expected to drive new or expanded customer connections over the 2027‑2031 DSP period.

### 2.2.1 Municipal Plans

The forecast considers development activity in Elexicon's service areas. While the majority of growth is expected in the Ajax, Pickering, and Whitby areas, each of Elexicon's service areas are discussed in this section. Major developments and trends from these service areas are discussed, and the projected growth outlined herein supports the need for continued investment in expansion of Elexicon's feeder network.

**Ajax**

The Town prepared a Municipal Housing Target Pledge[1] endorsed by Council on February 27, 2023, to respond to the Provincial requirement in support of the province's goal to build 1.5 million homes in the next 10 years. The target of 17,000 new homes by 2031 is to be met through intensification in urban areas, as well as expansion into greenfield areas in the town's peripheries. As noted in the Ajax Town Plan, northeast Ajax subdivisions (e.g. Wyndham/Somerset, Lexington/Mulberry) and northwest Ajax (Nottingham/Meadows) are seen as significant greenfield growth areas. An additional 3,000 homes are projected to be built in southeast Ajax (Lakeside/Pickering Beach area).[2]

Other notable developments in Ajax include:

1. 154 Rossland Rd. E. (548 suites): A 26-storey residential mixed-use building approved by the council, which will include an eight-story podium and two 17-storey towers.
2. 1901 Harwood Ave. N: A 19-storey mixed-use development that will be located immediately north of the existing site.
3. 493 Bayly St. W: A proposed 62-storey residential development, which is part of a larger initiative to increase housing density in the area.

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[1] Town of Ajax, "Town of Ajax Report", (February 2023) - https://www.ontariobigcitymayors.ca/wp-content/uploads/2023/09/Town-of-Ajax-2031-Municipal-Housing-Target-Pledge-Package.pdf

[2] Town of Ajax, "Official Plan Office Consolidation", (October 2022) - https://www.ajax.ca/en/business-and-growth/resources/Planning/Official-Plan/Ajax-OP_Consolidation_Oct-14-2022_Accessible.pdf

4. Harwood Avenue Development: A mixed-use project featuring residential units, retail spaces, and community amenities along Harwood Avenue.
5. Ajax GO Station Area Revitalization: Enhancements around the GO Station to increase residential density and commercial opportunities for transit-oriented development.
6. Westney Heights Community: A new residential community with diverse housing types, including townhouses and apartments.
7. Central Ajax Development: A project focused on revitalizing the central area with mixed-use buildings, parks, and pedestrian-friendly spaces. Approximately 5000 new units are planned to be built in these urban areas.
8. Lake Ontario Waterfront Park: Development of parks and recreational facilities along the waterfront to enhance community access to green spaces.
9. Salem Industrial Business Area: Recent opening of large-scale distribution centre highlights the desirability of this area for additional business growth.

Noteworthy Ajax building permits[3] issued in 2024 and applications under review are presented in Table 5 and Table 6 below.

**Table 5: Recent noteworthy building permits issued in 2024**

| Description | Location | Area ($m^2$) |
|---|---|---|
| One Storey Industrial Building | 9 Barr Road | 1,800 |
| Malpack Ltd. - Industrial Building Enlargement | 510 Finley Avenue | 3,458 |
| DDSB - 2 Storey Elementary School | 92 Hurst Drive | 5,527 |
| Promita Holdings, 25 Storey, 380 Unit Apartment Building | 310 Kingston Road East | 30,279 |
| Safari Kid Canada - Child Care Facility | 479 Kingston Road West | 546 |

[3] Town of Ajax Planning & Development Services, "2024 Year-End Report & Upcoming Projects/Events", (December 2024) - https://www.ajax.ca/en/business-and-growth/resources/Planning/Monthly-Newsletter/2024/2024-Year-End-Report--Upcoming-Projects---Newsletter.pdf

**Table 6: Noteworthy Applications Under Review**

| Description | Location | Area ($m^2$) |
|---|---|---|
| 12- Storey, 255-Unit Apartment Building and 4 townhouse units | 235 Bayly Street East and 28 Powers Valley Court | 18,820 |
| Marriot Fairfield - 6 Storey, 120 Suite hotel | 650 Beck Crescent | 6,300 |
| Garden Series Phase 1 - Three 33-Storey Towers, 1557 Apartment Units | 212 Bayly Street West and 282 Monarch Avenue | 91,809 |
| Medallion Developments Inc. - Block B - 8-Storey, 336 Unit Apartment Building and 21 Townhouse units | 460 Rossland Road East and 7 & 19 Mansbridge Court | 4,068 |
| Suncity Buildings A, B, C, D, G | 1120 - 1200 Salem Road North | 6,388 |

**Whitby**

The Town of Whitby will be receiving $5.4 million through Ontario's Building Faster Fund, in recognition of reaching 80 per cent of its annual housing target in 2023[4]. This funding will help the town continue investing in infrastructure that enables housing and supports community growth.

Whitby recorded 1,159 new housing units in 2023, representing 88 per cent of the target of 1,320 units assigned by the province.

In March 2023, Whitby Council pledged to facilitate the development of 18,000 new homes by 2031.

Notable developments in Whitby include:[5]

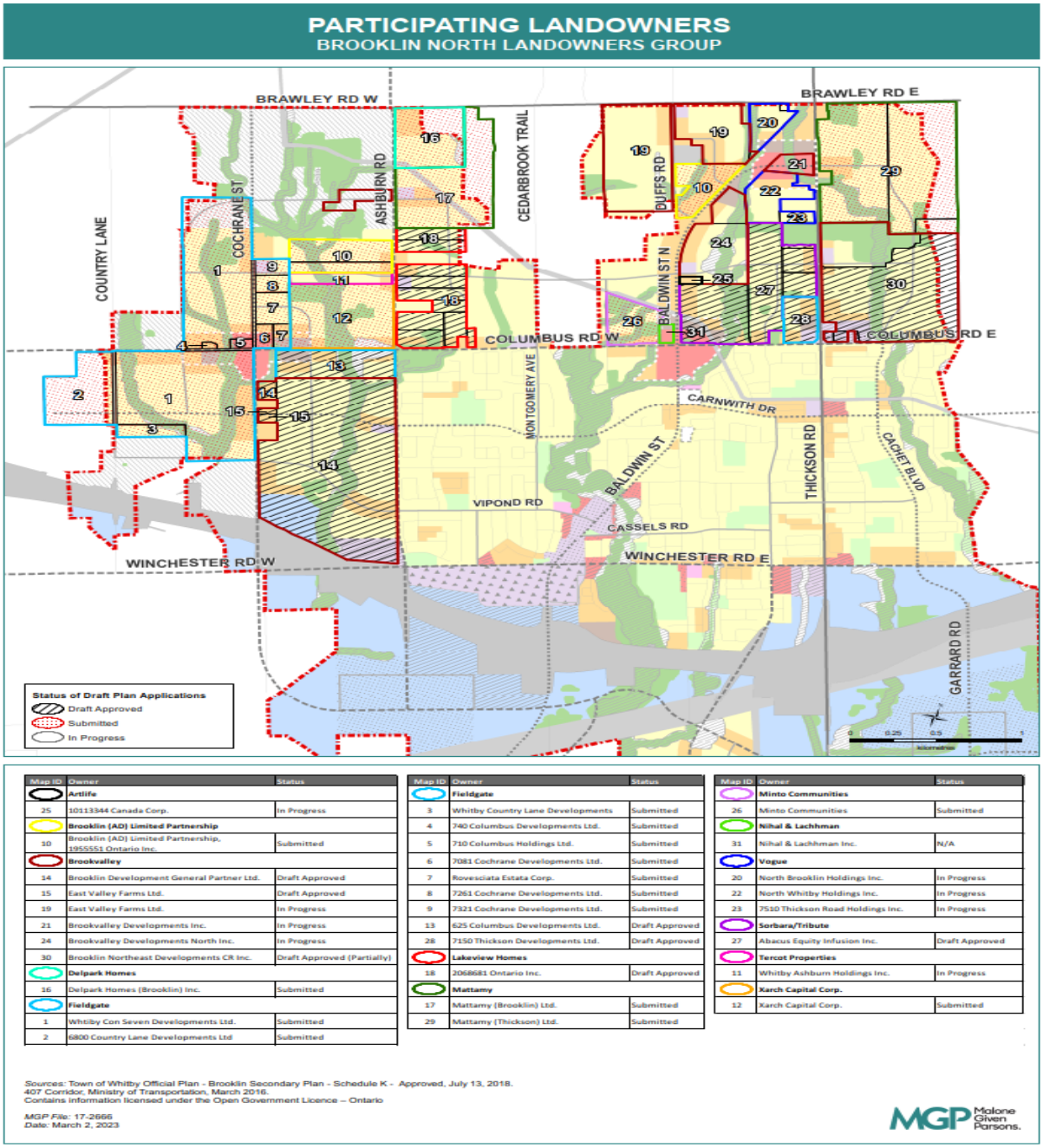
1. Whitby Waterfront Development: Transforming the waterfront area with residential, commercial, and recreational spaces.

[4] Town of Whitby, "Mayor Roy's Statement announcing $5.4 million in funding from Ontario's Building Faster Fund", (October 2024) - https://www.whitby.ca/news/posts/mayor-roy-s-statement-announcing-54-million-in-funding-from-ontario-s-building-faster-fund/

[5] Connect Whitby, "Whitby Official Plan Review", (December 2025) - Whitby Official Plan Review | Connect Whitby

2. Brooklin Community Expansion: A centerpiece large residential development in Brooklin with new homes, schools, and parks, as well as a downtown-like core. (See Figure 1)
3. Whitby Town Centre Revitalization: Enhancements to the downtown area with mixed-use developments, public spaces, and improved infrastructure.
4. Lynde Creek/West Whitby: A new residential community near Highway 412 that integrates natural features with housing developments and parks. The area closest to Highway 412 is planned for business parks and industrial uses.
5. South Whitby Development: An initiative to introduce new residential neighborhoods and amenities to accommodate population growth in the southern part of Whitby.

**Figure 1: Brooklin Development Area**




| Map ID | Owner | Status |
|---|---|---|
| | **Artlife** | |
| 25 | 10113344 Canada Corp. | In Progress |
| | **Brooklin (AD) Limited Partnership** | |
| 10 | Brooklin (AD) Limited Partnership, 1955551 Ontario Inc. | Submitted |
| | **Brookvalley** | |
| 14 | Brooklin Development General Partner Ltd. | Draft Approved |
| 15 | East Valley Farms Ltd. | Draft Approved |
| 19 | East Valley Farms Ltd. | In Progress |
| 21 | Brookvalley Developments Inc. | In Progress |
| 24 | Brookvalley Developments North Inc. | In Progress |
| 30 | Brooklin Northeast Developments CR Inc. | Draft Approved (Partially) |
| | **Delpark Homes** | |
| 16 | Delpark Homes (Brooklin) Inc. | Submitted |
| | **Fieldgate** | |
| 1 | Whitby Con Seven Developments Ltd. | Submitted |
| 2 | 6800 Country Lane Developments Ltd | Submitted |

| Map ID | Owner | Status |
|---|---|---|
| | **Fieldgate** | |
| 3 | Whitby Country Lane Developments | Submitted |
| 4 | 740 Columbus Developments Ltd. | Submitted |
| 5 | 710 Columbus Holdings Ltd. | Submitted |
| 6 | 7081 Cochrane Developments Ltd. | Submitted |
| 7 | Rovesciata Estata Corp. | Submitted |
| 8 | 7261 Cochrane Developments Ltd. | Submitted |
| 9 | 7321 Cochrane Developments Ltd. | Submitted |
| 13 | 625 Columbus Developments Ltd. | Draft Approved |
| 28 | 7150 Thickson Developments Ltd. | Draft Approved |
| | **Lakeview Homes** | |
| 18 | 2068681 Ontario Inc. | Draft Approved |
| | **Mattamy** | |
| 17 | Mattamy (Brooklin) Ltd. | Submitted |
| 29 | Mattamy (Thickson) Ltd. | Submitted |

| Map ID | Owner | Status |
|---|---|---|
| | **Minto Communities** | |
| 26 | Minto Communities | Submitted |
| | **Nihal & Lachhman** | |
| 31 | Nihal & Lachhman Inc. | N/A |
| | **Vogue** | |
| 20 | North Brooklin Holdings Inc. | In Progress |
| 22 | North Whitby Holdings Inc. | In Progress |
| 23 | 7510 Thickson Road Holdings Inc. | In Progress |
| | **Sorbara/Tribute** | |
| 27 | Abacus Equity Infusion Inc. | Draft Approved |
| | **Tercot Properties** | |
| 11 | Whitby Ashburn Holdings Inc. | In Progress |
| | **Xarch Capital Corp.** | |
| 12 | Xarch Capital Corp. | Submitted |

*Sources:* Town of Whitby Official Plan - Brooklin Secondary Plan - Schedule K - Approved, July 13, 2018.
407 Corridor, Ministry of Transportation, March 2016.
Contains information licensed under the Open Government Licence – Ontario

*MGP File:* 17-2666
*Date:* March 2, 2023

MGP Malone Given Parsons.

**Pickering**

Pickering continues to intensify in urban areas and population is expected to grow to over 150,000 by 2036.

Notable development projects in Pickering include:

1. Pickering City Centre Redevelopment: Revitalization of the downtown core with high-rise residential towers, retail spaces, and public parks.
2. Seaton Community Development: A large-scale residential project introducing thousands of new homes, parks, and commercial spaces in a sustainable design. It is expected to accommodate 70,000 new residents once fully built. (See Figure 2)
3. Bay Ridges Waterfront Project: Development along Lake Ontario that includes residential units, waterfront parks, and recreational facilities.
4. Pickering Town Centre Expansion: An expansion of the existing shopping center to include additional retail, dining, and entertainment options.
5. Pickering Innovation Corridor: A large industrial/commercial zone providing employment to thousands of residents of the area. (See Figure 3)
6. North-East Pickering Development: A residential project focused on providing a range of housing types in a planned community setting. (See Figure 4)

**Figure 2: Seaton Community & North Pickering Development Area**

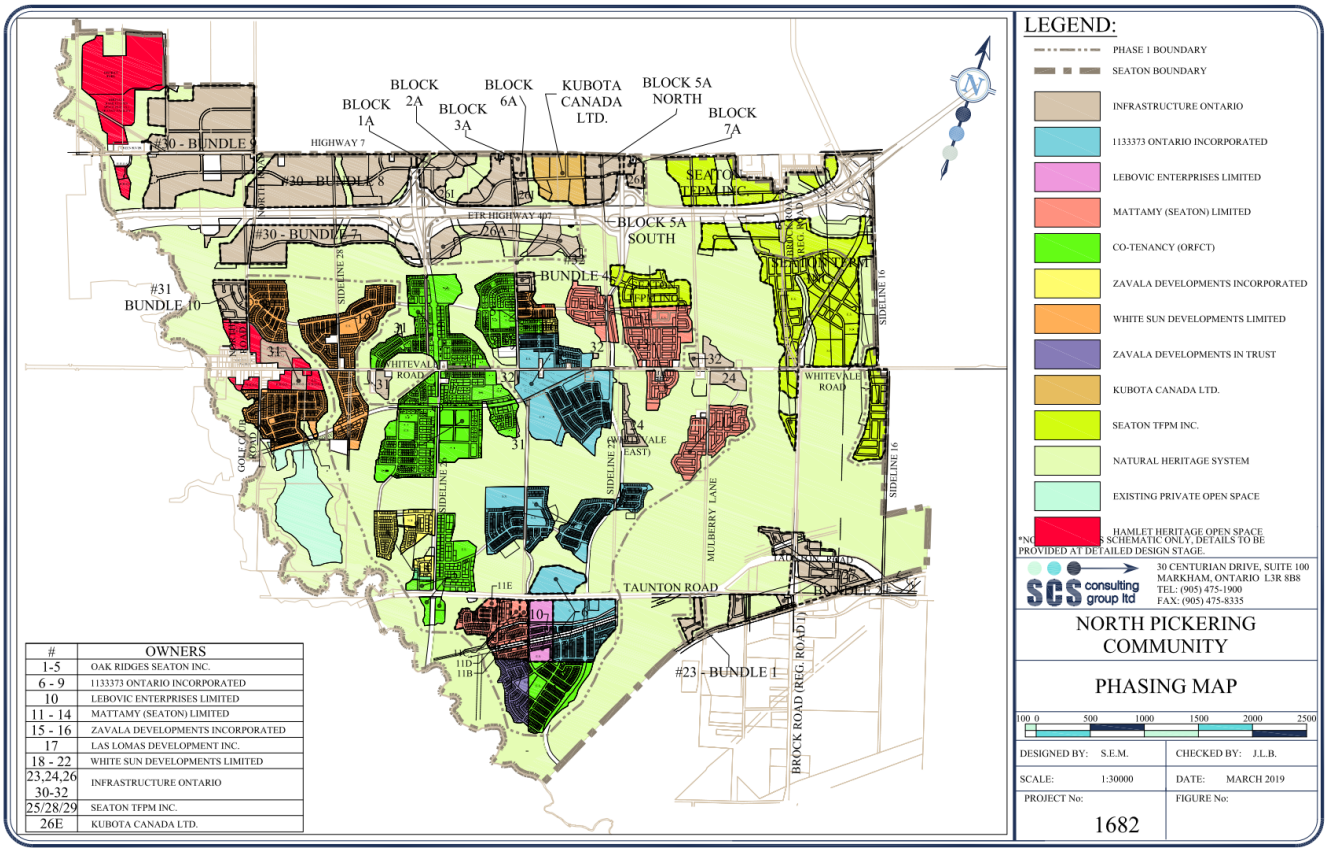
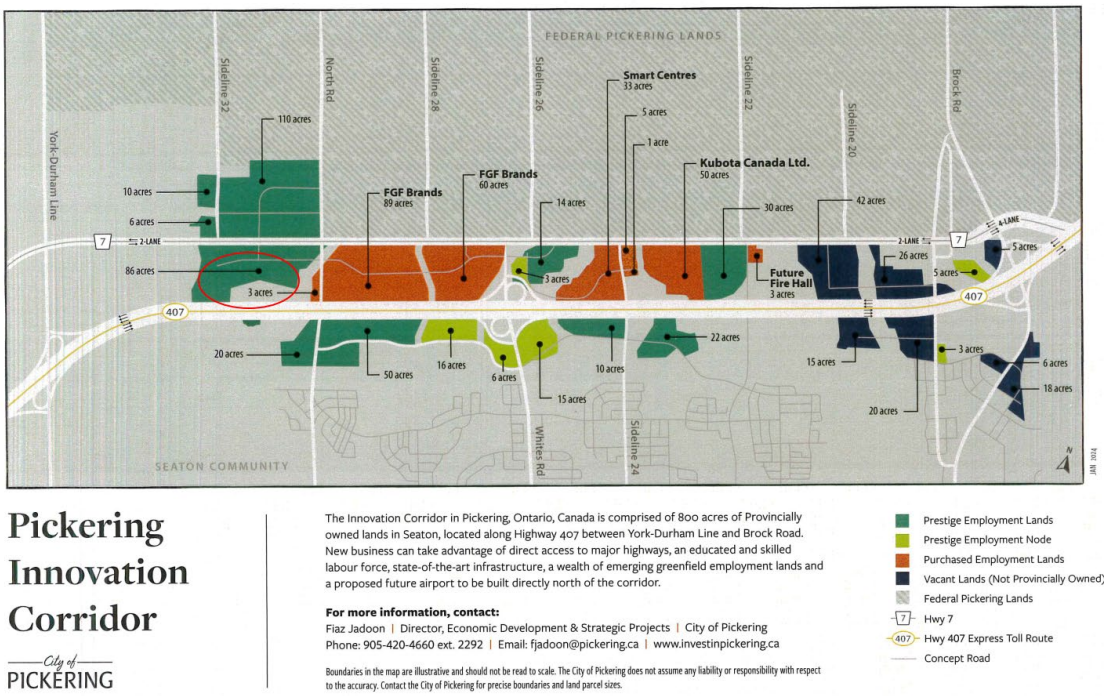


**Figure 3: Pickering Innovation Corridor Employment Lands**




New feeders from Seaton MTS[6] were expanded out into the various neighbourhoods in the Seaton development lands in 2023. Additional feeder expansions are planned over the 2025-2031 period to fully support the Seaton Development (Figure 4), with an expected population of 70,000 with 35,000 jobs once fully complete.

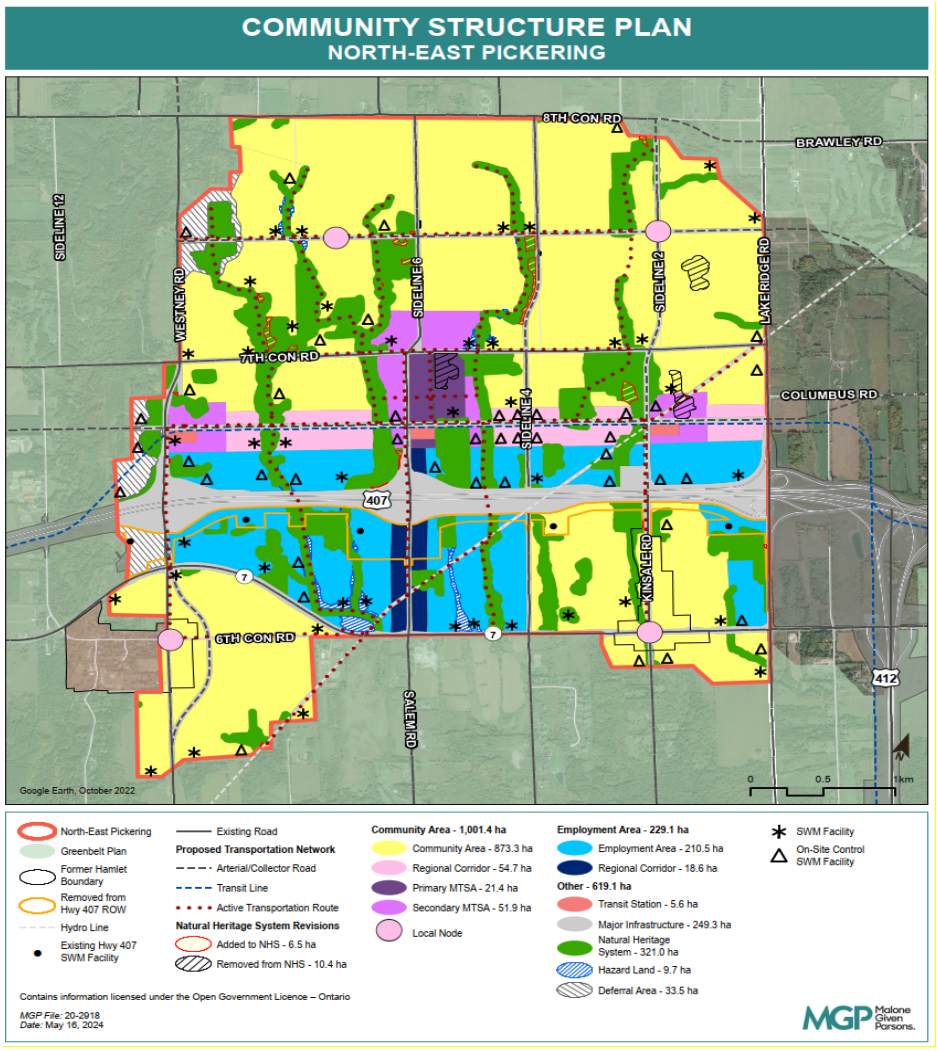
Project applications continue to be received by the City Development Department for the Seaton development area. A few notable examples include:

1. Seaton Recreation Complex and Library- Construction is to begin in 2026 for 2028 opening.
2. Peter Mathews Drive and Taunton Road application for commercial plaza submitted in 2024.

[6] Mattamy (Seaton) Limited & Seaton TFPM inc., "Planning Justification Report", (March 2023) - https://www.pickering.ca/media/r3tbaw0g/tfpm-pjr.pdf

3. Applications submitted in 2024 for approval of a Draft Plan of Subdivision and Zoning By-law Amendment proposes blocks for residential uses including: 218 detached dwellings, 89 street townhouses, 52 back-to-back townhouses, 22 rear-lane townhouses, and a medium density block. The plan also includes blocks for an elementary school, a park, a stormwater management facility, two trailheads and new Two commercial plazas planned for Taunton Rd. near Burkholder Dr. and Peter Mathews Dr. with expected construction starts in 2026; several others are in the planning phase expected between 2026-2031.

**Figure 4: Community Structure Plan for North-East Pickering Development Area**



As part of Pickering's Official Plan, Amendment 38 was approved on November 4, 2022 by the Regional Municipality of Durham and then approved as amended on December 19, 2024[7] by the Ontario Lands Tribunal. This amendment leads the way for zoning by-law amendments for the remainder of the properties along Kingston Rd. as described in the Kingston Road Corridor Intensification and Special Retailing Node documents, which will likely lead to increased growth and intensification in this area.

Developers can, and are, continuing to make applications for re-zoning to support proposed projects while the zoning by-law amendments are developed; another example of the high demand for growth in this area. One example is Sphere Developments (Kingston) GP Inc. which has submitted applications for Official Plan Amendment and Zoning By-law Amendment to permit two 17-storey residential towers connected by a shared 5-storey podium (Figure 5), containing 400 dwelling units and 629.9 square metres of at-grade commercial/retail uses. A total of 402 parking spaces are proposed, including 19 spaces at grade and 383 spaces within a 4-level underground parking garage.

**Figure 5: Pickering City Centre Development Plan[8]**




[7] City of Pickering, "Kingston Road Corridor Intensification and Special Retailing Node – OPA 38" - https://www.pickering.ca/council-city-administration/plans-projects-and-studies/kingston-road-corridor-intensification-and-special-retailing-node-opa-38/

[8] City of Pickering, "City Centre Vision", https://www.pickering.ca/council-city-administration/plans-projects-and-studies/city-centre/

The City Center Park development, which includes two residential towers, has been approved and expected to proceed over the 2025-2033 period with Phase Two to follow the completion of the Seaton Recreation Complex and Library in 2028[21]. Should this project be delayed until after the DSP period, the cost could be deferred until that time.

**Clarington**

Clarington was the fastest growing municipality in Durham between 1996 and 2021[9]. This growth has seen Clarington's communities of Bowmanville, Courtice, and Newcastle increasingly become urbanized. Clarington's population is expected to grow by 116,000 or 110% by 2051[10] and is expected to add 40,400 jobs over this period. Intensification in strategic growth areas such as around the proposed Courtice and Bowmanville GO train stations and along major roads will result in denser and taller buildings.

The Official Plan will specify that most of the new growth will be in the Secondary Plan urban areas of Bowmanville, Courtice, and Newcastle.

The areas around the new GO stations are designated "Major Transit Station Areas," (MTSAs) which according to Provincial policy requires a minimum population density to generate sufficient ridership to support the cost of this type of transit. The two MTSAs are expected to accommodate more than 21,000 new housing units by 2051. The Official Plan policies will focus on investments in infrastructure such as roads and sewers that will enable economic growth. The Courtice and Bowmanville Transit-Oriented Communities ("TOC") are depicted in Figure 6 below.

[9] Durham Post, "Duhram Population to Almost Double by 2041", (March 2022) - https://durhampost.ca/durham-population-to-almost-double-by-2041-2

[10] Clarington, "Let's Plan Clarington", (June 2023) - https://www.clarington.net/en/business-and-development/resources/Official-Plan-Review/Complete-OPR-Introductory-Discussion-Paper_AODA.pdf

**Figure 6: Courtice and Bowmanville TOC Secondary Plan**[11]




Large subdivision projects in Brookhill community, and the build-out of Bowmanville West are adding thousands of low-density homes and some medium density stacked townhouses and low-rise apartments as well.

[11] Clarington, "News and Public Notes", (May 2021) - https://clarington.news.esolg.ca/en?page=14

The Courtice TOC and GO Station area Secondary Plan is underway to complete the necessary zoning amendment. The two new GO station districts are expected to accommodate over 21,000 new housing units by 2051.

**Bowmanville**

The Bowmanville MTSA[12] , as shown in Figure 7, is being planned for high density in the areas closest to the GO station. A 3D example of what the area could look like is illustrated in Figure 8 below. New subdivisions such as the Northglen Neighbourhood are currently being built.

Metrolinx announced Bowmanville Construction Partners (BCP) in June 2023, as construction manager to support the detailed design and construction management for the Bowmanville Extension project. The detailed design has now begun as part of the development phase, and geotechnical survey work is underway along the east rail corridor. The Bowmanville extension is a part of the overall upgrade and extension of the east rail corridor and may necessitate the need for expansion projects in this area. Projects on the go are illustrated in the Figure 9 below.

[12] Clarington, "Public Meeting Report" (January 2024) - https://pub-clarington.escribemeetings.com/filestream.ashx?DocumentId=42688

**Figure 7: Bowmanville West Urban Centre and MTSA Secondary Plan[13]**

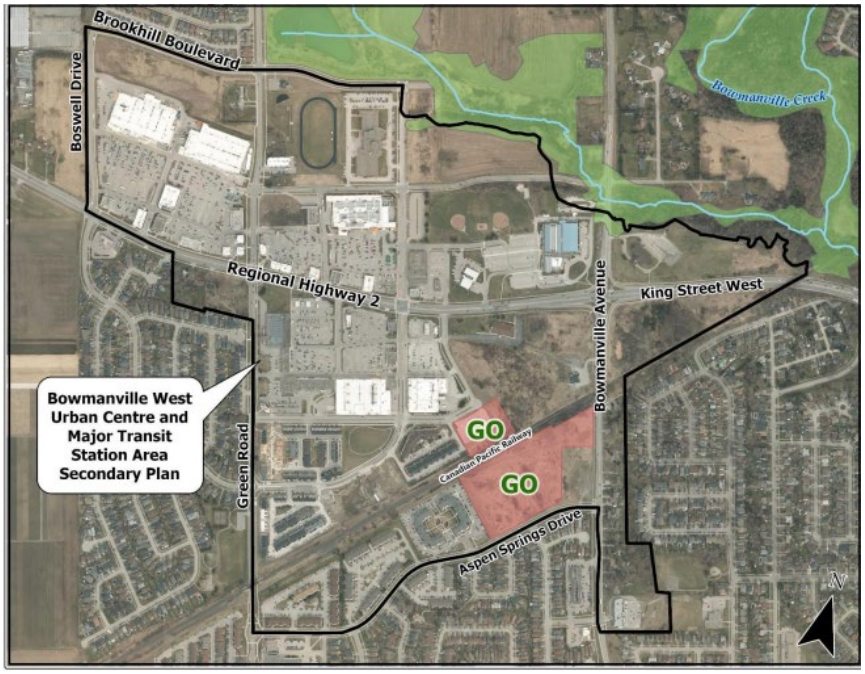



**Figure 8: Example 3D Image of Secondary Plan Area**

[13] https://weblink.clarington.net/WebLink/ElectronicFile.aspx?docid=411613&dbid=0

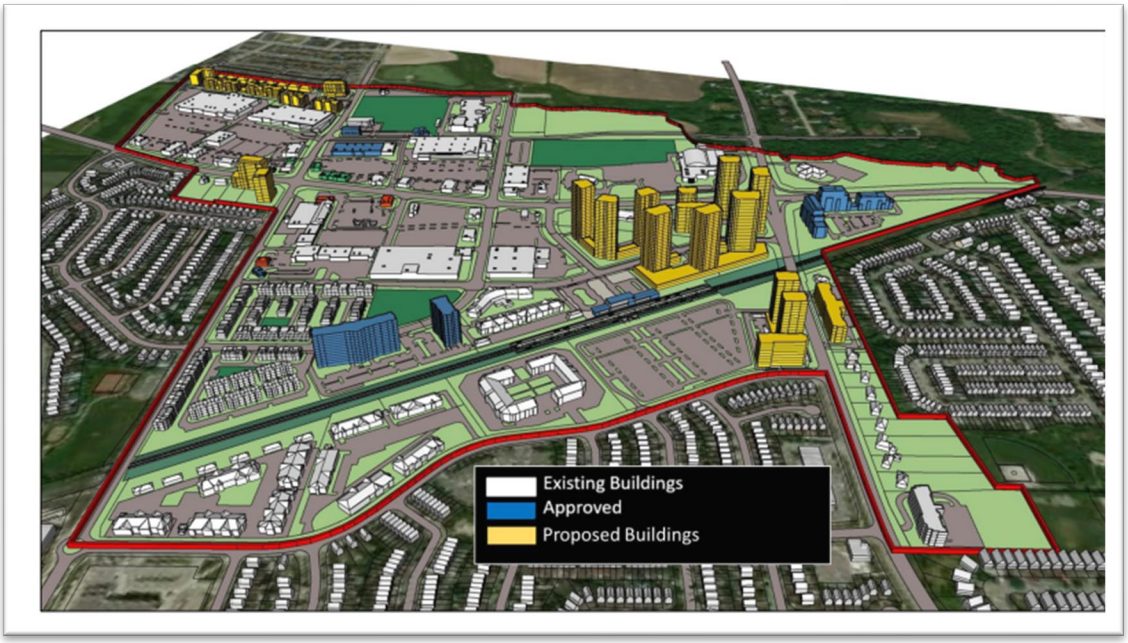
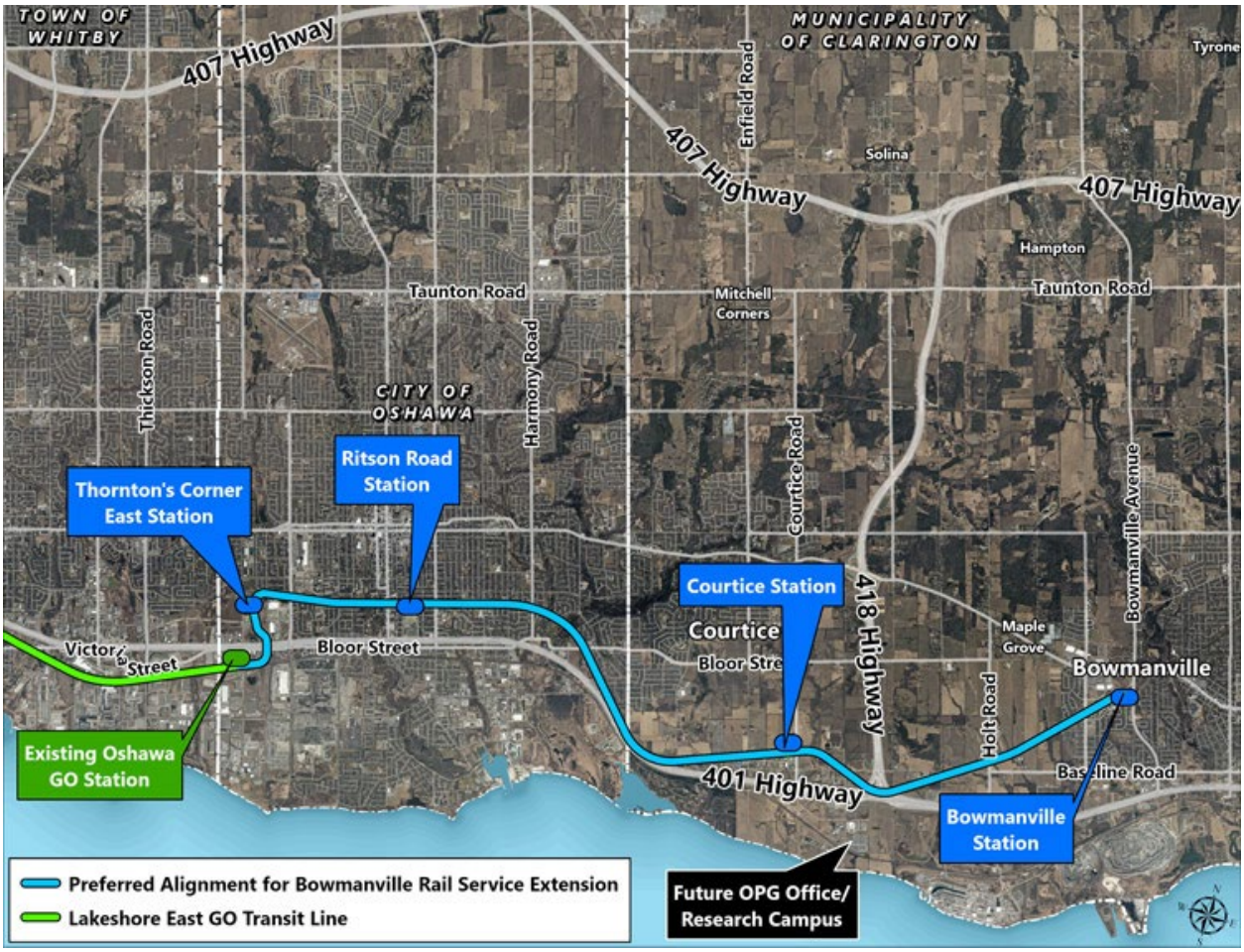



**Figure 9: GO East Expansion Plan[14]**

[14] Clarington, "GO East Clarington", https://www.clarington.net/en/business-and-development/go-east-clarington.aspx




**Uxbridge**

The most significant population gains will come from greenfield subdivisions at the periphery of Uxbridge. The township has approved new subdivisions on its west and south sides. For example, the Coral Creek / Barton Farms area in northwest Uxbridge and developments near Herrema Blvd in the south. Uxbridge's housing growth will come from gradual subdivision build-out rather than high-density projects, and thus it is not expected to contribute greatly to overall System Access spending. However, Uxbridge has recently

initiated the "Uxbridge Downtown Revitalization plan" aimed at developing the downtown area which is expected to accelerate growth in the future.

**Scugog**

The Township of Scugog is largely rural and includes many small hamlets, but the primary centre of growth is Port Perry, the township's main urban community on Lake Scugog. Scugog's population is forecast to increase by about 32%, from roughly 22,200 in 2021 to 29,310 by 2051. The Official Plan concentrates this growth almost entirely in Port Perry. Within Port Perry, new housing will be added through both greenfield expansion and some infill.

Outside Port Perry, Scugog's other hamlets (e.g. Blackstock, Caesarea) will see very minimal growth. Thus, most of the new population will reside in expanded Port Perry. The relatively small amount of growth over a long period indicates that Scugog will not be a large source of feeder expansion projects over the DSP period.

**Brock**

The Township of Brock will see growth primarily in its largest community, Beaverton, followed by some expansion in Sunderland. Brock's overall population is much smaller than other Durham municipalities, but it is poised for a notable increase by 2041 due to new housing projects in these villages.

Several subdivisions totalling roughly 1,280 new dwelling units are in the pipeline in Beaverton. These include projects like Beaverton Lake Homes, a subdivision with 141 single detached houses and 65 townhomes, the Belpark subdivision with 209 units of singles, townhouses, and link homes, and others along Mara Road, Nine Mile Road. As of 2024, about 703 units had draft approval and another ~577 units were proposed in Beaverton, awaiting final approvals. This scale of development will significantly expand Beaverton's population.

Several subdivisions totalling roughly 1,280 new dwelling units are in the pipeline in Beaverton. These include projects like Beaverton Lake Homes, a subdivision with 141 single detached houses and 65 townhomes, the Belpark subdivision with 209 units of singles, townhouses, and link homes, and others

along Mara Road, Nine Mile Road. As of 2024, about 703 units had draft approval and another ~577 units were proposed in Beaverton, awaiting final approvals. This scale of development will significantly expand Belleville is planning for steady with population projections approaching ~60,000 by the late 2030s. Growth will occur through both greenfield development on the urban fringe and intensification/ within the city. Key areas of expansion include the west end of Belleville, notably the Loyalist Secondary Plan area. In the north end of the city, the Cannifton Planning Area is another growth zone; Belleville has already seen new housing in this area (Settler's Ridge subdivision, etc.), and plans are in place to  Belleville is planning for steady with population projections approaching ~60,000 by the late 2030s. Growth will occur through both greenfield development on the urban fringe and intensification/ within the city. Key areas of expansion include the west end of Belleville, notably the Loyalist Secondary Plan area. In the north end of the city, the Cannifton Planning Area is another growth zone; Belleville has already seen new housing in this area (Settler's Ridge subdivision, etc.), and plans are in place to continue developing lands in Thurlow Ward north of the 401. In West Belleville, the Potters Creek subdivision and related developments off Avonlough Road have added many single-family homes and townhouses. Additionally, Large Industrial and commercial developments in Northeast Belleville Industrial Park are also anticipated to grow requiring feeder expansions. Port Hope has a few notable housing developments either underway or planned. One prominent project is Lakeside Village in the Penryn Park area on the west side of the town. Lakeside Village is to have 534 units in total when fully built. Looking forward, the new westward expansion area of Port Hope will likely be subject to a Secondary Plan to detail its development. That area could yield on the order of 2,000 housing units (if planning for ~5,000 people) in a range of low and medium densities.

Belleville is planning for steady with population projections approaching ~60,000 by the late 2030s. Growth will occur through both greenfield development on the urban fringe and intensification/ within the city. Key areas of expansion include the west end of Belleville, notably the Loyalist Secondary Plan area. In the north end of the city, the Cannifton Planning Area is another growth zone; Belleville has already seen new housing in this area (Settler's Ridge subdivision, etc.), and plans are in place to Gravenhurst.

In the Town of Gravenhurst (Muskoka Region), growth by 2041 will be moderate but focused on the urban centre of Gravenhurst and its immediate surroundings. Muskoka is projected to grow at ~1.2% annually,

reaching about 99,100 residents by 2051, and much of this permanent population growth will occur in the Towns of Gravenhurst, Bracebridge, and Huntsville. For Gravenhurst specifically, this means accommodating a few thousand additional residents by 2041. The town's Official Plan directs growth to the Gravenhurst urban area, as opposed to the many lakefront cottage areas which are mostly seasonal. Within town, development is happening in several key areas. One is the north end of Gravenhurst near Highway 11 and Muskoka Road 169, where subdivisions like Pineridge and others have been developed.

## 3. INVESTMENT TIMING & PACING

### 3.1 Summary of Expenditures

Elexicon forecasts a net investment of $54.15M in the System Expansion program over the 2027 to 2031 period. Elexicon's System Expansion expenditures are based on a combination of known key projects planned during the DSP period and forecasted expansions required to accommodate future customer connections. These expenditures reflect situations where existing distribution infrastructure cannot support new or increased load, necessitating system expansion to enable customer connections.

Elexicon has a high level of confidence in expenditures between 2025 and 2028, as these years reflect known and ongoing expansion projects that are already in various stages of design or construction. A temporary dip is forecast for 2029, reflecting fewer confirmed projects at this time based on currently available information.

Expenditures are expected to increase in 2030 and 2031 as the new GTA East MTS is planned to be in service by 2031. Expansion work during this period will involve feeder expansions from the new MTS to ensure customers can be connected as soon as the new station becomes operational. Several customers have already initiated connection requests contingent on this new capacity.

**Table 7: System Expansion Expenditures (2020-2031)**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Gross | 3.14 | 3.01 | 10.16 | 5.06 | 16.32 | 14.02 | 24.90 | 73.56 | 37.24 | 27.00 | 32.27 | 36.37 |
| Contributions | 3.06 | 2.92 | 8.67 | 1.70 | 2.51 | 2.39 | 12.31 | 54.26 | 27.47 | 19.92 | 23.77 | 26.83 |
| Net | 0.09 | 0.09 | 1.49 | 3.37 | 13.81 | 11.63 | 12.59 | 19.30 | 9.77 | 7.08 | 8.45 | 9.54 |

Forecast costs are based on standard scope estimates of material and labour for the overall program. Each system expansion project is custom designed, requiring a unique combination of assets to meet project-specific connection needs. Year-to-year variation is primarily driven by scope and schedule changes dependent on third-party developers and municipal approvals.

Between 2025 and 2028, forecasts are based on known, ongoing, and upcoming projects. Beyond 2028, Elexicon expects annual net spending to range between $7.08M and $9.77M. While some yearly fluctuations are expected, average spending is anticipated to remain within this range, with gross, contribution, and net cost forecasts approaching historical levels.

Several projects planned between 2025 and 2027 contribute to the relatively higher spending in these years, while expenditures in later years are based on historical actuals and anticipated need consistent with the growth and development plans discussed in Section 3. Given the externally driven nature of this program, expenditures and project timing will continue to adjust based on customer demand and municipal development schedules.

Customer requests remain the primary driver for pacing of work. Smaller developments and individual service requests are often integrated with larger developments requiring substantial infrastructure, an approach that improves efficiency and minimizes disruption within the public right-of-way. Elexicon aims to coordinate multiple projects during the design phase to develop an optimized expansion plan for each growth area.

Where feasible, projects are combined or subdivided to manage workload, optimize timing, and align with broader capital priorities. In practice, several forecasted expansions may be consolidated into a single larger project, as occurred in the Seaton development area in 2023. When opportunities arise, Elexicon

also advances or aligns expansion projects with work under other capital programs, such as the System Renewal program, to capture synergies and minimize future rework.

## 3.2 Investment Pacing and Prioritization

The pacing and prioritization of System Expansion investments are fundamentally driven by customer connection requests and development timelines. As System Expansion projects are non-discretionary and initiated in response to customer demand, the timing of work is anchored by when new developments require service and when capacity must be available to support those loads. These drivers, which are external to Elexicon, necessitate a planning approach that is responsive, coordinated, and aligned with broader development activity across the service territory.

The program's work schedule is informed by a combination of confirmed expansion projects already in design or construction and anticipated future requirements identified through municipal growth plans, developer consultations, and load forecasts. Larger feeder buildouts associated with major residential, commercial, and industrial developments typically form the core of the annual program schedule. These projects often include multi-year design and construction timelines and require early engagement with developers, municipalities, and other stakeholders to establish in-service dates that match development phasing.

Known expansion projects planned for 2025 to 2028, which are already in advanced stages of planning, contribute to higher confidence levels in the near-term forecast. Beyond 2028, pacing reflects expected growth patterns and ongoing municipal intensification initiatives, while acknowledging the inherent variability of customer-driven work.

Where feasible, System Expansion projects are coordinated with other investments such as System Renewal, Grid Enhancements, and Substation Growth programs to optimize field mobilizations, reduce duplication of civil works, and improve overall construction efficiency.

Customer impact is also considered in determining execution windows. Elexicon seeks to schedule expansion work in a manner that minimizes disruption to existing communities and aligns with development-driven construction sequencing. This includes coordinating feeder construction with

roadway availability, planned municipal works, and developer-led civil activities to facilitate efficient execution and reduce community impacts.

Overall, investment pacing within the System Expansion program reflects the need to balance regulatory service obligations, customer-driven timelines, and system capacity considerations. This approach enables Elexicon to meet mandated connection requirements while maintaining system reliability and operational efficiency across the 2027–2031 planning horizon.

## *3.3* Execution Approach

As part of program execution, Elexicon applies several procedures in order to manage emerging risks that may occur, to ensure that projects are executed in a timely and optimal manner. This includes the following risk mitigations as summarized in Table 8:

**Table 8: Summary of Program Risks & Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| Resource Availability: Need to ensure that specialized labour, civil construction, and coordination with contractors is in place to deliver the work on time and on budget. | • Resource Coordination: Investment plan has been structured to align internal crews and external contractors with known and anticipated expansion projects across the planning period.<br>• Early engagement with contractors through established MSAs supports dependable resource availability during peak development periods. |
| Development and Schedule Variability: Need to manage changes in customer-driven timelines, municipal approvals, and developer readiness that may shift project sequencing or affect in-service dates. | • Engagement with developers during design validation ensures confirmation of scope, timelines, and service requirements. |
| Permitting and Approvals: Need to manage municipal permits, road occupancy approvals, and other third-party requirements that influence construction timing. | • Advance Coordination: Early coordination with municipal engineering, transportation, and planning departments ensures that required permits and approvals are identified early and |

| Risk | Mitigation Methods |
|---|---|
| | pursued proactively to maintain schedule alignment. |
| Material and Equipment Availability: Need to ensure timely delivery of materials including poles, conductors, switches, transformers, and cable. | • Proactive Procurement: Long-lead materials are forecasted and ordered based on known project requirements. Inventory levels for standardized expansion materials are actively managed to reduce risk of delays. |
| Cost Variability Due to Scope Changes: Need to manage cost impacts where customer requirements or site conditions change during design or execution. | • Scope Confirmation: Technical requirements are validated with customers during detailed design to confirm feeder routing, capacity requirements, and station interfaces.<br>• Where scope or timing changes outside of Elexicon's control result in cost changes, applicable DSC cost-sharing and economic evaluation requirements are used to ensure appropriate cost recovery. |
| Third Party Construction Conflicts: Need to manage conflicts with municipal works, road construction, utility relocations, or transit projects that may restrict civil routes or delay construction. | • Stakeholder Coordination: Participation in municipal coordination forums and review of public planning documents supports identification of conflicts early, allowing civil routing or phasing adjustments to maintain work progression. |
| Customer and Community Impacts: Need to limit community disruption associated with new feeder construction, civil works, and planned outages. | • Impact Management: Scheduling of work is aligned with municipal programs where feasible to minimize disruption, and communication is provided to affected customers regarding expected timelines and impacts. |

# 4. OPTIONS ANALYSIS

## 4.1 Options for Feeder Expansions

Not applicable – The System Expansion program represents demand-driven, non-discretionary investment that responds to customer driven work. As such, investment decisions are initiated by external demand and not subject to alternative options analysis or prioritization frameworks.

# 5. ECONOMIC EVALUATION (EXPANSION PROJECTS)

As per Elexicon's Conditions of Service, the Economic Evaluation is performed by Elexicon to determine the customer's share, if any, of equipment, labour, material, and ongoing maintenance costs of the expansion ("The Expansion Costs"). Elexicon will make an offer to connect based upon the results of the Economic Evaluation that outlines the charges, costs, and work required to build the expansion and connect the customer(s).

Elexicon is obligated to undertake System Access projects, including the investments described within this program, to ensure new customers can be connected to the distribution system. Elexicon also provides options developers with options for underground and overhead feeder expansions, to align with customer needs and provide opportunities for cost mitigation.

To support long-term planning, Elexicon will continue analyzing development inputs, housing forecasts, and engaging with developers to proactively identify and plan for future feeder expansion requirements.

# A4 METERING AND AMI 2.0

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $7.11M | 2025-2026 Plan: $3.31M | 2027-2031 Forecast: $31.24M |
| Primary Driver: Mandated Service Obligation, Grid Modernization | | |
| Secondary Drivers: Customer Service Requests, Failure Risk, Obsolescence | | |
| Outcomes: Customer Focus, Operational Effectiveness, Public Policy Responsiveness | | |
| Segments: Metering, AMI 2.0 | | |

This program involves the installation of meters for new customers, the sampling, reverification and the replacement of meters due to failure, as well as the rollout out of AMI 2.0. The program and its constituent segments build on existing metering activities and include the rollout of AMI 2.0, which Elexicon intends to begin during the DSP period. The program is split into two segments:

- Metering
- AMI 2.0

Elexicon has identified approximately 131,267 meters with seals scheduled to expire between 2027 and 2031. Under Measurement Canada requirements, Elexicon anticipates sampling 111,638 meters and performing 19,629 reverifications during this period. In addition, based on historical data (Figure 6), Elexicon expects to replace failed meters and install new meters for customer connections at a rate of approximately 3,000–3,500 meters per year. Once sample testing has been completed, Elexicon anticipates that all meters with expiring seals will be able to have all seals extended beyond the 2031 period. The five-year cost of this part of the program will be $9.85M. It should be noted, that depending on the finalized roll-out of the AMI 2.0, some reverification may not be required in the latter years of the period, which could reduce the cost of this program by up to 25%. This reduction will only be known once Elexicon has finalized its RFP process and determined its detailed phasing and rollout of its AMI 2.0.

Metering investments are System Access projects by Elexicon that are driven by mandatory service obligations as outlined through the Measurement Canada (MC) requirements. The MC requirements set out the timelines and process Elexicon has to undertake to sample, reverify and extend the seal of its

existing metering population. Furthermore, Elexicon has to install new meters for new customer connections each year, as well as replace any meters that fail.

The metering segment's primary objectives are to maintain compliance with legal and regulatory metering requirements under the Electricity and Gas Inspection Act ("EGIA"), Weights and Measures Act ("WMA"), and the Independent Electricity System Operator's ("IESO") Market Rules (which Elexicon must abide by as a Market Participant), while facilitating accurate customer billing and supporting utility's financial obligations.

The AMI 2.0 segment includes Elexicon's investments to upgrade its Advanced Metering Infrastructure ("AMI") from AMI 1.0 to AMI 2.0. Elexicon's current AMI has reached its end of life, with many components obsolete and unsupported, such as the gatekeepers in Veridan zone and the 41,000 R1S meters not meeting todays standards. Elexicon currently has two metering systems in place with both being at end of life and experiencing increased failures:

- Elster Metering System -this was installed in 2007, with all field components seeing an increase in failure rates.
- Sensus Metering System – this was installed in 2009.

Elexicon has outlined a planned replacement of residential and small commercial smart meters with next generation smart meters (commonly referred to as AMI 2.0), and upgrades for supporting AMI infrastructure, including its head ends. All meters Elexicon installs will be AMI 2.0 compatible.

The AMI utilized by Elexicon for revenue metering encompasses various pieces of hardware and software such as smart meters, repeaters, collectors, Head End System ("HES"), and related software and firmware. Together, these components function to reliably acquire remote meter readings, facilitating accurate customer billing in compliance with the provisions outlined in the OEB's Standard Supply Service Code ("SSSC") and the requirements of Measurement Canada. Additionally, AMI offers opportunities to enhance customer service and reduce costs through features like outage detection, provision of customer usage information, tamper detection, and remote disconnect/reconnect capabilities.

As the AMI system ages, the frequency of meter failures, particularly communication loss, has surpassed standard operating levels, with meters exhibiting signs of deterioration. Left unchecked, these high failure rates pose significant risks to Elexicon's operations, including non-compliance with requirements under the federal EGIA and the WMA, the OEB's DSC and billing provisions of the SSSC, as well as customer dissatisfaction due to billing inaccuracies, uneconomical reactive meter replacements, and operational disruptions stemming from technological obsolescence.

In addition, as summarized in Exhibit 2B - Tab 3 - Schedule 2 - Appendix A, the deployment of AMI 2.0 is required to advance Elexicon's grid modernization objectives, as it lays a strong foundation for advanced and intelligent grid infrastructure. The abundance of data that accompanies the deployment of AMI 2.0 enables opportunities for enhanced grid observability and situational awareness. The increased granularity of data collected through advanced meters will enable more robust data analytics, unlock new possibilities for grid optimization, and promote proactive asset management, customer engagement, and the implementation of non-wires solutions ("NWS") such as distribution system operator ("DSO") functionality. AMI 2.0 will also play an important role in enhancing outage management and grid reliability by introducing new functionalities like "last gasp", which signals when a meter is about to lose power to enable grid operators to identify outage locations and dispatch repair crews to more precise locations. Furthermore, data obtained through the new AMI 2.0 meters will allow Elexicon to identify issues in the system (e.g., more proactively and mitigate the potential reliability, safety and environmental risks.)

Elexicon is proposing to deploy AMI 2.0 over a period of 8 years starting in 2028. This is to allow for a paced replacement of meters and installation of new metering infrastructure, whilst accounting for the financial impact on the overall capital plan. Elexicon plans to spend $21.39M across the 2027-2031 period.

# 2. INVESTMENT DESCRIPTION

## 2.1 Metering

Metering investments are System Access projects that are primarily driven by mandatory service obligations. Under the Measurement Canada requirements, Elexicon must sample, reverify and, where appropriate, extend the seal on meters that are expiring in the 2027-2031 period. Elexicon must also install meters for new customers and replace meters due to failure. The metering segment's forecasted budget includes costs associated with the sampling, verification, and extension of expiring seals, the replacement of failed meters, and the installation of new meters for new customers.

The WMA, EGIA and related regulations govern Elexicon's ability to bill its customers for electricity usage and require that all meters must be resealed at specified intervals to ensure that a customer's electricity usage is metered accurately. Once a seal expires, the applicable regulatory requirements preclude the meter from being used for billing purposes, and the meter must either have its seal period extended (via compliance testing) or be replaced. In the event that the meters with expired seals remain in use, Elexicon could face financial penalties, as contemplated by EGIA.

A subset of the population of all categories of meters (residential, commercial and industrial, large users, suite meters, wholesale meters) will either need to have their seals extended or be replaced throughout the 2027-2031 forecast period. Please see Table 1 for a breakdown of the number of meters with seals expiring by year, split between active meters and meters in stock. Active meters being those currently in service and stock meters being those on hand for necessary replacements. Overall, 131,267 meters' seals will expire during the forecast period. Elexicon anticipates that all the meters that are expiring will have their seals extended once compliance testing is completed. The only meters that are considered for full replacement within the metering budget will be those that fail compliance testing. Further details on the number of meters expiring, requiring sampling and reverification, as well as lot size for compliance testing can be found in Table 4 in Section 3.2 of this narrative.

**Table 1: Active and In Stock Seal Expirations**

| Seal Expiry Year | # Active Expiring | # in Stock Expiring |
|---|---|---|
| **2027** | 21,544 | 545 |
| **2028** | 49,841 | 794 |
| **2029** | 44,042 | 399 |
| **2030** | 5,848 | 1,349 |
| **2031** | 6,679 | 226 |
| Totals | 127,954 | 3,313 |

Elexicon does not anticipate proactively replacing any of its current meters in the 2027-2031 period outside of the planned AMI 2.0 rollout, unless they fail whilst in service or the sample testing fails as part of the reverification testing. Within its forecast metering expenditure, Elexicon is projecting on average around 1,400 meters may fail a year that require replacement, based on historical trends as well as the age of meters. It is expected these meters would be replaced with a like-for-like meter.

Furthermore, Elexicon has forecast an increase of 18,000 new metered customers (3,600 yearly average) for the 2027-2031 period that will require an installation of a new meter. Further details on the forecast of new metered customers can be found in Section 3.4 of this narrative.

Elexicon's proposed metering investment will allow Elexicon to continue to comply with Measurement Canada requirements, as well as reduce the risk of meter failure and resulting customer billing errors by upgrading expiring seals.

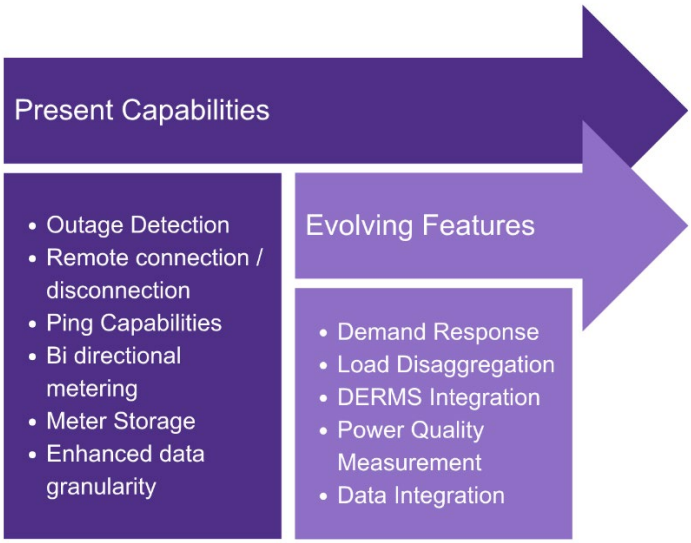
## 2.2 AMI 2.0

AMI is an integrated network that allows two-way communication between utilities and their customers. These systems allow customers to manage their electrical consumption more effectively, benefiting both the distribution network and its customers. Elexicon is proposing to upgrade its AMI1.0 to AMI 2.0 over an eight-year period starting in 2028. Elexicon's current AMI is at its end of life, obsolete, and experiencing increased number of failures. Over 87% of its metering population will be at end of life by 2027 and 89% by 2031. With the current AMI1.0 reaching its end of life, Elexicon has assessed its options and will upgrade to the latest technology as part of its AMI 2.0 project. This will include both new AMI 2.0 meters as well

as all the associated infrastructure, such as the gatekeepers, headend systems, and communications infrastructure.

As shown in Figure 1, below, Elexicon expects AMI 2.0 to deliver new capabilities beyond AMI1.0, which was predominantly focused on meter-to-cash efficiencies. These new benefits include improved billing accuracy, capabilities that encourages faster outage response, improved network range, enhanced security against cyber-threats, increased grid transparency, and improved data granularity and analytical capabilities. In the longer term, Elexicon intends to leverage the monitoring and control capabilities associated with AMI 2.0 to develop additional functionalities to manage an electrified and decarbonized energy system, including load disaggregation (e.g. tracking consumption by type of home appliance). These evolving features are dependent on further technological developments, and market development.

**Figure 1: Present and Evolving AMI Capabilities**




As part of the AMI 2.0 segment, Elexicon has the opportunity to move to a single head end system. Currently, Elexicon is still running on two head end systems, Sensus and Elster. These were the systems in

place at the legacy utilities prior to the formation of Elexicon in 2019. The following Figure 2 and Figure 3 show the two types of meter types Elexicon has in its system:

**Figure 2: Honeywell Residential Smart Meter**



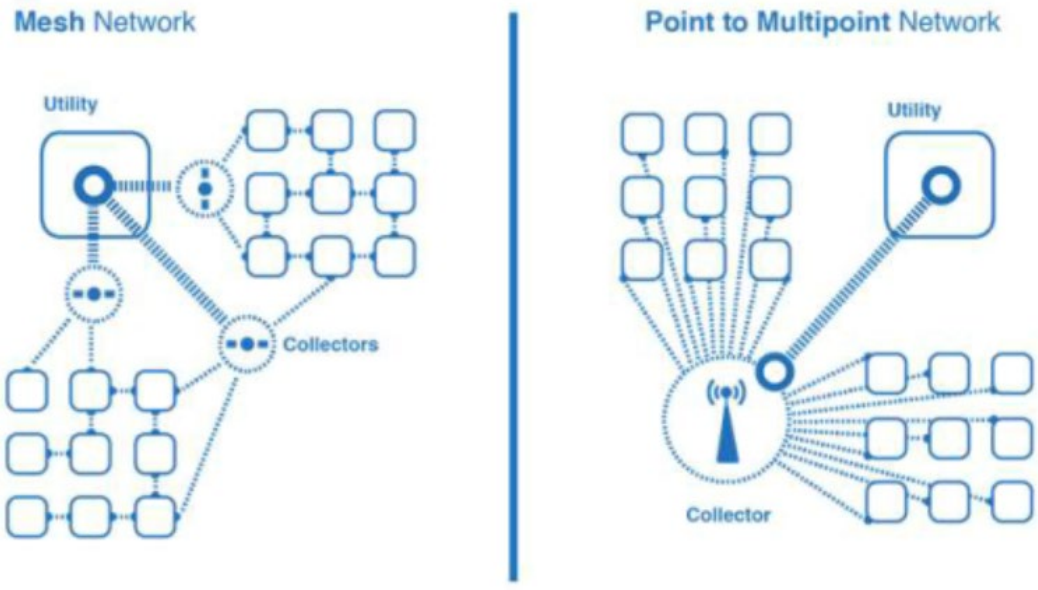

**Figure 3: Stratus IQ Residential Smart Meter**



The move to a single AMI system will create efficiencies in respect of the administration of Elexicon's AMI. Namely, it will reduce the training requirements as meter technicians will only be required to be trained on one meter type, and inventory management will be simplified as equipment for only one type of meter will need to be stocked. In addition, by moving to one communication and head end system, less background systems, software and other ad-hoc devices will be required. Moving to single system will also allow Elexicon to no longer incur the costs associated with operating two head end systems.

In the Whitby rate zone, Elexicon uses Sensus Technology, a Point to Multipoint Network. A Point to Multipoint Network is a device-to-base-station-to-head-end communication system. In the Veridian rate zone, an Elster/Honeywell mesh network is used. In a Mesh Network, the communications are from device to device, to local gate keeper, to head end communication system. Figure 4 below illustrates the two head end systems Elexicon currently operates with. Mesh Network is what the Elster meters use, and the Point to Multipoint Network is what the Sensus meters use.

**Figure 4: Comparison of AMI Network Architectures**



Both systems are experiencing challenges. The Veridian Rate Zone, which uses a Mesh Network, has about 30% of active meters without last gasp signalling. Due to the age of the meters and gate keepers in the field, Elexicon is experiencing a high failure rate and communication issues, which has resulted in customers having estimated bills instead of it being based on actuals. The Whitby Rate Zone, which uses the Point to Multipoint Network, is experiencing issues with inventory delivery, which causes delays that create challenges for Elexicon to comply with Measurement Canada requirements. This also causes delays in installing new services.

Elexicon has identified several operational and customer benefits associated with the investment in AMI 2.0:

- Migration to one head end system (HES) and meter type,
- Replacement of all meters systematically and geographically in a more cost-efficient fashion.
- Enhanced technology will offer Elexicon increased capabilities as described below,
- Reduced reactive replacements as new meters have a lower failure rate,
- Allow Elexicon to avoid sample testing/reverification for 10 years,
- Ensure all meters have last gasp functionality.

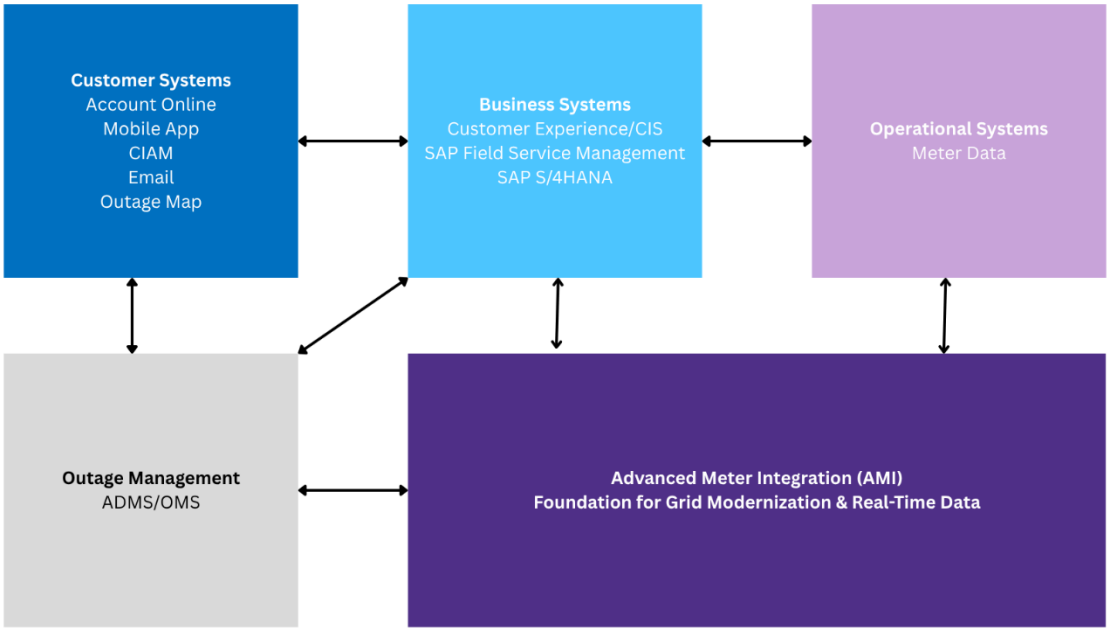
In addition, Elexicon will be able to seek favourable pricing through purchasing of large quantities of meters.

Before the mass rollout of AMI 2.0 begins, Elexicon will install AMI 2.0-capable meters as existing meters fail, reach the end of their useful life and/or fail any verification or sample testing, as outlined in Section 3. As Elexicon determines its detailed phasing of the AMI 2.0, it will look to carry out a mass deployment of AMI 2.0 meters. This will reduce the risk of large-scale meter failures and deliver cost efficiencies through bulk purchasing, optimized resource deployment, and reduced maintenance. Beyond these operational benefits, AMI 2.0 enhances Elexicon's grid operations and provides customers with access to detailed energy consumption data, supporting smarter energy use.

While meter replacements are primarily required to meet regulatory service obligations, new metering technology offers advanced features that support Elexicon's Grid Modernization plan. The updated AMI

2.0 system will not only provide accurate, real-time meter readings but also connect seamlessly with other Elexicon systems. As shown in the graphic below, AMI acts as the backbone of this future state, linking customer-facing tools like online accounts and mobile apps with core business platforms for billing and service management. It also integrates with operational systems such as outage management to enable faster restoration and improved reliability. This integration strengthens overall efficiency and lays the foundation for smarter, more responsive operations across Elexicon systems.

**Figure 5: Elexicon Future State (AMI)**




One key functionality of AMI 2.0 that Elexicon and its customers will immediately benefit from, is the enhanced coverage of meters having last gasp functionality. Currently, Elexicon has 41,000 R1S first generation meters with no last gasp functionality. This functionality is critical to ensure full integration and functionality with Elexicon's new ERP system (DxNext). For these current meters, Elexicon is typically dependent on phone or service calls to define the location and boundaries of an outage. The next

generation smart meters will enable automatic outage and restoration notification (“last gasp”) which will provide better operational visibility into outages.

## 2.3 Summary of Investment Outcomes and Benefits

**Table 2: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Operational Effectiveness—Efficiency | Metering has key operational functionalities. First it is used to automatically read meters, with data collected via the network interface and without the need for manual readings, enabling easier and more accurate billing. Additionally, meters can be used for detection of outages or failures, as if the metering is not automatically sending data, this can indicate an issue on the network that can enable operations to respond quicker and more targeted. AMI 2.0 automates other metering functions like service connection and disconnection, tamper and theft detection, fault and outage identification, and voltage monitoring. Enhanced measurement capabilities will allow for the development of enhanced analytical insights, including new types of predictive and prescriptive analytics, providing opportunities to improve planning and operational decisions. Moving to one head end system will simplify future maintenance and updates. |
| Customer Focus | AMI provides customers with better connectivity and access to metered data for continued accurate billing. This aligns with the obligation of maintaining billing accuracy of at least 98 percent by: (a) upgrading and replacing metering infrastructure and limiting the percentage of meters past their useful life and (b) completing metering system upgrade initiatives that reduce the need to estimate bills and issue bill corrections.<br>As energy consumption becomes more dynamic, Smart Meters allow customers to monitor their consumption and power quality in real-time. |
| Operational Effectiveness—Reliability | Installing meters with last gasp functionality enables grid operators to identify outage locations and dispatch repair crews to more precise locations. This results in a quicker and more accurate response to outages.<br>Enhancing data granularity (e.g. demand data, asset health data) which enables the development of analytical tools that serve to proactively monitor asset health and identify maintenance needs and ultimately, reduce likelihood of unexpected equipment failure. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

**Table 3: Investment Driver and Reasoning**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| Mandated Service Obligations | Metering in Canada is governed by the WMA and the EGIA which are administered by Measurement Canada.<br>The WMA and EGIA and related regulations govern Elexicon's ability to bill its customers for electricity usage and require that all meters be resealed at specified intervals to ensure that a customer's electricity usage is metered accurately. Regulations prohibit a meter with an expired seal from being used for billing purposes. The meter must either have its seal period extended (via compliance testing) or be replaced. Elexicon has identified 131,267 meters (over 75% of Elexicon meter population) that will expire in the forecast period, and sample testing and verification is required to extend their seal periods. Details of this is outlined in Section 3.4. Elexicon expects that all the meters will have their meter seal period extended. |
| Grid Modernization | The current AMI system is obsolete and cannot support modern grid needs. AMI 2.0 is essential to Grid Modernization, enabling two-way communication, improving billing accuracy, outage detection, and integrating with ERP and OMS for better operational visibility. It consolidates platforms to reduce costs and complexity while providing real-time visibility at the grid edge for accurate load profiling, bi-directional power flow monitoring, and proactive alerts on abnormal conditions. AMI 2.0 lays the foundation for advanced analytics, DER integration, and responsive load management, which is critical for electrification, decarbonization, and Elexicon's grid modernization plan. |
| Customer Service Requests | As new customers require connections, further investment into new meters will be required. Much of the customer growth within the Elexicon territory is driven by residential customer growth. Overall, across the 2027-2031 period, Elexicon is |

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| | forecasting an additional 18,155 new metered customers that will require meters to be installed. |
| Failure Risk | Historically, Elexicon has experience an average of 1,000 meter failures a year. With over 87% of its meter population reaching the end of its typical useful life, failures are likely to increase, with Elexicon predicting around 1,400 failures on average a year for the 2027-2031 period. Through the rollout of its AMI 2.0, all of Elexicon's meters will be replaced over time, with older meters targeted first to help minimise the risk of failures. Once AMI 2.0 is completed, Elexicon expects that the number of failures to significantly reduce. |
| Obsolescence | The existing AMI 1.0 infrastructure is approaching end of life and will soon be unsupported by vendors, making maintenance increasingly difficult and costly. As technology becomes obsolete, Elexicon faces limitations in sustaining reliable operations and ensuring accurate meter data. Upgrading to AMI 2.0 addresses these challenges by replacing outdated systems with modern, supported technology, improving reliability and reducing long-term operational risks. |

## 3.2 Mandated Service Obligations

The costs associated with metering are largely non-discretionary investments and are primarily driven by Mandatory Service Obligations. Those Mandatory Service Obligations require Elexicon to sample and reverify meters with expiring seals extend seals, replace failed meters, and install meters for new customers. The WMA, EGIA, and MC regulations govern Elexicon's ability to bill its customers for electricity usage and require that all meters must be resealed at specified intervals to ensure that a customer's electricity usage is metered accurately. Once a seal expires, the meter cannot be used for billing purposes and must either have its seal period extended (via compliance testing) or be replaced. Elexicon has identified around 131,267 meters that will be expiring across the 2027-2031 period. Whilst the deployment of AMI 2.0 will provide a 10-year period where reverification and sampling is not required for new AMI 2.0 meters, the mass deployment of these meters is not expected to start until 2029/2030 and not be completed until 2035. Only once the full deployment has been completed, will this remove the

need for meter reverification and sampling. Therefore, Elexicon will still need to proceed with its planned reverifications and sampling to be compliant with MC requirements. With its current complement of aged meters, absent replacements, Elexicon would expect to need to replace approximately 1000 meters a year. With AMI 2.0 investments below, Elexicon will be optimizing replacements. The age of its metering infrastructure, and the substantial operational benefits expected from AMI 2.0 will alter Elexicon's previous metering replacement patterns and increase forecast costs. Elexicon also expects to connect an additional ~3600 new customers per year.

Elexicon is obligated to provide accurate metering by Measurement Canada. The WMA and EGIA and related regulations govern Elexicon's ability to bill its customers for electricity usage and require that all meters must be resealed at specified intervals to ensure that a customer's electricity usage is metered accurately. Once a seal expires, the legislation does not permit the meter to be used for billing purposes as the meters must either have its seal period extended (via compliance testing) or be replaced.

Furthermore, AMI1.0 has reached its end of life, with Elexicon running two head end systems, and maintaining two types of meters following the merger. By 2027, 87% of meters will have reached the end of their 15-year life. As noted, around 131,267 meters seals expiring within the 2027-2031 period that will require their seals extended. Additionally, Elexicon communication infrastructure and head end systems are obsolete and to allow Elexicon to enable extra functionality will require replacement.

For large homogenous batches of meters, Measurement Canada permits a sampling protocol to verify the accuracy of the meters. If the statistical accuracy results from the sample testing are within acceptable levels, all the meters in the meter group will receive a seal extension.

Elexicon tracks how many meters it has in service and in stock, and when these meters are expiring, and require sample testing, reverification and/or replacement. The below table indicates for the 2027-2031 period the number of meters that will be expiring, require sample testing, reverification, the lot size that will be sent for testing. Meters that are sent for reverification and the lot size (number of meters from the sample group that are sent for testing) are changed out with new or spare meters and sent to a third-party

MC approved laboratory. The timing and number of meters that are expiring, require sampling and reverification are based on the MC requirements, as outlined in the Section 4.2.

**Table 4: Summary of Meters Expiring, Requiring Sampling and Lot Size (2027-2031)**

| Seal Expiry Year | # Active Expiring | # in Stock Expiring | Total Expiring | Total Sample Meters | Total Reverifications | Lot Size | Total Meters to be Replaced |
|---|---|---|---|---|---|---|---|
| **2027** | 21,544 | 545 | 22,089 | 18,038 | 4,051 | 1,068 | 5,119 |
| **2028** | 49,841 | 794 | 50,635 | 43,290 | 7,345 | 1,906 | 9,251 |
| **2029** | 44,042 | 399 | 44,441 | 41,314 | 3,127 | 1,400 | 4,527 |
| **2030** | 5,848 | 1,349 | 7,197 | 3,733 | 3,464 | 568 | 4,032 |
| **2031** | 6,679 | 226 | 6,905 | 5,263 | 1,642 | 512 | 2,154 |
| **Totals** | 127,954 | 3,313 | 131,267 | 111,638 | 19,629 | 5,454 | 25,083 |

As can be seen, over the forecast period, based on the MC requirements, Elexicon has identified 131,267 meters that will have meters expiring, which accounts for over 75% of Elexicon meter population. Of this, Elexicon will sample 111,638 meters, with the remaining 19,629 requiring reverifications. The total meters to be replaced is made up of the sample lot size (5,454) along with the reverifications (19,629) each year, equating to 25,083 meters that will need to be fully tested and/or replaced. The meters that are sent for reverification and testing are required to all pass. If they pass, they are eligible to remain on hand as stock meters. Should any fail then the whole batch of meters identified requiring seal extension for that given year will be required to be replaced. Should this happen Elexicon would contact MC and discuss the options for replacement and agree on a schedule that is suitable for all parties. Based on historical data, Elexicon has not experienced failures in meters sent for reverification or testing. While failures have been minimal to date, the aging meter population increases the risk of future failures, which is one of the factors in Elexicon planning the AMI 2.0 upgrade. Routine replacements will continue only for meters that fail in service or do not pass reverification testing.

Once AMI 2.0 is rolled out this will remove the need to reverify and sample test the new meters for a 10-year period. However, until this rollout is started and completed, there will be a need to reverified and sample tested to be compliant with MC requirements. Elexicon is expecting the mass deployment of the AMI 2.0 meters to begin in late 2029 and early 2030. Whilst Elexicon will aim to replace meters that have reached their seal expiry date, depending on its deployment strategy these may not be in the first phases

of AMI 2.0 replacement. Therefore, based on Table 4 above, Elexicon expects that all reverifications and sample testing of the meters expiring across 2027-2029 will need to still be tested to be compliant with MC requirements. Depending on the deployment of AMI 2.0, the meters with seals expiring in 2030 and 2031 may not require verification and sampling if included in the early stage of the AMI 2.0 meter replacements. Only once the full AMI 2.0 is completed, will this ensure no reverification is needed for 10 years from the date of the new AMI 2.0 meter install.

### 3.3 Grid Modernization

Grid Modernization is the primary driver for Elexicon's AMI 2.0 investment. The current AMI 1.0 system is obsolete, nearing end of life, and increasingly prone to failures, creating operational and compliance risks that threaten reliability and service quality. Maintaining two legacy head-end systems inherited from pre-merger utilities adds complexity and operational challenges, while thousands of meters lack critical functionality such as last gasp outage notifications. These limitations hinder Elexicon's ability to manage outages effectively, maintain accurate billing, and deliver the level of reliability customers expect.

AMI 2.0 is essential to enable the capabilities required for a modern, resilient grid. It will provide real-time visibility at the grid edge, improve outage detection and restoration through universal last gasp functionality, and support proactive alerts for abnormal conditions to enhance preventative maintenance. AMI 2.0 also enables accurate load profiling, bi-directional power flow monitoring, and integration with Elexicon's ERP and outage management systems, strengthening operational awareness and service continuity. Beyond immediate reliability improvements, AMI 2.0 establishes the foundation for advanced analytics, distributed energy resource integration, and responsive load management strategies that are critical for electrification and decarbonization. Without this investment, Elexicon faces escalating operational risks and an inability to support the evolving needs of its customers and the grid.

### 3.4 Customer Service Requests

In addition, Elexicon is projecting a continued increase in customer connections which will require new meters to be installed. Customer projections suggest a continued increase in all customers within the Elexicon territory which will require new metered connections. These projections are made from

information regarding development plans, forecasts, and third-party consultations. Projected expenditures are produced based upon a customer forecast. The following table shows the year-over-year change in metered customers over the past 5 years (2020-2024), and the forecasted number of metered customers out to 2031. The calculated annual population growth rate for the 2027-2031 period is an average of 1.88%, indicating an increase in the rate of growth compared to the historical period (1.32%) and a consistent requirement for additional metered connections.

**Table 5: Historical and Forecast Metered Customers**

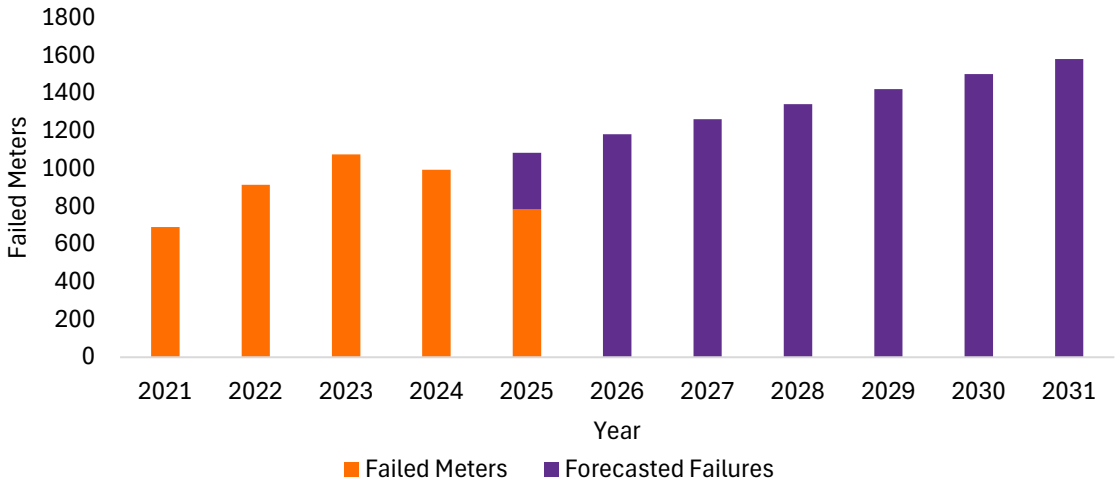
| | Actual | | | | | Bridge | | Forecast | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Total Metered Customers | 169,489 | 171,564 | 174,153 | 176,725 | 179,017 | 182,688 | 186,243 | 189,833 | 193,280 | 196,883 | 200,624 | 204,398 |
| YoY % Change | 1.10% | 1.20% | 1.50% | 1.50% | 1.30% | 2.10% | 1.90% | 1.90% | 1.80% | 1.90% | 1.90% | 1.90% |

By 2031, Elexicon will have an expected 204,398 total metered customers which will require metered connections. This is an increase of 25,381 customers (compared to 2024 actuals) which will require meters, averaging 3,631 new meters yearly over the 2027-2031 rate period.

## 3.5 Failure Risk

Currently 83% of Elexicon's meters that are at end of their 15-year life and at risk of failure, with 87% expect to be reach end of their 15-year life by 2027. It is expected that if these meters are not replaced, that there will be an inherent risk of an increase in failures. Below is a graph illustrating failed meters and forecasted failures over the 2027-2031 period based on linear trends. Since tracking failures more closely from 2021, Elexicon has experienced on average 1,000-meter failures a year, with this expected to steadily increase in the 2027-2031 period. As the age of its meters continues to increase, Elexicon expects that these failures will continue to increase, and will require more replacements. As the AMI system ages, the frequency of meter failures, particularly communication loss, has surpassed standard operating levels.

Figure 6: **Meter Failures by Year**




Based on historical data, Elexicon has not experienced failures in meters sent for reverification or testing. While failures have been minimal to date, the aging meter population significantly increases the risk of future failures, which is why Elexicon is planning the AMI 2.0 upgrade. Routine replacements will continue only for meters that fail in service or do not pass reverification testing; however, this approach will not prevent the growing failure trend. Furthermore, as the meter population ages, the probability of meter failures increases. Elexicon has been observing the failure rate increase in the last few years, with an average failure of 1,000 meters a year, and is forecasting on average 1,400–1,500 meter failures a year for the 2027–2031 period. The rate of increase in failure risk accelerates as meters approach and surpass their expected lifespan, which is typically 15 years. By 2027, approximately 87% of Elexicon's meters will have surpassed their expected useful life with an additional 11% by 2031

Failure to replace these meters in a timely manner could result in inaccurate billing, increased customer complaints, regulatory non-compliance, and potential service disruptions. The AMI 2.0 program segment will significantly reduce failure risk by replacing aging meters and obsolete AMI 1.0 infrastructure with modern, reliable technology. This upgrade introduces advanced monitoring and diagnostic capabilities, enabling proactive identification of potential issues before they lead to service disruptions. By minimizing

unexpected meter failures, AMI 2.0 ensures accurate billing, regulatory compliance, and uninterrupted customer service, while reducing operational costs associated with emergency repairs and outages.

### 3.6 Obsolescence

The current AMI 1.0 infrastructure is approaching end of life and becoming obsolete, requiring replacement in the next few years. This includes all the gatekeepers in the Veridan zone, as well as the 41,000 R1S meters no longer meeting the MC standards. In addition, the aging system increases failure risk, which could impact reliability and operational performance. Whilst many of the meters reaching end of life will have their seal periods extended, they will need to be replaced in the next five to eight years, along with the AMI 1.0 infrastructure that requires upgrading. Failure to replace these meters in a timely manner could result in inaccurate billing, increased customer complaints, regulatory non-compliance, and potential service disruptions.

The AMI 2.0 investments will reduce failure risk by replacing aging meters and obsolete AMI 1.0 infrastructure with modern, reliable technology. This upgrade introduces advanced monitoring and diagnostic capabilities, enabling proactive identification of potential issues before they lead to service disruptions. By minimizing unexpected meter failures, AMI 2.0 ensures accurate billing, regulatory compliance, and uninterrupted customer service, while reducing operational costs associated with emergency repairs and outages.

## 4. INVESTMENT TIMING & PACING

### 4.1 Summary of Expenditures

**Table 6: Summary of Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 1.24 | 1.11 | 0.85 | 1.74 | 2.17 | 1.70 | 1.61 | 1.93 | 2.41 | 8.87 | 9.07 | 8.96 |
| Contributions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capital (Net) | 1.24 | 1.11 | 0.85 | 1.74 | 2.17 | 1.70 | 1.61 | 1.93 | 2.41 | 8.87 | 9.07 | 8.96 |

Above is the combined historical and forecasted cost of the metering and AMI 2.0 program. The metering segment is a fairly consistent expense for sampling, reverification and testing of existing meters based on

the timings set out in the MC requirements, replacing failed meters and adding new meters for new customers. AMI 2.0 is a one-off project forecasted to begin in 2028, with costs increasing in 2029 and staying relatively consistent onwards to account for the rollout of the AMI 2.0 to current and new customers. AMI 2.0 will continue beyond the rate period out to 2035.

## 4.2 Metering

**Table 7: Metering Historical & Future Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 1.24 | 1.11 | 0.85 | 1.74 | 2.17 | 1.70 | 1.61 | 1.93 | 1.94 | 1.97 | 2.02 | 1.99 |
| Contributions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capital (Net) | 1.24 | 1.11 | 0.85 | 1.74 | 2.17 | 1.70 | 1.61 | 1.93 | 1.94 | 1.97 | 2.02 | 1.99 |

Elexicon's forecasted expenditures are aligned with meeting its requirements set out by Measurement Canada. These requirements set out the timing and number of meters that will be expiring. Those meters will require reverification, sampling and testing to allow for their seals to be extended. Costs increase also account for any increase in supply chain material. As outlined in section 3.2, the costs for this segment reflect the pacing of meters that require sampling, resealing, reverification and replacement. Overall, Elexicon has identified Elexicon has identified 131,267 meters that will have meters expiring during the rate period. Of this, Elexicon will need to sample 111,638 meters, and perform 19,629 reverifications, resulting in 5,454 meters being required to be replaced and sent for testing.

Furthermore, Elexicon is predicting that on average 1,400 meter will failure each year compared to an average of 1,000 meters failing historically since 2021 and has allocated additional expenditure in the forecast period for this. Additionally, Elexicon expects customer growth to continue to increase at a rate of 1.88% year over year compared to 1.32% for the historical period. This growth rate implies that an additional 18,155 new metered connections will need to be installed. Details on the failure rates are outline in Section 3 and detailed on the future customer growth are outlined in Section 3.4.

The pacing of metering investments is driven by the requirements set out by Measurement Canada. The requirements outline when meters should be replaced, sent for sample testing and the size of this testing pool, reverification guideline. The below Table 8 summarise these requirements:

**Table 8: Measurement Canada Reverification and Seal Extension Requirements**

| Time on test requirements and maximum seal period extensions | | | | | | | |
|---|---|---|---|---|---|---|---|
| Initial reverification period (years) | 1st extension | | Subsequent Extension | Maximum seal period extension (in years) | | | |
| | New or renewed meters (months) | Reserviced meters (months) | | Level 1 | Level 2 | Level 3 | Level 4 |
| 12 | 115 | 90 | 75% | 10 | 8 | 5 | 2 |
| 11 | 105 | 81 | 75% | 9 | 7 | 5 | 2 |
| 10 | 84 | 68 | 70% | 8 | 6 | 4 | 2 |
| 9 | 75 | 59 | 70% | 7 | 5 | 3 | 2 |
| 8 | 67 | 51 | 70% | 6 | 4 | 3 | 2 |
| 7 | 58 | 42 | 70% | 5 | 4 | 2 | 1 |
| 6 | 50 | 34 | 70% | 4 | 3 | 2 | 1 |
| 5 | 42 | 26 | 70% | 0 (no extension) | 3 | 2 | 1 |

The initial reverification period column shows the number of years a meter can stay in use before testing is required. After that period, meters may qualify for extensions, which are measured in months and on whether they are new/renewed or reserviced. The table also defines four levels of maximum seal period extensions, with Level 1 allowing the longest and Level 4 the shortest. As the initial period shortens, both the number of months allowed for the first extension and the maximum years allowed for later extensions decrease. The percentages (70–75%) indicate how much of the testing pool is subject to reverification, meaning that over time, fewer and smaller extensions are permitted to maintain meter accuracy and compliance.

Figure 7 below is an extract from the MC guidelines that shows how many meters need to be tested for a sample group based on the size of the group.

**Figure 7: Single Sampling Plans Indexed by Limiting Quality (LQ) for Various Lot Sizes** [1]

## Annex C (normative)—Single sampling plans

**Table C.1: Single sampling plans indexed by limiting quality**

| Lot size [2] | Limiting quality (LQ) [1] | | | | |
|---|---|---|---|---|---|
| | 3.15 (Level 1) | 5.0 (Level 2) | 8.0 (Level 3) | 12.5 (Level 4) | 20.0 (Level 5) |
| | $n_{min}$, $Ac_{type\ 1}$, $Ac_{type\ 2}$ | | | | |
| **Up to 500** | 80, 0, 0 | 65, 0, 0 | not available [3] | not available [3] | not available [3] |
| **501 to 1 200** | 125, 1, 1 | 80, 1, 0 | 65, 1, 0 | 42, 2, 0 | 42, 4, 0 |
| **1 201 to 3 200** | 125, 1, 1 | 125, 3, 1 | 80, 3, 0 | 65, 4, 0 | 65, 8, 0 |
| **3 201 to 10 000** | 200, 3, 3 | 200, 5, 3 | 125, 5, 1 | 80, 5, 1 | 80, 10, 1 |
| **10 001 to 35 000** | 315, 5, 5 | 315, 10, 5 | 200, 10, 3 | 125, 10, 3 | 125, 18, 3 |
| **over 35 000** | not available | not available | 315, 18, 5 | 200, 18, 5 | 200, 32, 5 |

Using these guidelines, Table 4 in Section 3.2 shows the number of meters that are expiring each year, along with the sample size group, number of meters requiring reverification and the lot size of meters required to be replaced and sent for testing.

Table 5 of Section 3.4 identifies the number of new metered customers Elexicon is projecting each year for the 2027-2031 period. Additionally, Elexicon expects to replace on average 1,400 meters a year that fail. Further information on this is outlined in Section 2 of this narrative.

[1] Measurement Canada, "S-S-06: Sampling plans for inspection of isolated lots of meters in service," (February 17, 2023)

## 4.3 AMI 2.0

**Table 9: AMI 2.0 Historical & Future Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.47 | 6.90 | 7.06 | 6.97 |
| Contributions | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capital (Net) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.47 | 6.90 | 7.06 | 6.97 |

The overall five year spend for AMI 2.0 is $21.39M. It should be noted that this cost is for the 2027-2031 period but the AMI 2.0 rollout will continue out to 2035. Whilst Elexicon has not issued any formal RFPs for the rollout of the AMI 2.0, it has engaged existing vendors and other utilities to help inform the cost estimate. This included gathering initial costs of new meters from its two existing vendors, high-level estimates on the costs of the communication infrastructure and the move to one head end system. Of the total forecasted meter population of 204,398 customers in 2031[2], assuming approximately 194,000 meters of the population are eligible to be upgraded to AMI 2.0, Elexicon anticipates to have replaced 83,400 meters (43%) in the population with AMI 2.0 meters. Anticipated all-in project cost results in a unit cost is $261 per meter at these forecasted rates.

A paced deployment of AMI 2.0 over 2028-2035 will allow Elexicon to identify its preferred provider and AMI 2.0 system through a robust RFP process and then have a sustained mass deployment of new meters. Elexicon expects to issue an RFP in 2027/2028 and begin its test area rollout starting in 2028, will a sustained rollout from 2029-2035. Because of the timing and remaining service life of existing meters, it is not practical to delay mass deployment until the results of an RFP or test deployment can inform a subsequent rate application. Elexicon has also taken into account the overall capital plan and balanced the needs of other projects by proposing an extended rollout of eight years for the AMI 2.0 rather than a typical 5-year rollout. Elexicon will not realise the full benefits until the full rollout is complete, however it will be able to utilize some of the functionality as soon as the new meters are installed. A rollout longer

[2] Table 5

then 8 years would be more cost effective, but this benefit is overshadowed by the delay in functionality of utilizing the AMI 2.0 software and faces an increased risk of obsolescence.

Elexicon has proposed to implement AMI 2.0 over an 8-year period. Predominately, the rollout over this time is to allow for a measured and paced approach, whilst considering the impact of Elexicon's overall capital plan. Elexicon has proposes to rollout of AMI 2.0 over a longer than usual time to smooth the capital expenditures over a longer period of time to mitigate the impact on ratepayers. Typically, many AMI rollouts are carried out over five years. With its investments across both the Metering and AMI 2.0 segments, Elexicon has a combined approach that allows for the upgrade to AMI 2.0 while still ensuring the existing meters remain functional, are in compliance with MC requirements, and most importantly allows for customers to be billed accurately.

At this stage, the forecast is based on estimates, including preliminary meter pricing from existing vendors, high-level estimates for communication infrastructure and head-end system migration, and a paced deployment strategy over eight years to smooth capital expenditures. Labor and installation costs assume a mix of internal crews and contracted resources during peak years. These assumptions provide the basis for the annual allocations shown for 2028-2031 and reflect industry benchmarks and vendor input gathered to date. Due to aging assets across service territories and the speed at which the industry and customer expectations are evolving – particularly around DER connection and integration - this is the most opportune time to invest in AMI 2.0.

The costs shown above are the anticipated incremental costs of upgrading to AMI 2.0 across the system. Should the AMI 2.0 investment not proceed, additional costs in future years to replace meters at end of life or with unsupported technology will be incurred through the normal Metering program. Further details on the options considered for AMI 2.0 are outlined in Section 5.2.

## 4.4 Execution Approach

While Elexicon anticipates a successful rollout of the AMI 2.0 and Metering segments, programs of this scale have inherent risks that must be actively managed. A key risk is supply chain disruption, as both segments depend on timely delivery of meters, communication modules, and supporting infrastructure.

Current lead times leave little margin for delays, and global market volatility could impact availability. To mitigate this, Elexicon will secure vendor commitments early through long-term contracts, issue competitive RFPs, maintain buffer inventory for long-lead items, and diversify suppliers where feasible.

Resource availability is another critical risk. Large-scale meter replacements and AMI integration require skilled technicians and IT resources, which could be constrained during peak periods. Elexicon will address this through advanced workforce planning, early training programs, and leveraging third-party support to supplement internal teams. Technology integration complexity also poses a risk, as AMI 2.0 must interface seamlessly with ERP (DxNext), outage management, and other operational systems. Mitigation measures include phased implementation, rigorous testing in pilot areas, and vendor-supported integration planning to ensure interoperability.

Pricing volatility and procurement risks could affect long-term planning, particularly given market fluctuations and the scale of equipment required. Elexicon will mitigate this by locking in pricing through long-term contracts, leveraging bulk purchasing agreements, and maintaining compliance with procurement policies to ensure competitive pricing. Finally, regulatory compliance remains a priority, as Measurement Canada requirements for sealing, testing, and reverification must be met throughout the transition. Elexicon will manage this risk through early alignment with standards, regular compliance reviews, and engagement with Measurement Canada to validate timelines and processes.

By proactively addressing these risks, Elexicon aims to ensure the successful execution of both AMI 2.0 and Metering segments, delivering improved reliability, modernization, and customer service benefits while maintaining regulatory compliance.

#### **4.4.1** Metering

Elexicon primarily uses its own metering technicians to carry out the work in this segment. Any meter field work, replacement, and inspections are carried out by Elexicon's own technicians. For the non-field sampling and reverification, Elexicon uses approved external laboratories that are accredited by Measurement Canada to carry out this work. Elexicon is not forecasting any risks or changes to this approach for the forecast period. In terms of supply chain impacts, Elexicon has a good understanding on

the lead time for obtaining new meters at competitive pricing. As this work is part of Elexicon's mandated service obligations, Elexicon considers these expenditures non-discretionary and will prioritize this work along with other System Access work, or other investment categories.

#### 4.4.2 AMI 2.0

Elexicon proposes to execute this over an eight-year period. This will allow for a paced approach to replacing meters, combined with the upgrade of new supporting metering infrastructure. The project will be carried out by Elexicon's metering technicians in conjunction with third-party support. This execution plan aligns with the eight-year rollout described in Section 4.3, which includes issuing an RFP in 2027/2028, conducting test area deployments in 2028, and beginning mass rollout in 2029.

Elexicon anticipates the RFP to inform the project scope and pacing in the following ways:

- Recommendation on technology and service providers
- Recommendation on Test area, timing, and key performance indicators
- Recommendation on timing and pacing of wide-scale meter deployment across service areas
- Advice on industry best practices and deployment strategies to maximize efficiency in our service areas
- Provide PMO services for the project
- Provide execution services for test area deployment and mass rollout

The successful proponent will be obtained for decision making on the technology, with participation from all involved departments (i.e., Control Room, Billing, IT/OT, etc.). This will protect the selection from bias and ensure competitive pricing and alignment with industry best practices.

A test area will need to be identified, and a small percentage of meters will need to be tested before mass implementation. The test area deployment will be scoped to include in-field metering deployment, communications infrastructure deployment and in-field development of standards and practices before wide-scale deployment in subsequent years. Elexicon will seek a test area in its service territories that will have specific features such as size, geography, and type of existing technology that will not only inform the broader deployment but also to ensure efficient use of resources for meter installation. The current

proposed test deployment in Port Hope service area (~approximately 6000 customers), which features old meters, aging infrastructure, and a system largely segregated geographically and technologically from the rest of the service territories. Elexicon hopes to convert the majority of meters in the test area to inform techniques and support efficiencies in the broader deployment.

Elexicon expects infrastructure to be installed by strategic geographical locations over the course of the 8 years in the broader deployment to leverage efficiencies in deployment and align with the known certification timelines of meters already in the field. By extending the installation period to 8 years, Elexicon can reduce external costs by extending deployment time – in early years of the project there will be a need for external workers, allowing Elexicon technicians to support regular metering activities. This will keep annual reverification rates in line with historical rates until such time that Elexicon internal staff can be shifted to AMI 2.0 project to displace external workforce and support an optimized geographic replacement strategy. Additionally, this structure helps manage workload when reverifying AMI 2.0 meters later in their lifespan by spreading out the amount of meters requiring reverification in any given year across more years.

## 5. OPTIONS ANALYSIS

### 5.1 Metering

The metering investments include many tasks that must be completed in order to remain in compliance with Measurement Canada requirements. This includes the meter replacements for residential, suite meters, interval meters, and large users and metering system upgrades. These projects must be completed to ensure continued compliance with Measurement Canada and OEB requirements. For example, for the interval and suite metering projects, Elexicon must maintain the meter seals to ensure continued compliance with requirements contained in the WMA and the EGIA.

No options analysis has been completed as this segment is a non-discretionary project and Elexicon need to comply with its mandated service obligations20. The timing for meter sampling and reverification are set out with the MC requirements which Elexicon has used to identify the proposed metering expenditure.

## 5.2 AMI 2.0

In the deployment of AMI 2.0, Elexicon has considered the following options:

*Option 1 (Recommended) - Medium Scenario: Proposed Pacing of AMI 2.0 –* ***$51M*** *(2028-2035)*

This option allows for a paced deployment of AMI 2.0 over 2028-2035, including allowing Elexicon to identify its preferred provider and AMI 2.0 system through a robust RFP process, and then have a sustained mass deployment of new meters. Elexicon has taken into account the overall capital plan and balanced the needs of other projects by proposing an extended rollout of eight years for the AMI 2.0 rather than a 5-year rollout. Whilst Elexicon will not realise the full benefits until the full rollout is complete, it will be able to utilize some of the functionality as soon as the new meters are installed.

*Option 2 – High Scenario: Replace AMI 2.0 by 2031 -* ***$51M***

This option would allow Elexicon to complete its AMI 2.0 deployment by the end of the rate period and begin realising the full benefits much sooner than Option 1. This option would cost 75% more annually over the install period than Option 1. Elexicon has opted not to proceed with this option based on the outsized impact to the overall capital plan in this rate period.

*Option 3 – Low Scenario: No AMI 2.0, Replacement of aging and failed meters. -* ***estimated $15.75M*** *by 2035*

This option involves not proceeding with the AMI 2.0 segment and instead replacing Elexicon's meters at the time of failure or once they have reached the end of their 15-year useful life with an equivalent model. This option has been ruled out. As stated, over 89% of Elexicon's current meters will be at the end of their typical useful life by 2031. This option would require Elexicon to replace its aging meters anyway, which is still a significant cost (this cost would hit the Metering segment cost). In addition, Elexicon would still need to stock two types of meters, be trained on two types of communication systems and meters which would increase complexity and OM&A costs. Exclusive of OM&A costs, Elexicon estimates that the costs to sustain and recertify the existing fleet, to replace failed meters, and connect new customers, would add

approximately $15.75M to the metering program between 2027 and 2035, therefore this option is not without costs of its own.

Furthermore, without upgrading the meters and communication system, Elexicon will not be able to deliver on its grid modernization objectives, which would deprive customers from the benefits associated with Elexicon's grid modernization which are discussed in Section 3.3.

# R1 SUBSTATION RENEWAL

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 ($M): $22.70M | 2025-2026 ($M): $20.96M | 2027-2031 Forecast ($M): $109.88M |
| Primary Driver: Failure Risk | | |
| Secondary Drivers: Reliability, Safety, and Environment | | |
| Outcomes: Customer Value, Efficiency, Reliability, Safety, Environment, and Financial Performance | | |
| Segments: Station Rebuilds, DC System Replacement, Station Deficiencies | | |

Stations play a critical role in Elexicon's distribution system by either directly supplying power or serving as backup sources for thousands of customers. The Elexicon system currently operates with 62 municipal stations ("MS"). A station asset failure could result in an entire station being out of service and resulting in a prolonged service outage for thousands of customers. When the system is operating in normal operating condition, that is with all stations in service, an asset failure typically causes only a brief interruption for customers, as power can be rerouted and supplied by neighbouring stations. However, in this situation, until the failed asset is repaired or replaced and the station is returned to service, the system operates under contingency as the station is no longer supplying customers directly or as back up. When the system is operating under contingency it is less reliable and resilient. Should a subsequent asset failure occur at an adjacent station in this situation, restoring power would be extremely difficult resulting in brown outs (rotating outages) or even prolonged outages to thousands of customers.

As station assets age and their condition deteriorates, the likelihood of station asset failure increases. Older station assets may no longer be manufactured, making sourcing a like-for-like replacement or spare parts for a failed station asset difficult and delaying repair or replacement work. Even when the station asset is still being manufactured, the lead times to procure a replacement could be years given current manufacturer lead times for equipment. This results in repairs or rebuilds that require significant time to complete, especially when a permanent long-term solution is required. Renewal of station assets and minimizing of station asset failures is vital to maintaining the reliability and resiliency of Elexicon's system for customers.

Station asset failures not only impact system reliability, but they also pose safety and environmental risks. A catastrophic failure could result in an explosion or fire and pose a high safety risk for Elexicon staff, contractors, and members of the public that are living, working, or travelling near utility infrastructure. Transformers are at risk of leaking or rupturing and potentially releasing thousands of liters of oil into the surrounding soil, resulting in a major environmental incident and impact. Elexicon is committed to safety and environmental stewardship, and the Substation Renewal Program is a key initiative that advances these priorities.

The Substation Renewal program proactively manages station asset failure risks by targeting the replacement of high-risk station assets before they fail. This program is intended to provide customers with a more reliable, safer, and environmentally responsible electrical distribution system. In addition to managing failure risks, this program provides many secondary benefits such as:

- New standardized equipment offers higher capacity, improved equipment protection and automation capabilities that are not found in existing legacy equipment. These features enhance both the reliability and resiliency of the electrical system.
- Older stations may have safety hazards such as inadequate working clearances around equipment, limited egress pathways during emergencies, and asbestos material. Station asset renewal projects will eliminate these risks and create safer working conditions for staff.
- Station asset renewal projects may also include the installation of oil containment systems that minimize the impact of oil spills.
- Removing nonstandard equipment and rebuilding to current construction standards will harmonize station design and equipment across the system creating operation efficiencies that ultimately reduce ongoing operating costs.
- Renewing station assets proactively before they fail is less impactful operationally and financially than reactively addressing a failed asset.

Total forecasted investment within the Substation Renewal program will be $109.88M over the 2027-2031 rate period. Investment in this program is separated into three segments.

- **Stations**: This investment segment will fund full or partial station rebuilds, and the decommissioning of stations based on failure risk, system requirements and cost-effectiveness. The current plan targets 15 stations for renewal projects across the system. The total investment in this segment is forecasted to be $103.88M over the 2027–2031 rate period.
- **DC System Replacements**: This investment segment will invest in replacement of DC Systems that have exceeded their typical useful life or are in poor to very poor condition. Approximately four DC Systems will be replaced annually during the rate period. The total forecasted investment for this segment is $3.29 million over the 2027–2031 period.
- **Station Deficiencies**: This investment segment addresses discrete deficiencies in station assets that can cumulatively affect long-term reliability performance. The total forecasted investment for this segment is $2.72 million over the 2027–2031 period.

The age and condition of station assets are indicators of failure risk. Older assets and assets in poor or very poor condition are more likely to fail. Elexicon's 2025 Asset Condition Assessment (Exhibit 2B - Tab 3 - Schedule 2 - Appendix B) shows that:

- 14% of station assets are currently in poor to very poor condition, and
- 28% of station assets have exceeded their Typical Useful Life (TUL) or will exceed their TUL in the next 5 years.

Without asset renewal (i.e. allowing assets to run-to-failure), Elexicon forecasts that by 2031:

- 16% of station assets would be in poor to very poor condition (increase of 2% from 2025), and
- 43% of station assets have exceeded their Typical Useful Life (TUL) or will exceed TUL in the next 5 years (increase of 15% from 2025).

Deferring Substation Renewal investment would mean more station assets in poor to very poor condition continuing to operate in the distribution system resulting in more frequent emergency repairs and unplanned customer service interruptions. As a result, there would be increases in operational and maintenance costs and reactive capital expenditures. Deferrals could lead to heightened customer

dissatisfaction as increased outage frequency and duration are highly likely to result, in addition to increased risks to safety for Elexicon staff and the general public and the environment if uncontrolled oil spills occur. Addressing substation renewal in a timely manner is essential to maintaining service quality and customer trust.

Elexicon's planned Substation Renewal investments have been determined in accordance with the planning process outlined at Exhibit 2B - Tab 3 - Schedule 1. The proposed projects represent a balanced approach that weighs the risks of underinvestment with ratepayer impact. Through targeted and prudent investments in the Substation Renewal program, Elexicon forecasts that by 2031:

- 12% of station assets would be in poor to very poor condition (decrease of 2% from 2025) and
- 32% of stations assets have exceeded their Typical Useful Life (TUL) or will exceed TUL in the next 5 years (increase of 4% from 2025).

Such investments are anticipated to alleviate outage disruption, sustain service reliability and improve system resiliency.

## 2. INVESTMENT DESCRIPTION

Elexicon's Substation Renewal program manages station-level failure risks through targeted replacement of high-risk station assets, where failure would result in unacceptable safety, reliability, or environmental risk. Station failures may cause extended outages or brownouts for customers served by the station. Replacing a failed station asset often involves extended timelines due to site-specific complexities and long lead times for equipment procurement. During this period, the absence of the station reduces system resiliency and reliability. A failed asset could also cause an arc flash explosion or fire which poses a serious safety risk to both the public and staff nearby at the time of failure. A transformer in poor or very poor condition is more prone to rupture, leaking oil, and contaminating the surrounding soil. These are examples of why proactive station asset renewal is critical to operating a safe and reliable electrical system.

Renewing assets with new, manufacturer-supported equipment provides additional benefits, including more efficient maintenance, improved safety, and enhanced environmental stewardship. New assets also

modernize the grid, enabling Elexicon to accommodate increasingly sophisticated customer needs and operate the system more efficiently. Many older assets have obsolete design features that provide suboptimal safety protection to staff and increase the risk of collateral asset damage in the event of failure. For example:

- Stations using a legacy fused switch to supply the transformer. Industry best practice is to use circuit breakers with advanced relay protection to detect and clear electrical faults faster which will extend the life of the transformer and reduce the impact of a fault.
- Stations using fused switches to supply customer feeders. Replacing these switches with circuit breakers would enable remote or automatic reclosing, substantially reducing outage duration and improving restoration times.
- An existing station building may be undersized and lack sufficient working clearances. This creates a safety risk for operating personnel due to the increased potential for accidental contact with energized equipment. The station may have limited egress pathways during emergencies.
- Some stations have lead-based paint that is peeling off the building walls, which is a safety hazard for staff.
- All feeder cables exiting a station may terminate at a single pole, a design that introduces a single point of failure. Diversifying cable routes to connect to separate poles would remove the single point of failure and improve system reliability.
- Stations may have ducts that contain asbestos, which poses a significant safety risk to personnel.

Elexicon's system consists of 62 stations. Stations are the point of electrical supply to residential, commercial and industrial customers. Types of assets replaced in this program include:

- Power Transformers
- Circuit Breakers and Reclosers
- Protective Relays
- Switchgear
- Station Switches

- Station Cables
- Batteries
- Chargers
- Buildings and Fences
- Ancillary station equipment

Total forecasted net expenditures in this program will be $109.88M over the 2027-2031 rate period. Investment in the program is separated into three segments.

- **Station Rebuilds:** This investment segment will fund full and partial station rebuilds, and the decommissioning of stations based on failure risks, system requirements and cost-effectiveness. Partial rebuilds are pursued when select assets have reached end-of-life or present safety or environmental risks that cannot be effectively mitigated. Full station rebuilds are initiated when the majority of assets are at end-of-life, incompatible with system requirements or when a comprehensive rebuild provides greater value. Rebuilds may include work on the station building and underground ducts, in addition to electrical assets. Stations are decommissioned when they are no longer required to serve the system — for example, in areas where legacy 4.16 kV infrastructure has been upgraded to 13.8 kV. The total investment in this segment is forecasted to be $103.88M over the 2027–2031 rate period. This program has proposed investment at the following 15 stations as detailed in Table 1.

**Table 1: Proposed Station Investment**

| Project | Scope | Net Expenditures (2027-2031) | Completion Year |
|---|---|---|---|
| Shuter MS | Partial Rebuild | $1.17M | **2027** |
| Catharine MS | Full Rebuild | $1.95M | **2027** |
| Fairport MS | Full Rebuild | $16.78M | **2028** |
| Edgehill MS | Full Rebuild | $11.52M | **2028** |
| Cavan South MS | Decommission | $0.90M | **2028** |
| Garden MS | Full Rebuild | $16.65M | **2028** |
| Bigelow MS | Partial Rebuild | $0.41M | **2029** |
| Crandell MS | Full Rebuild | $8.91M | **2029** |
| Riverside MS | Full Rebuild | $10.04M | **2029** |
| Uxbridge East MS | Full Rebuild | $7.27M | **2029** |
| Town Centre MS | Full Rebuild | $17.90M | **2029** |
| Herchimer MS | Decommission | $1.09M | **2030** |
| Cascade MS | Full Rebuild | $3.16M | **2032**[1] |
| Westney Heights MS | Full Rebuild | $4.74M | **2033**Error! Bookmark not defined. |
| Uxbridge West MS | Full Rebuild | $1.38M | **2033**Error! Bookmark not defined. |

During the 2027-2031 DSP period, the Station Rebuilds segment of the Substation Renewal program investment will complete 12 projects and initiate 3 projects. The number of major assets that will be addressed as part of the 12 completed projects are identified in Table 2 below.

**Table 2: Number of Station Assets Addressed in Station Rebuilds Segment (2027-2031)**

| Asset Class | Population (2025) | Assets Addressed by end of 2031 | % of Asset Base Addressed by end of 2031 |
|---|---|---|---|
| Power Transformer | 96 | 14 | 15% |
| Circuit Breaker | 160 | 27 | 17% |
| Relay | 187 | 39 | 21% |
| Station Cable | 283 | 31 | 11% |
| Battery | 55 | 8 | 15% |
| Charger | 55 | 8 | 15% |
| Station Switch | 149 | 26 | 17% |
| Station Switchgear | 50 | 8 | 16% |
| Building | 45 | 8 | 18% |
| Fence | 60 | 10 | 17% |

[1] Long lead times for the station equipment requires capital expenditures during the 2027-2031 rate period even though the project will be complete after the rate period.

- **DC System Replacements**: Station utilize a DC System consisting of batteries and a charging system. The DC System is a critical component of station infrastructure, providing uninterrupted DC power to relays that monitor, control, and safeguard essential assets such as transformers, breakers, and motorized switches. Because of the criticality of a DC System in operating a station, it is prudent to replace DC systems that are in poor to very poor condition or have exceeded their typical useful life. Approximately four DC systems are planned for replacement annually. These upgrades will help maintain system integrity, improve operational reliability, and support the continued delivery of safe and reliable electricity supply to customers. The total forecasted investment for this segment is $3.29 million over the 2027–2031 rate period.
- **Station Deficiencies**: During monthly inspections or scheduled preventative maintenance activities, station deficiencies are identified. Some deficiencies require the replacement of asset components that will extend the life of the asset. This investment segment will fund these smaller replacement projects. Replacing leaking transformer bushings, or failed surge arrestors and station ground grid improvement are some examples of the types of projects that are funded by this segment. Proactively resolving deficiencies is necessary for maintaining the reliability and resiliency of the system. The total forecasted investment for this segment is $2.72 million over the 2027–2031 rate period.

The Substation Renewal program reflects Elexicon's commitment to prudent asset management, system reliability, and safety.

## 2.1 Summary of Investment Outcomes and Benefits

Table 3 provides a summary of outcomes and benefits achieved by the Substation Renewal program.

**Table 3: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Value | • Mitigate failure risks for Elexicon's customers, of which approximately 17% are directly linked to this segments Substation Renewal investments. |

| Outcome | Investment Benefits and Objectives |
|---|---|
| | • Minimizing asset failures reduces outages and maintains system resiliency for faster restoration when outages do occur.<br>• Efficiencies gained through planned replacements reduce utility costs, which are ultimately reflected in lower customer rates.<br>• Stations serve a large number of customers and station renewal projects have a broad impact by improving reliability and delivering benefits to a greater portion of the customer base. |
| Operational Effectiveness - Efficiency | • This program will lower cost and resourcing requirements by removing vulnerable equipment from service before failure occurs. Addressing failed assets often requires immediate, unplanned work that may involve overtime, significantly increasing labour and contractor costs. Unplanned work also disrupts scheduled activities, delaying other projects and adding to overall costs.<br>• When assets fail unexpectedly, they can damage adjacent equipment — especially in cases of catastrophic failures — resulting in additional repairs and increased failure risks.<br>• Asset renewal also replaces outdated construction standards and non-standard equipment, increases staff efficiency, creates supply chain efficiencies, and reduces distribution losses. |
| Operational Effectiveness - Reliability | • Sustained strategic asset renewal supports long-term reliability by preventing failures that could otherwise result in service interruptions and place the electrical system in a contingency state.<br>• Supports system reliability and resiliency by reducing or maintaining the percentage of station assets in poor to very poor condition and/or are operating beyond their typical useful life.<br>• New standardized equipment offers higher capacity, improved equipment protection and automation capabilities that are not found in legacy equipment. These features enhance both the reliability and resiliency of the electrical system.<br>• Renewed assets are more resilient to extreme weather events and are therefore better equipped to support system reliability in the face of climate change. |
| Operational Effectiveness - Safety | • Failed assets pose serious safety hazards, such as arc flash explosions or fire. Asset renewal mitigates these risks by replacing equipment before failure. Many older assets have obsolete design features that offer suboptimal protection to workers. |

| Outcome | Investment Benefits and Objectives |
|---|---|
| | Replacing them with modern equipment introduces improved safety features and reduces the likelihood of accidents.<br>• Older stations may have safety hazards such as inadequate working clearances around equipment, limited egress pathways during emergencies, and asbestos material. Renewal projects will eliminate these risks and create safer working conditions for staff. |
| Environment | • A transformer that is in poor to very poor condition or has exceeded their typical useful life is more prone to rupture, leak potentially degraded oil and contaminate the surrounding soil. Proactive asset renewal helps mitigate this risk by removing vulnerable transformers from service before failure occurs. Asset renewal projects improve fault protection, monitoring and oil containment at transformer sites. |
| Financial Performance | • Multiple stations in the program will be rebuilt from their current 4.16 kV operating voltage to the more efficient 13.8 kV level. Elexicon has coordinated station rebuilds with the broader voltage conversion initiative to improve efficiency and achieve cost savings.<br>• New equipment will have advanced relay protection enabling significantly better protection against faults and overloads. This will extend transformer and cable life deferring future capital investment.<br>• New equipment will have remote and automatic operational capability. This will reduce the number of times staff need to be dispatched to investigate and restore service. |

## 3. INVESTMENT DRIVERS & NEED

### 3.1 Purpose

The purpose of the Substation Renewal program is to mitigate or eliminate failure risks that may result in adverse impacts to reliability, safety and the environment. Station asset failures have large impacts on system reliability due to the large number of customers supplied by each station. In addition, the repairs

required to bring the station back into service following a failure can be complex and take significant time to complete.

**Table 4: Summary of Primary & Secondary Program Drivers**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| Primary Driver: Failure Risk | The failure of a key piece of station equipment may result in adverse impacts to reliability, safety and the environment. Replacement of station equipment that are in poor to very poor condition through station rebuilds minimizes equipment failures and the adverse impacts of the failures. This program will:<br>• Reduce partial or full MS outages that can result in a service interruption to thousands of customers.<br>• Reduce the frequency and duration of the system operating under contingency.<br>• Lower the probability of brown outs or sustained service interruptions for customers.<br>• Minimize the safety hazards that equipment failures can create.<br>• Prevent and contain the environmental hazard of oil spills by installing oil containment system around transformers. |
| Secondary Driver: Reliability | A reliable electrical system must also be resilient; capable of maintaining service or quickly restoring it when failures occur. When a station is taken out of service due to equipment failure, the system's resiliency is compromised. In scenarios where a second failure occurs at a nearby station, service restoration may be severely delayed, resulting in prolonged outages for customers. Through targeted replacement of high failure risk assets, Elexicon can reduce outage frequency and duration.<br>Station rebuilds will also:<br>• Introduce standardized equipment that provides higher capacity, improved equipment protection and automation capabilities that are not found in legacy assets. These features enhance both reliability and resiliency.<br>• Eliminate single point of failures in certain legacy station designs thereby reducing the number of customers impacted by a single failure.<br>• Add isolation points at stations where required to enable partial station outages. Planned activities would no longer cause full station outages. This will improve system resiliency. |

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| | • Replace equipment that is challenging to repair or maintain due to discontinued production and scarcity of spare parts. This will reduce the time it takes to put the equipment back into service when it fails. |
| Secondary Driver: Safety | • By renewing station assets, this program aims to minimize the safety hazards that failed assets may create, such as arc flash explosions or fire. In addition, many assets have obsolete design features that offer suboptimal protection to workers. Replacing them with modern equipment introduces improved safety features and reduces the likelihood of an incident.<br>• Some stations may present safety hazards such as inadequate working clearances around equipment, limited egress pathways during emergencies, and asbestos. Renewal projects will eliminate these risks and create safer working conditions for staff. |
| Secondary Driver: Environment | • Certain asset failure can cause an environmental hazard by releasing thousands of liters of oil into the natural environment. The program will reduce oil spill incidents and contain the spills should they occur. |

## 3.2 Failure Risk

Substations are a key component in an electrical system. The Elexicon system has 62 substations referred to as Municipal Stations that are the originating source of electrical supply for Elexicon customers. A MS is a complex system of interdependent equipment that works in concert to supply electric power to customers. Key equipment in a MS includes:

- Power Transformers
- Circuit Breakers and Reclosers
- Protective Relays
- Switchgear
- Station Switches
- Station Cables
- Batteries
- Chargers

- Building and Fence
- Ancillary station equipment

A failure of a key piece of MS equipment may result in adverse impacts to reliability, safety and the environment. The purpose of the program is to mitigate or eliminate this failure risk.

The number of customers that an MS may supply can be up to 7,000 under normal operating conditions. Normal operating conditions mean that all stations are supplying their planned capacity to customers. A failure of a key station asset could result in a partial or full outage of an MS and result in sustained service interruption to the thousands of customers that are connected to the MS.

After an asset failure occurs, the system is operating under contingency. This contingency state may last for a long duration of time because the repairs required to bring the station back into service following a failure can be complex and take significant time to complete. During this contingency state, the neighbouring stations could be supplying significantly more customers than normal. In this state, the system is less resilient. If a second failure were to occur at an adjacent MS, the system may not be able to supply all the customers in that service area. Customers in the area may be subjected to brownouts (rotating outages) or a sustained outage until service is restored to the MS that is out of service.

As MS assets age, the likelihood of the system operating under contingency increases. In addition, the probability of a second MS failure during contingency conditions also rises. Operating under contingency further constrains maintenance and capital activities, as certain work may require an MS outage that cannot be permitted.

Asset failure may create safety hazards for staff and the public. When a station asset fails it may explode and cause a fire. Certain asset failure can cause an environmental hazard by releasing thousands of liters of oil into the natural environment. For these reasons, Elexicon's Substation Renewal program is required to manage MS failure risks.

The following examples illustrate historical station equipment failures that have occurred and their impact to safety, reliability and the environment. The goal of the program is to reduce failures like the examples

provided. These examples have been addressed or in the process of being addressed and are not part of the funding request for this program.

### 3.2.1 Sandy Beach MS

Sandy Beach MS located in south Pickering normally supplies power to approximately 3,200 residential and commercial customers. Sandy Beach also supplies back up power to other stations in the area, such as Notion MS, Town Centre MS, Bay Ridges MS, and Squires Beach MS. The station's configuration utilizes two power transformers, T1 and T2. In 2022, Sandy Beach MS experienced two separate equipment failures that impacted the reliability and resilience of the system.

The first failure occurred on May 31, 2022, when transformer T2 failed. Figure 1 shows the failed transformer after it had been removed from site. Burn marks can be seen at the point of failure. This failure caused approximately 5,000 customer hours of interruption. A replacement transformer was needed to restore services at Sandy Beach MS.

**Figure 1: Failed Transformer T2 at Sandy Beach MS**



The only available transformer to serve as a temporary replacement for the failed T2 transformer was 20% smaller in capacity. The replacement transformer could not be placed on the same concrete pad that the failed transformer utilized because the location of the electrical connections on the replacement transformer was different. A temporary wood structure with steel plates as shown in Figure 2 had to be installed to place the replacement transformer on.

**Figure 2: Temporary Transformer on the Wood and Steel Pad**



The second failure occurred on July 25, 2022. During the energization of the replacement T2 transformer, the F1 Recloser on Transformer T1 failed. This failure further delayed restoring services at Sandy Beach MS. Sandy Beach MS could not be safely and reliability returned to service until March 8, 2023, a full nine months after the first equipment failure. During these nine months, the system was operating under a contingency state with reduced reliability and resiliency.

Elexicon is rebuilding Sandy Beach MS and is planning to complete the rebuild by the end of 2026. Since 2023, Sandy Beach MS and the electrical system have been exposed to the following risks:

- Wood structures are not designed to support the weight and operational stresses of a transformer for long term use. This can lead to structural failure, causing the transformer to fall or become

damaged. For example, if there is soil movement, the structure could move resulting in the potential for the overhead connection to break or be damaged and cause additional equipment failures.

- Wood is a combustible material and using it as a support for electrical equipment increases the risk of fire, especially if there are electrical faults or overheating.
- The replacement transformer is undersized compared to the original unit, reducing the available capacity of the station.
- Oil is weeping on the replacement transformer. Oil weeping can cause a fire, if the oil meets hot surfaces or electrical sparks.
- Operational Inefficiency: Temporary setups are often less efficient and reliable, leading to potential disruptions in power supply and increased maintenance costs.

### 3.2.2 Reid MS

Reid MS, located in the Belleville region, supplies power to approximately 2,100 residential and commercial customers. Reid MS also supplies back up power to other stations in the area, such as Edgehill MS, Sidney MS and Bell MS. On July 7, 2025, the 44kV medium voltage cable that carries station supply power failed at the termination point to the transformer. Figure 3 shows the failed cable.

**Figure 3: Failed Station Supply Cable at Reid MS**



When the cable failed, metal shrapnel and oil projected across the station, creating significant safety risks. The repair and re-energization of Reid MS is not expected to be completed until the end of 2025. Reid MS was out of service for four months and during this time, customers were exposed to the following risks and impacts:

- Lower system resiliency. Reid MS could no longer serve as the back-up power supply for other stations. Should another station go out of service, the customers in Belleville may experience brownouts or sustained outages.
- Lower system capacity. Without the capacity from Reid MS, high power demand periods may require assets in the region to be operated above their rated capacity to maintain supply to customers. This will shorten the life of any overloaded assets and increase the risk of additional failures.

- Deferral of planned projects. DC System replacement at Edgehill MS that was planned for Q3 2025 had to be deferred because a station outage is required to perform the work. With Reid MS out of service, the electrical system cannot operate reliably without Edgehill MS in service. Once Reid MS is put back into service, the planned project at the adjacent station will continue.

### 3.2.3 Uxbridge West MS

In 2022, a severe windstorm collapsed the tower carrying the 44kV station supply circuit to Uxbridge West MS. Figure 4 shows the collapsed transmission tower. The collapsing transmission tower pulled on and damaged two pothead terminations on the transformer. It also struck the station power transformer, puncturing its radiator and releasing a significant volume of oil. Fortunately, the site had an oil containment system around the transformer which contained the oil and prevented the oil from releasing into the natural environment. The mechanical shock of the impact also caused internal damage to the transformer.

**Figure 4: Transmission tower collapse at Uxbridge West MS**



This incident required Uxbridge West MS to be taken out of service and all its load was transferred to Uxbridge East MS. The Uxbridge region is served by only two municipal stations: Uxbridge East MS and Uxbridge West MS. Uxbridge East MS supplies approximately 800 customers, while Uxbridge West MS supplies approximately 700 customers. The two stations provide mutual contingency support, and if one station experiences an outage, the other is relied upon to restore service by supplying the entire load for the region.

Uxbridge West MS was out of service for eight days while a replacement transformer was sourced, and station repairs were completed. During this time, the resiliency and reliability of the electrical system in the Uxbridge region was significantly diminished. If Uxbridge East MS experienced an outage during this period, the entire Uxbridge region would have been without power for a significant duration of time. An asset failure could result in the same reliability risk and drives the need to keep both stations in good condition.

The number of Customer Hours Interrupted (CHI) and the impact to SAIDI were low for this incident due to the load demand in the Uxbridge region being low at the time, with all the load in Uxbridge able to be supplied by Uxbridge East. Had this incident occurred during a high load demand period, the reliability impact to customers could have been substantial.

If a failure in Uxbridge caused the loss of one of the two stations during a peak loading time, the remaining MS capacity in the region would be insufficient to support the full load demand. In June 2024, the total system load in the Uxbridge region reached a peak of 6.97 MW. This peak comprised a recorded load of 3.88 MW for Uxbridge East MS and 3.09 MW for Uxbridge West MS. The maximum capacity load capacity at Uxbridge East MS and Uxbridge West MS is 6.00 MW and 4.50 MW respectively. Although the individual loading levels for each municipal substation remained within their respective maximum capacities, the combined peak system load is higher than maximum capacity of a single MS. This presents a significant reliability concern. In the event of a failure at either Uxbridge East MS or Uxbridge West MS, whether caused by a windstorm or asset condition, the remaining MS capacity in the region would be insufficient to support the full load demand. More critically, a simultaneous failure at both substations could result in

a catastrophic system failure, potentially escalating into service disruption for the whole Township of Uxbridge.

### 3.2.4 Asset Demographics

The age and condition of station assets are indicators of failure risk. Older assets and assets in poor condition are more likely to fail. Figure 5 and Figure 6 shows Elexicon's current asset condition and age demographics. In 2025:

- 14% of station assets are in poor to very poor condition and
- 28% of station assets have exceeded their Typical Useful Life (TUL) or will exceed TUL in the next 5 years.

**Figure 5: Station Asset Condition Demographics in 2025**

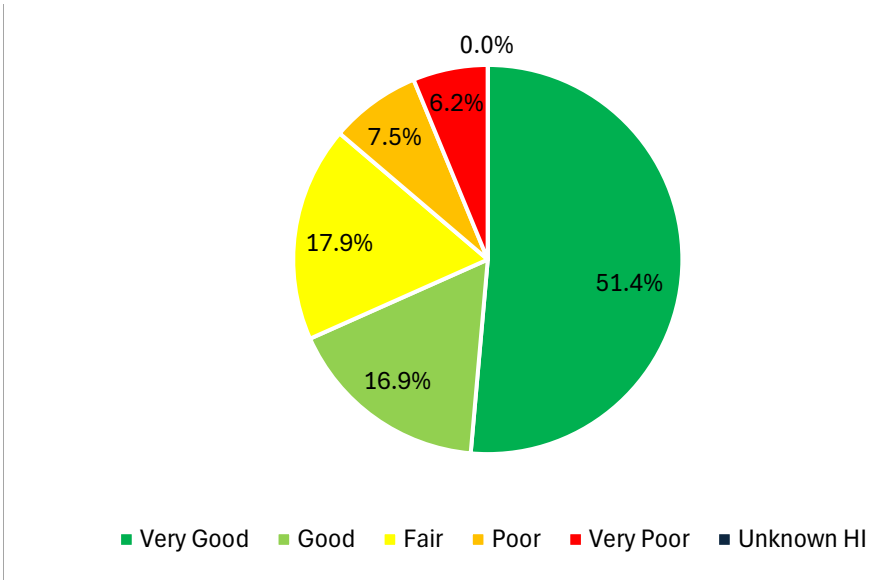



**Figure 6: Station Asset Age Demographics in 2025**

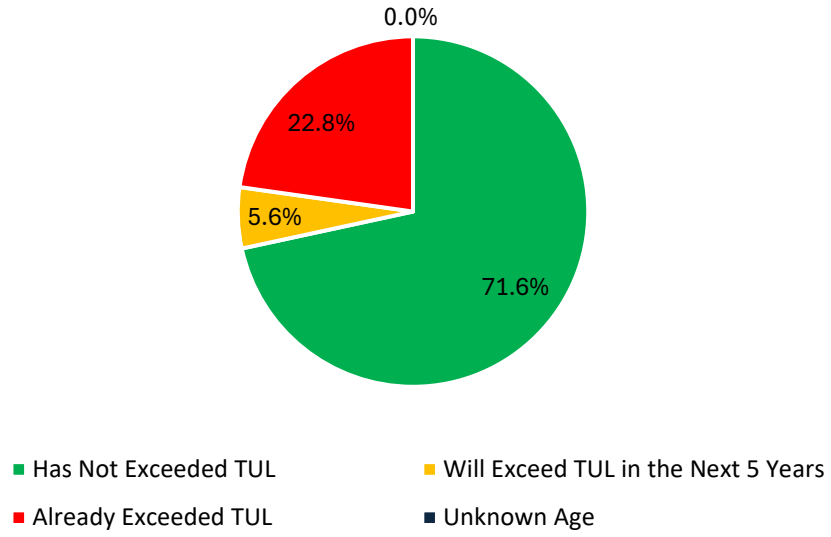



Figure 7 and Figure 8 show what asset condition demographics are forecasted to be if there was no capital asset renewal performed during the next rate period and allowing assets to Run to Failure (RTF). Elexicon forecasts that by 2031:

- 16% of station assets will be in poor to very poor condition (increase of 2%) and
- 43% of station assets will have exceeded their Typical Useful Life (TUL) or will exceed TUL in the next 5 years (increase of 15%).

**Figure 7: 2031 Station Asset Condition Demographics without Capital Asset Renewal**

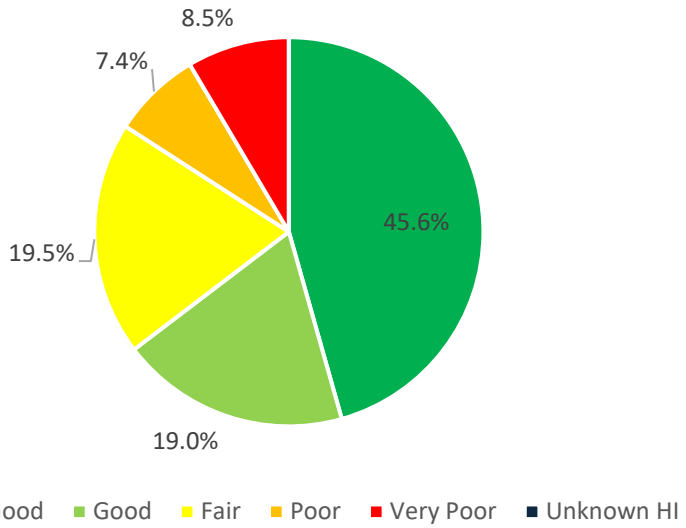



**Figure 8: 2031 Station Asset Age Demographics without Capital Asset Renewal**

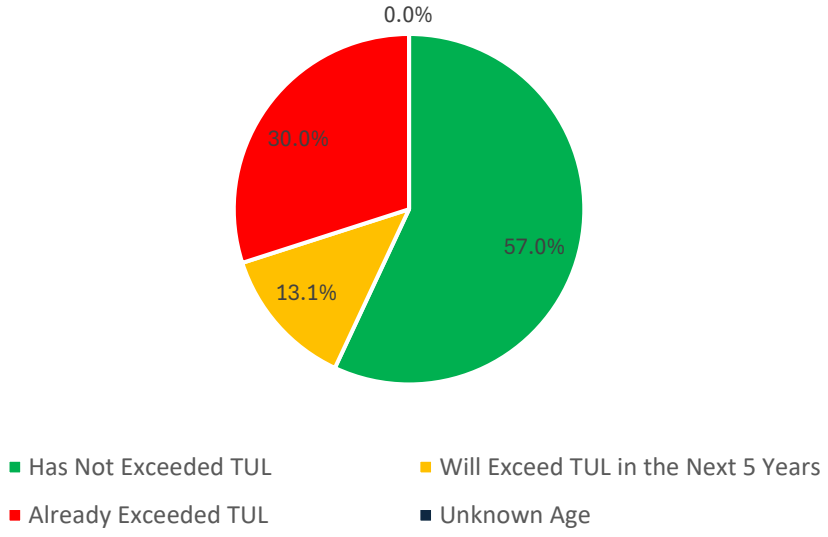


Figure 9 and Figure 10 show what asset condition demographics are forecasted to be with investment in Substation Renewal as proposed. Elexicon forecasts that by 2031:

- 12% of station assets would be in poor to very poor condition (a 2% decrease) and
- 32% of station assets have exceeded their Typical Useful Life (TUL) or will exceed TUL in the next 5 years (a 4% increase).

**Figure 9: 2031 Station Asset Condition Demographics with Balanced Investment**

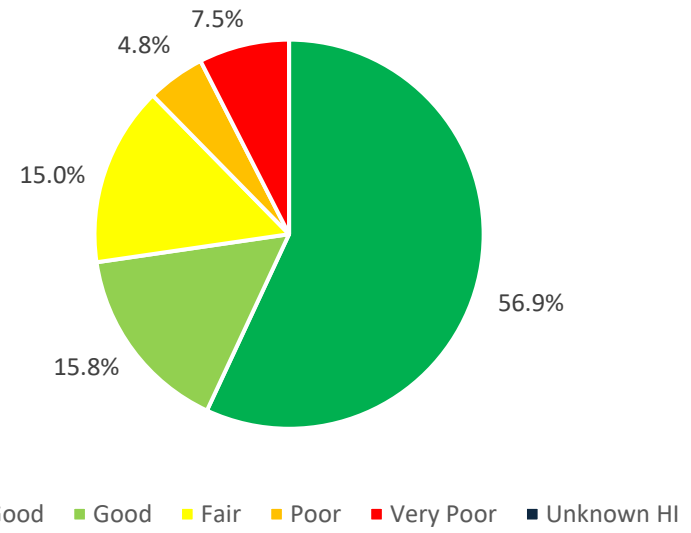
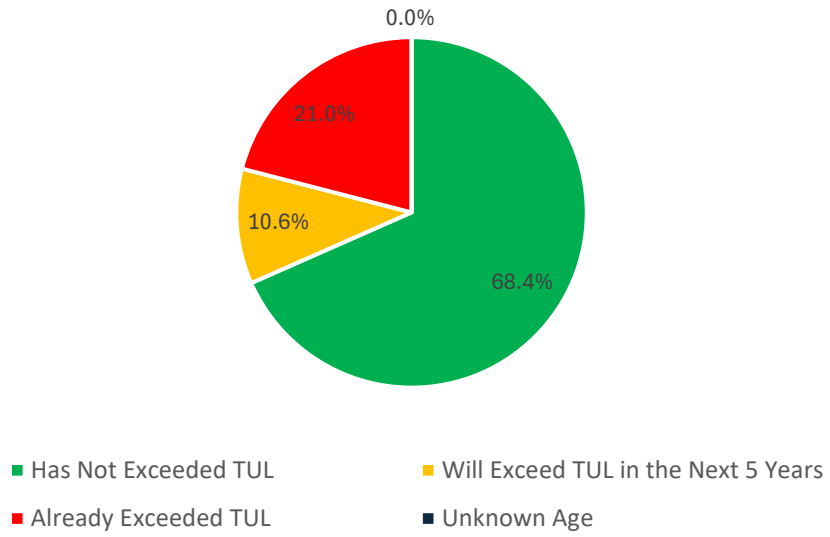


**Figure 10: 2031 Station Asset Age Demographics with Balanced Investment**




Due to the large number of older station assets in service in 2025, even with the planned level of balanced investment, the percentage of assets that have exceeded their TUL or will exceed their TUL in the next 5 years in 2031 is forecasted to be 4% higher than in 2025. The failure risks associated with aging station assets is expected to persist over the 2027-2031 rate period.

## 3.3 Reliability

Elexicon's substations are designed with contingencies that minimize the risk that a single equipment failure will lead to prolonged, widespread outages. When all assets are in service, a station asset failure typically causes a brief interruption for a large number of customers, as power is rerouted. Until the failed asset is repaired or replaced and returned to service, the system operates under contingency and in a less reliable and resilient state. Any subsequent failure during this period may result in sustained outages for customers, and restoring service to customers could potentially require days or even weeks.

Between 2019 and 2024, defective station equipment caused 48,085 customer hours of interruptions. The Substation Renewal program aims to improve the reliability of the system by rebuilding MSs with key

equipment that is likely to fail and by modernizing the MSs to better protect key assets and to reduce restoration times.

### 3.3.1 Power Transformers

A failure of the station power transformer will cause a sustained outage to all the customers it supplies until power is rerouted through other adjacent stations. Station power transformers are difficult to replace, and the lead time to obtain a new transformer can be 2-3 years. Until a failed power transformer is replaced, the system is also less resilient. Examples of reliability risk involving power transformers include:

- Edgehill MS Power Transformer T2 must be replaced due to Dissolved Gas Analysis results for T2 indicating elevated levels of carbon monoxide and acetylene gases. The presence of these gases may be linked to the aluminum winding construction and suggests high internal thermal or electrical stress. This result indicates accelerated asset deterioration. Edgehill MS supplies approximately 3,500 customers, and a transformer failure would result in a sustained interruption to these customers. This transformer will be replaced as part of the Edgehill MS rebuild.
- Catherine MS Power Transformer T1 needs to be replaced because diagnostic testing identified a high-power factor, which is indicative of insulation system deterioration or contamination. Transformers with elevated power factor readings are at a significantly higher risk of failure. Catherine MS supplies approximately 70 customers and provides partial backup power to Cascade MS. A transformer failure would impact customers served by both Catherine MS and Cascade MS. This transformer will be replaced as part of the Catherine MS rebuild.

### 3.3.2 Power Cables

Power cables distribute electrical power from an MS to customers. Power cables that are classified as station assets run from the station to the first distribution riser pole. Power cable failure prevents an MS from supplying its planned capacity to customers. Examples of reliability risk involving power cables include:

- At Fairport MS, the four power cables (feeder cables) that supply downstream distribution customer loads exit the station above ground. These cables are laid directly on the ground with only a makeshift wooden fence serving as a protective barrier. In this condition, the cables are vulnerable to mechanical damage and environmental exposure and have an increased risk of failure. Fairport MS supplies approximately 6,000 customers, and failure of these cables would result in a sustained interruption to these customers.
- At Bigelow MS, the three power cables are in very poor condition. Bigelow MS supplies approximately 500 customers, and failure of power cables or the riser pole would lead to a sustained interruption to these customers.

### 3.3.3 Breakers

Breakers are used to open and close electrical circuits. Relays are used to detect electrical faults and communicate to the breaker to operate. The relay will also allow remote operation and transmit valuable operating information back to Elexicon's System Control Centre. Breakers and relays are key equipment that maintain the reliability of the system. Examples of reliability risk involving breakers include:

- The 4.16 kV breakers in Edgehill MS are oil-filled units with deteriorating contacts. These breakers are no longer manufactured, and replacement parts for these breakers, particularly contacts, are extremely limited in availability.
- At Garden MS, the 13.8 kV breaker line-up and switchgear is in poor condition. The T1B breaker failed in 2023. To restore service, the T1B breaker was reconstructed using parts from the T2Y breaker.[2] In addition, there is currently no ability to transfer load between the two transformers at Garden MS, significantly reducing operational flexibility and increasing the risk of customer outages in the event of a transformer failure.

[2] Due to T2 failure in 2023, the T2 side was out of service at Garden MS during the T1B breaker failure in 2023.

### 3.3.4 Obsolescence and Modernization

Station rebuilds will provide the added benefit of replacing obsolete designs and equipment with modern designs and equipment that can better maintain system reliability while meeting the needs of the customers. Examples for work in the program that will modernize a MS include:

- The design of Edgehill MS does not allow maintenance or isolation of T1 or T2 separately, rather the full station needs to be isolated. This is due to the high voltage switchgear configuration and the incoming 44 kV feed. Upgrading the station to modern design practices can allow for better partial isolations and maintenance of the station.
- Edgehill MS and Crandell MS use a fused switch to supply the transformers. Industry best practice is to use circuit breakers with relay protection against faults and overloads. Installing circuit breakers with relays will offer significantly better protection against faults and help extend transformer life. A circuit breaker will also reduce restoration times.
- The distribution feeders at Crandell MS are supplied by fused switches rather than circuit breakers or reclosers. In the event of a fault, fuses must be manually replaced by field crews, resulting in extended outage durations. Installing circuit breakers with relays or reclosures would enable remote or automatic reclosing, reducing outage duration and improving restoration times. A circuit breaker can also clear electrical faults faster and help extend cable life. A circuit breaker will also enable the full benefit of Distributed Energy Resources (DERs) in the future.
- At Bigelow MS, two of the feeder cables currently exit the station and connect to the distribution system via a single riser pole. This configuration introduces a single point of failure. Bigelow MS supplies approximately 500 customers, and failure of power cables or the riser pole would lead to a sustained interruption to these customers.
- Assets that have parts that are challenging to procure because the specific equipment is no longer manufactured should be considered for replacement. When these assets fail, customer outages or reduced system resiliency may be prolonged because of limited options to repair or replace the asset.

## 3.4 Safety

Elexicon prioritizes the safety of staff and customers. Catastrophic equipment failure poses the highest safety risk to Elexicon staff, contractors, and members of the public that are living, working, or travelling near utility infrastructure. As such, the asset renewal program places strong emphasis on replacing equipment that is at end-of-life and has a high probability of failure. One example of catastrophic failure is an arc flash explosion.

Station rebuilds will replace outdated equipment and construction standards, thereby reducing the risk of safety incidents. Current construction standards mitigate known station hazards while modern equipment introduces improved safety features, and together they work to reduce the likelihood of an incident. Further, different models of the same asset type across Elexicon's system can require different work procedures, which can increase the likelihood of human error and safety-related incidents. Replacing assets with standardized infrastructure will harmonize the system, improve operational consistency, and mitigate associated safety risks.

Stations with older designs and equipment also present safety risks. For instance, many substations were built with compact footprints, resulting in suboptimal working spaces that can compromise safety. In some cases, station buildings lack two efficient points of ingress and egress, limiting safe evacuation options during an emergency. At older stations there are hazardous materials such as asbestos and lead base paint. Addressing these issues through asset renewal improves safety.

Safety risks that this program will address include:

- Fairport MS: this site has been prone to flooding in the past, which creates unsafe working conditions. In addition, the feeder cables that supply downstream distribution customer loads exit the station above ground. These cables are laid directly on the ground with only a makeshift wooden fence serving as a protective barrier.
- Edgehill MS Power Transformer T1: this transformer utilizes a type of 44kV pothead cable termination that has exploded and sent metal shrapnel and oil across a station (see Figure 3).

Elexicon staff face significant safety risks if the failure occurs while staff are present on site. In addition, the cable is installed in asbestos duct work and the cables are wrapped in asbestos cable wrap, which poses additional safety risks to personnel.

- Crandell MS: this site has ducts that contain asbestos, which pose a significant safety risk to personnel. Any work involving these ducts requires specialized handling procedures and contractors, increasing maintenance and capital costs.
- Riverside MS: this station has a building with lead-based paint, which is peeling off the building walls and presents a safety risk for personnel.

## 3.5 Environment

Elexicon must manage the risk of unplanned and uncontrolled release of oil required in normal operation of Elexicon's equipment into the natural environment. An oil spill event may result in non-compliance with environmental regulations. Through investments in the Substation Renewal program, Elexicon aims to reduce the number of stations assets at-risk of an oil spill that is non-compliant with environmental regulations.

Examples of environmental risk that this program aims to address include:

- Westney Heights Power Transformer T2, which has experienced an oil leak.
- Edgehill Power Transformer, which is leaking at the on-load tap changer.
- Transformers without oil spill containment.

# 4. INVESTMENT TIMING & PACING

## 4.1 Summary of Expenditures

Table 5 summarizes the total investment associated with the Station Renewal program, including actual historical expenditures from 2020 to 2024, the bridge years of 2025 and 2026, and the forecast period from 2027 to 2031.

**Table 5: Summary of Expenditures ($M)**

| | Actuals ($M) | | | | | Bridge ($M) [3] | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Gross | 3.57 | 2.00 | 4.63 | 4.00 | 8.46 | 8.22 | 13.64 | 19.58 | 26.55 | 20.98 | 24.31 | 18.45 |
| Contributions | - | 0.81[4] | (0.01) | (0.42) | (0.35) | (0.90) | - | - | - | - | - | - |
| Net | 3.57 | 2.81 | 4.62 | 3.58 | 8.12 | 7.32 | 13.64 | 19.58 | 26.55 | 20.98 | 24.31 | 18.45 |

Year-over-year differences in the capital expenditures are due to the timing for individual projects during the rate period as shown in Table 6.

**Table 6: Forecast Expenditures by Project ($M)**

| Project | **2027** | **2028** | **2029** | **2030** | **2031** |
|---|---|---|---|---|---|
| Station Deficiencies | 0.49 | 0.52 | 0.54 | 0.57 | 0.58 |
| DC System Replacement | 0.54 | 0.60 | 0.66 | 0.72 | 0.77 |
| Shuter | 1.17 | - | - | - | - |
| Catharine | 1.95 | - | - | - | - |
| Fairport | 8.66 | 8.12 | - | - | - |
| Edgehill | 3.08 | 8.44 | - | - | - |

[3] Capital expenditures include ICM-funded Sandy Beach MS Rebuild
[4] Funds from insurance claim.

| | | | | | |
|---|---|---|---|---|---|
| Cavan South | 0.06 | 0.84 | - | - | - |
| Garden | 3.64 | 3.69 | 9.32 | - | - |
| Bigelow | - | 0.08 | 0.33 | - | - |
| Crandell | - | 1.21 | 1.96 | 5.75 | - |
| Riverside | - | 1.86 | 2.17 | 6.01 | - |
| Uxbridge East | - | 1.19 | 1.55 | 4.52 | - |
| Town Centre | - | - | 4.45 | 4.21 | 9.25 |
| Herchimer | - | - | - | 1.09 | - |
| Cascade | - | - | - | 1.43 | 1.73 |
| Westney Heights | - | - | - | - | 4.74 |
| Uxbridge West | - | - | - | - | 1.38 |
| Total | 19.58 | 26.55 | 20.98 | 24.31 | 18.45 |

Expenditures during the 2027–2031 rate period exceeds those in the bridge and historical periods due to a higher volume of proposed work and the increased cost to perform the work. The costs to complete station projects have significantly increased since the historic period, resulting in higher forecast costs. In 2020, Elexicon purchased its standard 25 MVA transformer for $0.78M. In 2024, the same type of transformer was purchased for $1.75M, an increase of 124% over four years. In 2021, Elexicon purchased a set of low voltage switchgear for $0.05M. In 2025, the same type of low voltage switchgear was purchased for $0.14M, an increase of 148% over four years. In 2020, Elexicon purchased a set of high voltage switchgear for $0.13M. In 2025, the same type of high voltage switchgear was purchased for $0.26M in 2025, an increase of 100% over five years. Please refer to Exhibit 4 – Tab 1 – Schedule 1 for further details on the increased cost to perform work.

For the 2027-2031 period, Elexicon is primarily targeting full station rebuilds along with some partial station rebuilds that include targeted asset replacements, depending on the severity of the condition and age of all assets within the station. Full station rebuilds offer a more strategic and reliable approach. By

planning for a complete rebuild from the outset, Elexicon can avoid scope creep that often arises during execution of partial upgrades, where unforeseen interdependencies between assets require additional work. This proactive planning enables better cost control, streamlined procurement, and optimized construction schedules.

Moreover, full rebuilds allow for the integration of standardized, modern equipment with enhanced capacity, protection, and automation capabilities. This not only improves system reliability and resiliency but also simplifies future maintenance and upgrades. In essence, full station rebuilds represent a forward-looking investment that aligns with Elexicon's commitment to delivering safe, efficient, and sustainable service to its customers.

## 4.2 Investment Pacing and Prioritization

Elexicon's AM Planning Process (Exhibit 2B - Tab 3 - Schedule 1) describes Elexicon's broader approach to developing capital and maintenance investment plans, including investment pacing and prioritization functions. Elexicon leverages this process to both identify and prioritize MSs as part of discrete capital investment projects. Pacing and prioritization of projects in the program is based on an analysis of the risk that will be mitigated and benefits that will be achieved from renewal for each MS in the system. The analysis produced a priority score for each MS. Investment timing was based primarily on the MS's priority score.

The analysis utilized eight weighted variables.

- **Station Health Index** – Defines the condition of the station and acts as a proxy for the probability of failure. Each station's health index is the weighted aggregate HI value of the individual assets in the station. The lower the health index the higher priority score.
- **Safety** – The risk of safety incidents sustained by Elexicon's staff, contractor or the general public in the vicinity of the utility's equipment. The risk ranges from no impact on safety to the risk of permanent disabling injury or fatality to both the public and employees. The higher the risk of safety incidents sustained the higher the priority score.

- **Environmental Impact** – The risk of unplanned and uncontrolled release of a hazardous substance required during normal operation of Elexicon's equipment into the natural environment. The risk ranges from no impact on the environment to non-compliance with environmental regulations. The higher the risk of non-compliance the higher the priority score.
- **Electrical Service Continuity** – Is the risk of sustained interruptions to material segments of customer load. The risk ranges from no impact to reliability to a potential sustained interruption of > 25 MVA of distribution load. Stations supplying larger quantities of load are given higher priority.
- **Healthy & Productive Workforce** – Evaluates if the project replaces substandard equipment or otherwise improves the operations and maintenance practices on the system. The benefit achieved by the project can range from no impact on correcting substandard conditions to improving the operations and maintenance practice on the system because >50% of the new assets installed will improve the operations and maintenance practices on the system. The higher the percentage of new assets installed delivering improvements to the operations and maintenance practices on the system the higher the priority score.
- **Operational Efficiency** – Evaluates the risk of lost opportunities for efficiency improvements through investment in labour-saving capital equipment. The benefits range from no impact on OM&A costs over the five-year period to potential OM&A cost reduction/avoidance >$250K. The more OM&A savings the projects could potentially achieve the higher the priority score.
- **Customer Convenience and Confidence** – Evaluates the risk of underinvestment in utility assets that causes material inconvenience to the customers' interaction with the utility. Projects that can positively impact the customers’ interaction with the utility achieve the higher priority score.
- **Regulatory Compliance** – Evaluates how the project supports Elexicon to be compliant with regulations and legal obligations. The outcomes range from no impact on regulatory compliance to addressing a currently non-compliant issue to meet regulations or external standards for asset operations. The more the project ensures compliance the higher the priority score.

In addition to these foundational analytics, there are other constraints that will influence the scheduling and pacing of the Substation Renewal program investments, including:

- System constraints: Substations Renewal projects require planned outages to safely remove assets and install new standardized equipment. Once the station is out of service, all the load typically supplied by that station must be transferred to adjacent stations. To ensure there is sufficient capacity available in the distribution system to supply customers, only a certain number of planned outages can be performed at any given time within the system.
- Execution constraints: Certain Substation Renewal investments, especially in regions with constrained capacity, can only be performed at certain times of the year under optimal weather conditions and temperatures. Regions where a planned outage during the peak load season would compromise the system's contingency are planned to be completed in the off-peak load season.
- Spending constraints: There is a need to balance the spending within this program with spending requirements across the DSP planning period. This also includes the need to respond to new customer connections, new capacity upgrades, third-party requests, and the need to increase capacity within the system to support these new customers.

## 4.3 Execution Approach

Elexicon's execution framework ensures that all approved projects and programs are delivered safely, efficiently, and in accordance with regulatory, technical, and financial requirements. It integrates cross-departmental coordination between Planning, Engineering, Operations, and Supply Chain to ensure that resources, materials, and schedules are aligned with Elexicon's annual investment targets. Elexicon's capital execution process is described in Exhibit 2B - Tab 3 - Schedule 1.

As part of program execution, Elexicon anticipates and proactively manages potential risks from an implementation perspective to ensure that program delivery is optimized. Key risk categories that the utility manages are identified in Table 7.

**Table 7: Summary of Program Risks & Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| Procurement Lead Times: Procurement of key infrastructure components such as transformers and switchgear can take 24–36 months, impacting timely project execution. | • Advance Procurement: The timely execution of the project is heavily reliant on the availability of these critical assets. To proactively manage this risk and ensure alignment with the planned in-service date, Elexicon initiates procurement activities in advance of the anticipated project commissioning. |
| Planned Outages: Substation Renewal projects require full station outages, limiting concurrent work at neighboring stations and impacting system reliability. | • Investment Pacing: During a planned substation outage, customers typically served by the affected station are temporarily supplied from adjacent stations. This operational constraint limits the extent of concurrent work that can be undertaken at neighbouring stations. Elexicon has accounted for this in its investment pacing strategy, ensuring that projects within the same geographic area are scheduled across different years to manage system reliability and resource availability. |
| Unexpected Priority Calls: Reactive work may require reallocating crews from planned | • Contractor Support: Engage external contractors when needed to maintain |

| | |
|---|---|
| projects to address urgent failures or emergency restorations. | planned work levels and avoid delays to Substation Renewal efforts. |
| Execution & Resource Availability: Specialized labor, civil construction, and contractor coordination are critical; resource constraints during peak seasons may impact timelines and costs. | • Strategic Planning: Through strategic planning, advanced ordering of materials and maintaining strong relationships with the contractor community, Elexicon will endeavor to optimize the delivery of their investment program, while also managing the risks of cost overruns and increases due to the impacts of inflation. |

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# 5. OPTIONS ANALYSIS

## 5.1 Options for Substation Renewal

An integral component as part of Elexicon' s AM Planning Process (Exhibit 2B - Tab 3 - Schedule 1) is to assess the prudency of each investment program through the consideration of various investment options. Elexicon evaluated three investment options for the Substation Renewal Program, each offering different levels of cost and benefit: Needs-Based, Balanced, and Low. As part of this evaluation, both the accumulative current and forecasted asset condition and age of substation assets were carefully considered to ensure that investment decisions reflect asset condition, risk, and lifecycle performance. These investment options also considered the customer engagement results and preferences to balance rates with investment outcomes.

### 5.1.1 Balanced Investment ($109.88M) Option – Recommended

This level of investment entails renewal projects at 15 stations along with investments to resolve general substation deficiencies and perform DC System replacements. This option includes 12 station rebuild projects to be completed during the rate period, while the remaining 3 station rebuild projects will be initiated during this rate period and completed afterwards. The need for this option corresponds with the reliability, resiliency, and safety considerations detailed above at section

The benefits of a balanced investment level in terms of asset demographics improvement are a 2% reduction in the percentage of assets that are in poor to very poor condition. This level of investment is also expected to slow down increases to the proportion of old assets in the system. This balance investment plan will result in a mere 4% increase in the percentage of assets that have exceeded their TUL or will exceed their TUL in the next 5 years. If there were to be no investment in the Substation Renewal program, the proportion of assets that have or will exceed their TUL in the next 5 years would increase to 15%.

Table 8**:** **Change in Asset Demographics after Balanced Investment**

| | **2025** | **2031** – After Balanced Investment |
|---|---|---|
| Assets in Poor or Very Poor Condition | 14% | 12% |
| Assets that have exceeded their TUL or will exceed their TUL in the next 5 years | 28% | 32% |

5.1.2 Needs-Based Investment Option ($166.63M)

Elexicon's initial proposal of station renewal investments was scoped to address a broader group of assets that were identified in need of renewal to proactively address failure risks. This more proactive approach was based on a slightly lowered threshold of risk tolerance and a higher expectation of reliability performance. However, this plan also entailed an additional $56.75M in expenditures compared to the balanced plan. This investment option would include complete rebuild projects at 16 stations, initiate a rebuild at 1 station and complete power cable replacement projects at 6 stations during the 2027-2031 rate period. The level of investment for resolving general station deficiencies and performing DC system replacements is the same as in the Balanced Investment option above. This option would deliver more benefits than the Balanced Investment option, will eliminate a greater number of safety and environment issues and would reduce more failure risks in the system.

The benefits of the Needs-Based Investment quantified by asset demographics is a 3% reduction in the percentage of assets that are in poor to very poor condition and a 1% reduction in the percentage of assets that have exceeded their TUL or will exceed their TUL in the next 5 years.

**Table 9: Change in Asset Demographics after Needs-Based Investment**

| | **2025** | **2031** – After Needs-Based Investment |
|---|---|---|
| Assets in Poor or Very Poor Condition | 14% | 11% |
| Assets that have exceeded their TUL or will exceed their TUL in the next 5 years | 28% | 27% |

5.1.3 Low investment Option ($78.18M)

This option proposes rebuild projects at 12 stations. Under this option, 10 station rebuild projects will be completed during the rate period, while the remaining 2 station rebuild projects will be initiated but completed after the rate period. The level of investment for resolving general station deficiencies and performing DC system replacements is the same as in the Balanced Investment option. This option will eliminate the least amount of safety and environment issues in the system. This option will not reduce failures in the system and may result in failure risks increasing.

The benefits of the Needs-Based Investment quantified by asset demographics is 1% reduction in the percentage of assets that are in poor to very poor condition and an 8% increase in the percentage of assets that have exceeded their TUL or will exceed their TUL in the next 5 years.

**Table 10: Change in Asset Demographics after Low Investment**

| | **2025** | **2031** – After Low Investment |
|---|---|---|
| Assets in Poor or Very Poor Condition | 14% | 13% |
| Assets that have exceed their TUL or will exceed their TUL in the next 5 years | 28% | 36% |

5.1.4 Option Comparison and Recommendation

Elexicon adopted a balanced approach to investments given the level of expenditure in the needs-based plan, as compared to the risks addressed. While not all risks are addressed within the balanced approach, Elexicon has determined that this option addresses the most significant risks and prioritizes stations with the highest overall failure risks. To develop this "balanced" investment option, Elexicon reviewed the failure, reliability, safety and environmental risks of all projects in the needs-based approach. Projects associated with the lowest and most acceptable overall risk levels during the 2027-2031 rate period were selected for deferral. This analysis resulted in an investment option that considers both rates and quantum of risk. This balanced approach aligns with the results of the customer engagement process that endorsed a spending plan that weighted reliability performance improvements vis-à-vis affordability.

**Table 11: Option Analysis Summary**

| Investment Level | Cost | Program Scope 2027-2031 | Asset Condition Impact | Asset Age Impact | Pros | Cons |
|---|---|---|---|---|---|---|
| Low | $78.18M | 10 projects completed, 2 projects initiated | 1% Improvement in Condition Demographic; % of assets in | 8% Decline in Age Demographic; percentage of assets that have | • Lower near-term rate impacts.<br>• Improves some of the safety and | • Many safety and environment issues will not be resolved.<br>• Failure risks in the system may |

| Investment Level | Cost | Program Scope 2027-2031 | Asset Condition Impact | Asset Age Impact | Pros | Cons |
|---|---|---|---|---|---|---|
| | | | poor or very poor condition goes from 14% to 13% | exceed their TUL or will exceed their TUL in the next 5 years goes from 28% to 36% | environmental issues in the system. | increase over the rate period.<br>• Increased operating costs to manage assets in poor condition.<br>• As asset population continues to get older the risk of higher capital investment in the future increases.<br>• Does not align with customer engagement results due to deteriorating reliability. |
| Balanced (Recommended) | $109.88M | 12 projects completed, 3 projects initiated | 2% Improvement in Condition Demographic; % of assets in poor or very poor condition goes from 14% to 12% | 4% Decline in Age Demographic; percentage of assets that have exceed their TUL or will exceed their TUL in the next 5 years goes from 28% to 32% | • Improves safety for staff and public.<br>• Lowers the risk of having an environmental incident.<br>• Improvement in asset condition.<br>• Lowering of failure risks in the near term.<br>• Aligns with customer engagement results | • Decline in age demographic. |

| Investment Level | Cost | Program Scope 2027-2031 | Asset Condition Impact | Asset Age Impact | Pros | Cons |
|---|---|---|---|---|---|---|
| | | | | | for rate and reliability preferences. | |
| Need-Based | $166.63M | 15 projects completed + 6 cable projects completed | 3% Improvement in Condition Demographic; % of assets in poor or very poor condition goes from 14% to 11% | 1% Improvement in Age Demographic; percentage of assets that have exceed their TUL or will exceed their TUL in the next 5 years goes from 28% to 27% | • Resolves most of the safety and environmental issues in the system.<br>• Greatest improvement in asset condition.<br>• Lowers overall asset age in the system.<br>• Reduced the failure risks in the system. | • Higher near-term rate impacts.<br>• Does not align with customer engagement results due to higher costs. |

# 6. INVESTMENT PROJECTS

## 6.1 Investment Project for Substation Renewal

The following section will discuss each proposed project in the Station segment of this program. Context, scope, project drivers and project benefits are discussed for each project.

### 6.1.1 Shuter MS Partial Rebuild

**Project Drivers**

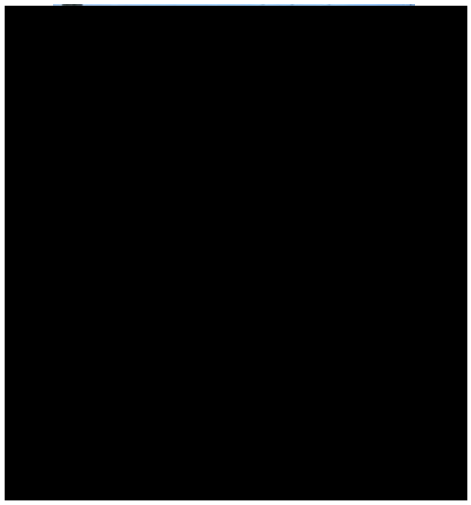
Shuter MS supplies approximately 1,600 customers. Currently, Shuter MS [Redacted]. [Redacted] lacks the space required to accommodate additional protection, control, and communication equipment, particularly as system needs evolve.

In Figure 11, [Redacted]. [Redacted] as shown in Figure 12. This is a suboptimal and an operationally limiting configuration.

**Figure 11: Layout of Shuter MS**



**Figure 12: Open Recloser Cabinet to Access Relays**



To perform maintenance or upgrades on these relays, the recloser cabinet must be opened and the connected line de-energized. As a result, each maintenance activity on a relay requires:

- Transferring customer load away from the affected feeder,
- Placing the system in a less resilient operating state, and
- Introducing avoidable operational risk and cost.

**Project Scope and Benefits**

Elexicon is proposing a partial rebuild at Shuter MS. The scope will be the construction of a new building at Shuter MS in Port Hope. The condition and age of the other assets at Shuter MS allows Elexicon to defer a full rebuild of the station into the future. While a full station rebuild is not being planned during the 2027-2031 rate period, the new control building will be adequately sized to accommodate [Redacted] of a rebuilt station. This makes the investment both a near-term reliability improvement and a cost-effective long-term infrastructure upgrade.

The proposed new station building will:

- Centralize protection, control, and communication equipment into a secure, climate-controlled, and accessible environment,
- Eliminate the need to de-energize feeder lines for routine relay maintenance,

- Improve overall station safety and maintainability, and
- Enhance system resilience by reducing operational disruptions during maintenance.

**Project Cost**

Table 12 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 12: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Shuter | 1.17 | - | - | - | - |

6.1.2 Catharine MS Full Rebuild

**Project Drivers**

Catherine MS is located in the Belleville region, supplies approximately 70 customers and provides partial backup power supply to Cascade MS, which supplies approximately 1,600 customers. Catharine MS operates at 4.16 kV and contains a single power transformer. The drivers for the project are:

- **Power Transformer:** Transformer CATHARINE-T1 is 50 years old, exceeding its typical useful life. Its current health index is 43%, classifying it in poor condition. Diagnostic testing identified a high-power factor, which is indicative of insulation system deterioration or contamination. Transformers with elevated power factor readings are at significantly increased risk of failure. Due to its poor condition, the transformer at Catharine MS cannot be reliably used to supply load under emergency situations, such as during extended outages at Cascade MS, which is an unacceptable system condition. Replacing the transformer will restore the ability of Catherine MS to provide reliable backup supply to Cascade MS.
- **Breaker:** The existing 4.16 kV breaker is an oil-filled unit with deteriorating contacts. These breakers are no longer being manufactured, and replacement parts, particularly contacts, are extremely limited in availability.
- **High Voltage Switch:** The 44 kV station supply line switch is 68 years old and has exceeded its TUL.

- **Oil Spill Containment:** There is no spill containment around the transformer to contain the transformer oil if there is a tank rupture.
- **Transformer Protection:** The station uses a legacy fused switch to supply the transformer. Industry best practice is to use circuit breakers with advanced relay protection against faults and overloads. Circuit breakers offer significantly better protection against faults and help extend transformer life.

  **System Constraint:** Until Catharine MS can support continuous load, Elexicon is limited in its ability to perform maintenance or proceed with the rebuild at Cascade MS.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild of Catharine MS. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A full rebuild of Catherine MS will:

- Mitigate station failure risks.
- Address station environment issues.
- Improve station reliability and operational efficiency.
- Will support voltage conversion activities in the area.

**Project Cost**

Table 13 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 13: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Catharine | 1.95 | - | - | - | - |

### 6.1.3 Fairport MS Full Rebuild

**Project Drivers**

Fairport MS is situated within Hydro One's Cherrywood Transformer Station (TS) in Pickering and supplies approximately 6,000 customers. The drivers for a project are:

- **Power Transformers:** The two power transformers at Fairport MS are 51 years old, have exceeded their TUL, and have an increased risk of failure.
- **Cables:** The four feeder cables that supply downstream distribution customer loads exit the station above ground. These cables are laid directly on the ground with only a makeshift wooden fence serving as a protective barrier as shown in Figure 13. Originally, the feeder cables were installed in underground ducts; however, the manhole used to access these ducts and portions of the ducts themselves is filled with concrete, rendering the ducts unusable. This issue was discovered during a previous cable replacement project following a cable fault when staff were unable to pull new feeder cable through the ducts. To restore service, the cables were temporarily placed above ground. In this condition, the cables are vulnerable to mechanical damage and environmental exposure. Efforts to bury the cables have been unsuccessful, as excavation would disrupt Cherrywood TS's ground grid and introduce unacceptable safety risks. Additionally, two of the four feeder cables have health index values at or below 50%, which classify them in poor condition and at an increased risk of failure.
- **Switches:** Both transformer switches are 51 years old, exceeding their typical useful life. Both have HI values of 30%, classifying them in poor condition and at an increased risk of failure. These assets are critical for supplying customers and operational flexibility.

**Figure 13: Exposure feeder cables**



- **Flooding:** The site has been prone to flooding, as shown in Figure 14. Flooding creates unsafe working conditions and limits site access during severe weather events. This represents a significant operational and reliability risk.

**Figure 14: Fairport MS Flooded**



- **Access:** The station's location within Cherrywood TS presents ongoing access challenges. Elexicon does not have unimpeded entry to the site, as all maintenance and capital work must be coordinated with Hydro One. This constraint increases operational complexity and cost. In

emergency situations, delayed access can extend response times, adversely affecting system reliability.

- **Oil Spill Containment:** There is no spill containment around the two transformers to contain the transformer oil if there is a tank rupture.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild and relocation of Fairport MS. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, the challenges of individual asset replacement at this brownfield site and performing construction inside an energized Hydro One station, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A rebuild of Fairport MS at a new location will:

- Mitigate station failure risks.
- Address station safety and environmental issues.
- Improve station reliability and operational efficiency.
- Remove access challenges by relocating Fairport MS outside of Cherrywood TS.

**Project Cost**

Table 14 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 14: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Fairport | 8.66 | 8.12 | - | - | - |

6.1.4 Edgehill MS Full Rebuild

**Project Drivers**

Edgehill MS supplies approximately 3,200 customers and operates at both 4.16kV and 13.8kV voltages. The drivers for a project are:

- **Power Transformer T1**: Transformer T1 is 64 years old, significantly past its TUL, and at an increased failure risk. Transformer T1 employs a pothead cable termination. A pothead termination is installed on the end of the station supply cable which enables connection to the transformer. At a different station in 2025, a catastrophic failure occurred on the same type of pothead cable termination. The failure projected metal shrapnel and cable oil across that station. Replacing the pothead termination will improve safety and operation efficiency at the station.
- **Power Transformer T2:** Recent Dissolved Gas Analysis results for T2 indicate elevated levels of carbon monoxide and acetylene gases. The presence of these gases may be linked to the aluminum winding construction and suggests high internal thermal or electrical stress. The result indicates accelerated asset deterioration. Its current health index is 54%, classifying it in fair condition. The power transformer is the most critical asset in a station, has the longest lead time to procure and warrants replacement consideration when it reaches fair condition. A failure of this transformer would result in an outage to approximately half the customers the MS supplies and jeopardize the reliability of the system in the southeast portion of the Belleville region. The failure risk is sufficient to warrant replacement of the transformer.
- **T2 Tap Changer:** The on-load tap changer (OLTC) on Transformer T2 is leaking. It is suspected that the headboard within the tap changer is not fully sealed, potentially allowing oil with carbon deposits from the OLTC to exchange into the main tank and contaminating the main tank. The carbon deposits could cause arching in the main tank and damage the transformer. There is evidence of oil leaking onto the ground as well. Corrective repairs require this transformer to be removed from service and transported to a specialized repair facility, as field repairs are not feasible.
- **Breaker:** Four circuit breakers are 64 years old each, significantly past their TUL, and pose an increased failure risk.
- **Transformer Protection:** The station uses a legacy fused switch to supply the transformer. Industry best practice is to use circuit breakers with advanced relay protection against faults and overloads. Circuit breakers offer significantly better protection against faults and help extend transformer life.

- **Oil Spill Containment:** There is no spill containment around the two transformers to contain the transformer oil if there is a tank rupture.
- **Battery Bank:** Battery banks at the station are exposed and lack proper barriers, posing a serious safety hazard for personnel.
- **Breaker Replacement:** The 4.16 kV and 13.8 kV circuit breakers are installed adjacently, making it operationally impractical to replace only the 4.16 kV switchgear. A full replacement of the breaker lineup will standardize equipment across the system, enhance maintainability, and integrate modern safety and reliability features. The existing 4.16 kV breakers are oil-filled units with deteriorating contacts. These breakers are no longer being manufactured, and replacement parts, particularly contacts, are extremely limited in availability.
- **Building Limitations:** The current station building lacks adequate space to accommodate both the existing and replacement switchgear during phased construction. A new building is required to support the rebuild and will improve safety through enhanced clearances and compliance with current egress requirements.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild of Edgehill MS in Belleville. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A rebuild of Edgehill MS will:

- Mitigate station failure risks.
- Address station safety and environmental issues.
- Improve station reliability and operational efficiency.
- The 4.16kV portion of the station will be rebuilt to operate at 13.8 kV or 4.16 kV which will support voltage conversion activities in the area and save on future decommission costs.

**Project Cost**

Table 15 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 15: Forecast Expenditures by Project ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Edgehill | 3.08 | 8.44 | - | - | - |

6.1.5 Cavan South MS Decommissioning

**Project Drivers**

Cavan South MS located in the Port Hope region supplies approximately 200 customers and operates at 4.16 kV voltage. Voltage conversion from 4.16 kV to 27.6 kV in the area where Cavan South MS provides electrical supply will be completed during the 2027-2031 rate period. Refer to the Voltage and System Conversion Program narrative for the drivers and benefits of voltage conversion. Once voltage conversion is complete, there will be no need for Cavan MS and the MS can be decommissioned. Cavan South MS is approximately 70 years old, and the station's assets are well beyond their useful life.

**Project Scope and Benefits**

Elexicon is proposing to decommission Cavan South MS. Decommissioning the station will remove future capital renewal and maintenance costs.

**Project Cost**

Table 16 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 16: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Cavan South | 0.06 | 0.84 | - | - | - |

6.1.6 Garden MS Full Rebuild

**Project Drivers**

Garden MS supplies approximately 4,300 customers. The drivers for a project are:

- **Power Transformer:** Transformer T2 suffered a catastrophic failure in 2022 and was repaired to put back into service; however, this transformer suffers from unsatisfactory primary winding resistance measurements, damaged conservator tank, and deteriorated mechanical integrity. The T2 unit was built in 1976 and is past its TUL, posing an increased risk of failure.
- **Switchgear:** The switchgear lineup has a HI of 43%, classifying it in poor condition. The transformer T1B breaker failed in 2023. To restore service, the T1B breaker was reconstructed using parts from the T2Y breaker. Figure 15 shows the failed breaker before reconstruction. The bus tie breaker is also out of service. This results in no ability to transfer load between the two transformers at Garden MS, significantly reducing operational flexibility and increasing the risk of customer outages in the event of a transformer failure. This switchgear lineup is also 45 years old, which is at its TUL.

**Figure 15: Failed Garden MS Circuit Breaker (black residue from arc flash)**



- **Building Limitations:** The existing station building is undersized and lacks sufficient working clearances. This creates a safety risk for operating personnel due to the increased potential for accidental contact with energized equipment.
- **Oil Spill Containment:** There is no spill containment around the two transformers to contain the transformer oil if there is a tank rupture.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild of Garden MS. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A Garden MS rebuild will:

- Mitigate station failure risks.
- Address station safety and environmental issues.
- Restore full operational redundancy and transfer capabilities between transformers.
- Improve station reliability and operational efficiency.

**Project Cost**

Table 17 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 17: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Garden | 3.64 | 3.69 | 9.32 | - | - |

6.1.7 Bigelow MS Partial Rebuild

**Project Drivers**

Bigelow MS supplies approximately 500 customers. The drivers for a project are:

- **Feeder Cables:** Two of the three distribution feeder cables are 50 years old, exceeding their typical useful life. All three cables have health index values below 20%, classifying them in poor to very poor condition. Given their deteriorated state, failure is likely in the near term, presenting a significant risk to system reliability.
- **Feeder Cable Routing:** Two of the feeder cables currently exit the station and connect to the distribution system via a single riser pole. This configuration introduces a single point of failure. If the pole fails, the entire station would be unable to supply the distribution system. The proposed rebuild would diversify cable routing to three separate riser poles, thereby improving reliability and system resiliency.

**Project Scope and Benefits**

Elexicon is proposing a partial rebuild of Bigelow MS in Port Perry. The condition and age of the other assets at Bigelow MS allows Elexicon to defer a full rebuild of the station into the future. The proposed scope includes:

- Replacement of the three existing distribution feeder cables, and
- Installation of new concrete-encased ducts routed to three separate riser pole locations to eliminate the current single-point-of-failure configuration.

A rebuild of Bigelow MS will:

- Mitigate station failure risks.
- Address station safety and environment issues.

**Project Cost**

Table 18 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 18: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Bigelow | - | 0.08 | 0.33 | - | - |

6.1.8 Crandell MS Full Rebuild

**Project Drivers**

The Port Perry region is served by three municipal substations: L.R. Mabley MS, Bigelow MS, and Crandell MS. Two of these three stations must always remain in operation to supply the regional load. As such, maintaining all stations in good working condition is essential to ensuring system reliability and minimizing the number of extended customer outages. Crandell MS supplies approximately 1,200 customers. The drivers for a project are:

- **Power Transformer:** Transformer T1 is 58 years old, past its TUL, and at an increased risk of failure.

- **Switches:** The distribution feeders are supplied by fused switches rather than circuit breakers. The switches are all 58 years old and past their TUL. In the event of a fault, fuses must be manually replaced by field crews, resulting in extended outage durations. Replacing these with circuit breakers would enable remote or automatic reclosing, reducing outage duration and improving restoration times.
- **Feeder Cable:** Crandell MS uses Paper-Insulated, Lead-Covered (PILC) cables for its distribution feeders. These cables are 58 years old and have exceeded both their typical and maximum service lives. The cables have HI values of 45% or lower, which classify them in poor to very poor condition. In addition to the condition risk, the presence of lead in the cable insulation represents an environmental and safety concern. Replacing these cables would mitigate the hazard of lead exposure to workers and the surrounding environment.
- **Transformer Protection:** The station uses a legacy fused switch to supply the transformer. Industry best practice is to use circuit breakers with advanced relay protection against faults and overloads. Circuit breakers offer significantly better protection against faults and help extend transformer life.
- **Oil Spill Containment:** There is no spill containment around the transformer to contain the transformer oil if there is a tank rupture.
- **Asbestos Duct:** The station asbestos lined ducts, which poses a significant safety risk to personnel. Any work involving these ducts requires specialized handling procedures and contractors, increasing maintenance and capital costs.
- **Feeder Cable Routing:** All feeder cables currently exit the station and terminate at a single pole, a design that introduces a single point of failure. If the pole fails, the station is unable to supply the distribution system. A rebuild would allow for diversified cable routes connected to three separate poles, removing the single point of failure and improving system reliability.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild of Crandell MS to mitigate failure risks, maintain system reliability, address safety hazards, and manage environmental impact. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets,

and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A rebuild of Crandell MS will:

- Mitigate station failure risks.
- Address station safety and environmental issues.
- Improve station reliability and operational efficiency.

**Project Cost**

Table 19 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 19: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Crandell | - | 1.21 | 1.96 | 5.75 | - |

6.1.9 Riverside MS Full Rebuild

**Project Drivers**

Riverside MS is located in the north side of Belleville region. This MS supplies approximately 900 customers and operates at 4.16 kV. The drivers for a project are:

- **Power Transformer:** Transformer RIVERSIDE-M.S.4 is 61 years old, exceeding its typical useful life. Its current health index is 64%, classifying it in fair condition. The power transformer is the most critical asset in a station, has the longest lead time to procure and warrants replacement consideration when it reaches fair condition. A failure of this transformer would result in an outage for all the customers the MS supplies and jeopardize the reliability of the system in Belleville. The failure risk is sufficient to warrant replacement of the transformer.
- **Feeder Cables:** All four sets of feeder cables are 61 years old, exceeding their typical useful life. The HI for all the cables classifies them in poor to very poor condition.

- **Circuit Breakers:** All of the circuit breakers are no longer manufactured. As a result, sourcing spare parts has become increasingly difficult, leading to extended outage risks and maintenance challenges. The circuit breakers are also all 61 years old, which is 16 years past their TUL.
- **High Voltage Switch:** The 44kV station supply line switch is 61 years old, which is 16 years past its TUL.
- **Building Concerns:** The lead-based paint peeling off the building walls is a safety risk for personnel. The building lacks two efficient points of ingress and egress, limiting safe evacuation options during an emergency.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild of Riverside MS in Belleville. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A rebuild of Riverside MS will:

- Mitigate station failure risks.
- Address station safety issues.
- Improve station reliability and operational efficiency.
- The station will be rebuilt to operate at both 4.16 kV or 13.8 kV, which will support voltage conversion activities in the area and save on future decommission costs.

**Project Cost**

Table 20 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 20: Forecast Expenditures by Project ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Riverside | - | 1.86 | 2.17 | 6.01 | - |

### 6.1.10 Uxbridge East MS and Uxbridge West MS Full Rebuild

The Uxbridge region is currently served by two municipal substations: Uxbridge East MS and Uxbridge West MS. Each substation contains a single power transformer supplying three distribution feeders. Uxbridge East MS supplies approximately 800 customers, while Uxbridge West MS supplies approximately 700 customers. The two stations provide mutual contingency support, and if one station experiences an outage, the other is relied upon to restore service by supplying the entire load for the region. Ensuring both stations are in good working condition is essential to maintaining system reliability and reducing sustained customer outages in the region.

**Project Drivers - Uxbridge East MS**

The drivers for a project are:

- **Power Transformer:** Transformer UXBRIDGE EAST-T1 is 61 years old, exceeding its typical useful life. It has a health index value of 68%, classifying it in fair condition. The power transformer is the most critical asset in a station, has the longest lead time to procure and warrants replacement consideration when it reaches fair condition. The failure risk is sufficient to warrant replacement of the transformer.
- **Circuit Breakers:** The three circuit breakers supplying customer feeders are all 61 years old, exceeding their typical useful life and nearing their maximum useful life. Breaker CB-Uxbridge EastF3 is of particular concern as its HI value is 43%, classifying it in poor condition and at an elevated risk of failure.
- **High Voltage Switch:** The 44kV station supply line switch is 61 years old, which is 16 years past its TUL.
- **Transformer Protection:** The station uses a legacy fused switch to supply the transformer. Industry best practice is to use circuit breakers with advanced relay protection against faults and overloads. Circuit breakers offer significantly better protection against faults and help extend transformer life.
- **Building:** The station building has a HI of 47%, classifying it in poor condition and a potential safety risk for personnel.

- **Oil Spill Containment:** There is no spill containment around the transformer to contain the transformer oil if there is a tank rupture.
- **Feeder Cable Routing:** All feeder cables currently exit the station and terminate at a single pole, a design that introduces a single point of failure. If the pole fails, the station is unable to supply the distribution system. A rebuild would allow for diversified cable routes connected to three separate poles, removing the single point of failure and improving system reliability.
- Minimizing equipment failures that would cause the station to be out of service because there is limited backup supply in the region.

**Project Scope and Benefits - Uxbridge East MS**

Elexicon is proposing a full rebuild of Uxbridge East MS. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A rebuild of Uxbridge East MS will:

- Mitigate station failure risks.
- Address station safety and environmental issues.
- Improve station reliability and operational efficiency.

**Project Cost - Uxbridge East MS**

Table 21 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 21: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Uxbridge East | - | 1.19 | 1.55 | 4.52 | - |

**Project Drivers - Uxbridge West MS**

The drivers for a project are:

- **Power Transformer:** Transformer UXBRIDGE WEST-T1 is a temporary unit, which was installed after the 2022 windstorm that damaged the permanent transformer. This temporary unit is 20% smaller in capacity than the permanent unit. The installed unit was manufactured in 1964 and is well beyond its TUL, posing an increased risk of failure.
- **Switches:** The station's three feeder switches are 50 years old and have exceeded their typical service life. These fused switches supply customer feeders. Replacing these switches with circuit breakers or reclosers would enable remote or automatic reclosing, substantially reducing outage duration and improving restoration times.
- **Cables**: The station power distribution cables are all 50 years old, which is 10 years past their TUL, posing an increased failure risk.
- **Feeder Cable Routing:** All feeder cables currently exit the station and terminate at a single pole, a design that introduces a single point of failure. If the pole fails, the station is unable to supply the distribution system. A rebuild would allow for diversified cable routes connected to three separate poles, removing the single point of failure and improving system reliability.
- **Transformer Protection:** The station uses a legacy fused switch to supply the transformer. Industry best practice is to use circuit breakers with advanced relay protection against faults and overloads. Circuit breakers offer significantly better protection against faults and help extend transformer life.
- Minimizing equipment failures that would cause the station to be out of service because there is limited backup supply in the region.

**Project Scope and Benefits - Uxbridge West MS**

Elexicon is proposing a full rebuild of Uxbridge West MS. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A rebuild of Uxbridge West MS will:

- Mitigate station failure risks.
- Improve station reliability and operational efficiency.

**Project Cost - Uxbridge West MS**

Table 22 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 22: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Uxbridge West | - | - | - | - | 1.38 |

6.1.11 Town Centre MS Full Rebuild

**Project Drivers**

Town Centre MS supplies approximately 1,200 customers. The drivers for a project are:

- **Power Transformers**: Transformer T1 is 53 years old, which is 8 years past its TUL, posing an increased risk of failure. The health index is 63%, classifying it in fair condition. The health index of Transformer T2 is 59%, classifying it in fair condition. The power transformer is the most critical asset in a station, has the longest lead time to procure and warrants replacement consideration when it reaches fair condition. The failure risk is sufficient to warrant replacement of the transformers.
- **Circuit Breakers**: All seven station circuit breakers are 53 years old each and past their TUL, posing an increased risk of failure.
- **Tie Switch**: The station 44kV tie switch (STN_SW-Town Centre_8T1-L-8T2) has a HI of 23%, classifying it in very poor condition. This component is critical for operational flexibility and contingency supply. Its current condition represents a significant reliability risk. The switch is 43 years old and will exceed its TUL before the end of the 2027-2031 rate period.
- **Line Switch**: The station 44kV line switch (STN_SW-Town Centre_8T1-L) has a HI of 30%, classifying it in poor condition. This component is critical for supplying customers and operational flexibility. Its current condition represents a significant reliability risk. The switch is 43 years old and will exceed its TUL before the end of the 2027-2031 rate period.

- **Oil Spill Containment:** There is no spill containment around the transformers to contain the transformer oil if there is a tank rupture.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild of Town Centre MS. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A rebuild of Town MS will:

- Mitigate station failure risks.
- Address station environment issues.
- Improve station reliability and operational efficiency.

**Project Cost**

Table 23 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 23: Forecast Expenditures by Project ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Town Centre | - | - | 4.45 | 4.21 | 9.25 |

6.1.12 Herchimer MS Decommissioning

**Project Drivers**

Herchimer MS, located in the southeast part of the Belleville region, supplies approximately 2,000 customers and operates at 4.16kV voltage. Voltage conversion from 4.16kV to 13.8kV in the area where Herchimer MS supplies will be completed during the 2027–2031 rate period. Refer to the Voltage and System Conversion Program narrative for the drivers and benefits of voltage conversion. Once voltage conversion is completed, there will be no need for the Herchimer MS, and it will be decommissioned.

**Project Scope and Benefits**

Elexicon is proposing to decommission Herchimer MS. Decommissioning the station will remove future capital renewal and maintenance costs. Major station assets like the transformer, circuit breakers, switchgear, and switch have exceeded their TUL.

**Project Cost**

Table 24 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 24: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Herchimer | - | - | - | 1.09 | - |

6.1.13 Cascade MS Full Rebuild

**Project Drivers**

Cascade MS is located in the southeast portion of Belleville region and supplies approximately 1,600 customers and operates at 4.16kV. The drivers for a project are:

- **Power Transformer:** Transformer CASCADE-M.S.7 is 57 years old, exceeding its typical useful life. Its current health index is 64%, classifying it in fair condition. The power transformer is the most critical asset in a station, has the longest lead time to procure and warrants replacement consideration when it reaches fair condition. A failure of this transformer would result in an outage for the approximately 1,600 customers the MS supplies and jeopardize the reliability of the system in the southeast portion of the Belleville region. The failure risk is sufficient to warrant replacement of the transformer.
- **Circuit Breakers:** All four station circuit breakers are 57 years old, which is 13 years past their TUL, posing an increased failure risk.
- **Feeder Cables:** All four of the distribution feeder cables are 57 to 58 years old and have exceeded their TUL. Two of the four distribution feeder cables have HI values below 20%, classifying them

in very poor condition. Given their deteriorated state, failure is likely in the near term, presenting a significant risk to system reliability.

- **Oil Spill Containment:** There is no spill containment around the transformer to contain the transformer oil if there is a tank rupture.
- Supports voltage conversion activities in the area. Please refer to the Voltage and System Conversion Program narrative for the drivers and benefits of voltage conversion.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild of Cascade. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A rebuild and conversion of Cascade MS will:

- Mitigate station failure risks.
- Address station environment issues.
- Improve station reliability and operational efficiency.
- The station will be rebuilt to operate at 4.16 kV and 13.8 kV which will support voltage conversion activities in the area and save on future decommission costs.

**Project Cost**

Table 25 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 25: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Cascade | - | - | - | 1.43 | 1.73 |

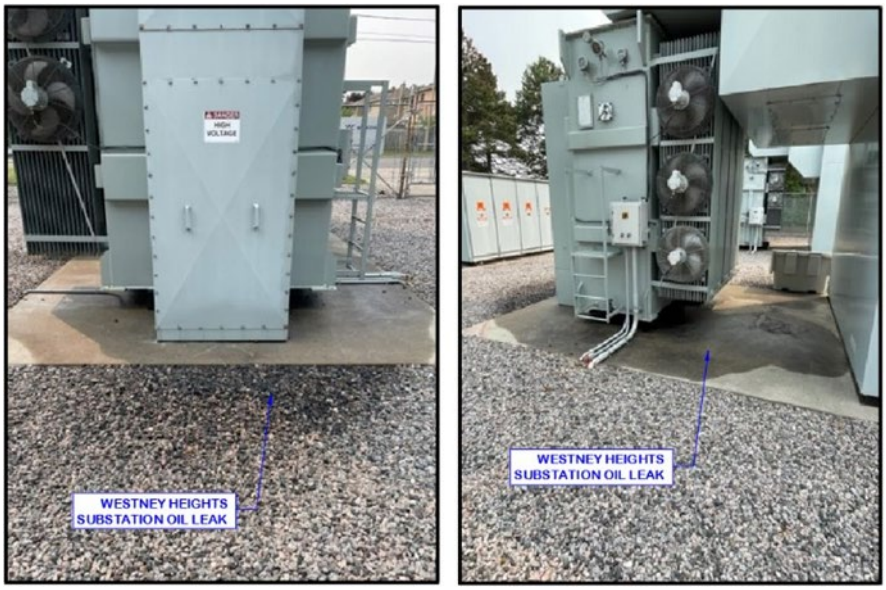
6.1.14 Westney Heights MS Full Rebuild

**Project Drivers**

Westney Heights MS plays a critical role in the Ajax region, providing backup supply to three other municipal substations. Its continued operation is essential for maintaining system reliability and minimizing extended customer outages. Westney Heights MS supplies approximately 7,000 Customers. The drivers for a project are:

- **Power Transformer:** Transformer T1 is 35 years old and its current health index is 64%, classifying it in fair condition. The secondary winding resistance testing of Transformer T1 indicated readings that exceed acceptable NETA standards and analysis of past reports indicate the same results. This could be indicative of internal mechanical damage or defective components of the transformer. Transformer T2 is 34 years old and its current health index is 60%, classifying it in fair condition. This unit has experienced an oil leak as shown in Figure 16. Despite the leak being repaired, residue oil continues to be observed. The power transformer is the most critical asset in a station and has the longest lead time to procure, which warrants replacement consideration when it reaches fair condition. A failure of this transformer jeopardizes the reliability of the system in the Ajax region. The previous oil leak and the transformer failure risk is sufficient to warrant replacement of the transformers.
- **Circuit Breakers:** All four circuit breakers are 44 years old and will exceed their TUL before the end of the 2027-2031 rate period.
- **Cable:** The majority of the four feeder and four transformer cables are between 34 and 35 years old and will reach their TUL by the end of the 2027-2031 rate period. Five cables have health index values below 10%, classifying them in very poor condition. One cable has a health index value below 50%, classifying it in poor condition,. The deteriorated state of all cables significantly increases the risk of multiple failures, which could result in customer outages and increased restoration times.
- **Switchgear:** The two incoming 44kV supplies for the station each connect to metal enclosed switchgear. The two sets of metal enclosed switchgear have HI values below 36% classifying them in poor to very poor condition. These components are critical for supplying customers and operational flexibility. Their current condition represents a significant reliability risk.

**Figure 16: Oil Leak on Transformer WESTNEY HEIGHTS-T2**




- **High Voltage Switch:** The 44 kV line switches are 43 years old and will exceed their TUL before the end of the 2027-2031 rate period.
- **Oil Spill Containment:** There is no spill containment around the two transformers to contain the transformer oil if there is a tank rupture.

**Project Scope and Benefits**

Elexicon is proposing a full rebuild of Westney Heights MS. Based on the drivers mentioned above including the overall age and condition of the assets at the station, the obsolescence of the existing assets, and the challenges of individual asset replacement at this brownfield site, a full rebuild was determined to be the most cost effective, efficient, reliable and safest method of execution. A full rebuild of Westney Heights East will:

- Mitigate station failure risks.
- Address station environment issues.
- Improve station reliability and operational efficiency.

**Project Cost**

Table 26 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 26: Forecast Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Westney Heights | - | - | - | - | 4.74 |

# R2 UNDERGROUND SYSTEM RENEWAL

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $18.02M | 2025-2026 Plan: $0.53M | 2027-2031 Forecast: $84.15M |
| Primary Driver: Failure Risk | | |
| Secondary Drivers: Reliability, Safety | | |
| Outcomes: Customer Focus, Operational Effectiveness – Reliability, and Operational Effectiveness – Safety | | |
| Segments: Underground Transformers, Underground Cables, Underground Switchgear | | |

Elexicon's Underground System Renewal program is a strategic investment designed to proactively replace, and where appropriate, rejuvenate, high-risk, aging, and poor to very poor condition underground infrastructure that has exceeded its Typical Useful Life (TUL) or will exceed by 2031. The program addresses underground equipment, including underground cables, transformers, and switchgear that have been identified as being in a degraded condition or that have significantly contributed to system reliability challenges. Replacing these assets with standardized underground equipment will reduce the risk of outages, enhance system resiliency, improve operational performance and efficiency, and prepare the system for the demands of electrification and load growth.

A primary driver for this investment is failure risk, as defective equipment has been the leading cause of Customer Hours Interrupted (CHI) excluding Loss of Supply and Major Events, contributing approximately 30% of total CHI from 2020 to 2024. Within this category, underground infrastructure represents approximately 39% of CHI, highlighting the ongoing impact of aging underground assets. Specifically, underground cable failures accounted for approximately 41% of all underground equipment failures. Elexicon's underground cable population also contains direct-buried first generation cross-linked polyethylene (XLPE) cables, which due to manufacturing impurities and aging insulation, have greater susceptibility to water and electrical treeing, which can lead to frequent failures and prolonged restoration times.

The program also addresses reliability and safety issues through the replacement of legacy equipment. This includes the replacement of non-switchable transformers with switchable models, improving

sectionalizing capabilities and enabling faster service restoration. Additionally, live-front underground switchgear and transformers — which pose heightened safety risks due to exposed energized components — will be replaced with insulated dead-front designs, significantly improving worker safety.

To mitigate risks, the program prioritizes a balanced approach to underground renewal, incorporating cable rejuvenation and targeted replacements. The investment includes transitioning from legacy XLPE direct buried cables to tree-retardant XLPE (TR-XLPE) cables installed in polyvinyl chloride (PVC) conduit. This approach allows an entire cable, from one device to another that has experienced a failure, to be replaced instead of being reactively repaired through splicing. If a cable within a PVC conduit fails, it can be fully replaced by pulling new cable through the existing duct. This complete replacement is a more prudent solution than splicing in a new segment at the failure point, which would leave the remaining aging direct buried cable segments in service where cable degradation can continue and increase the likelihood of another insulation failure.

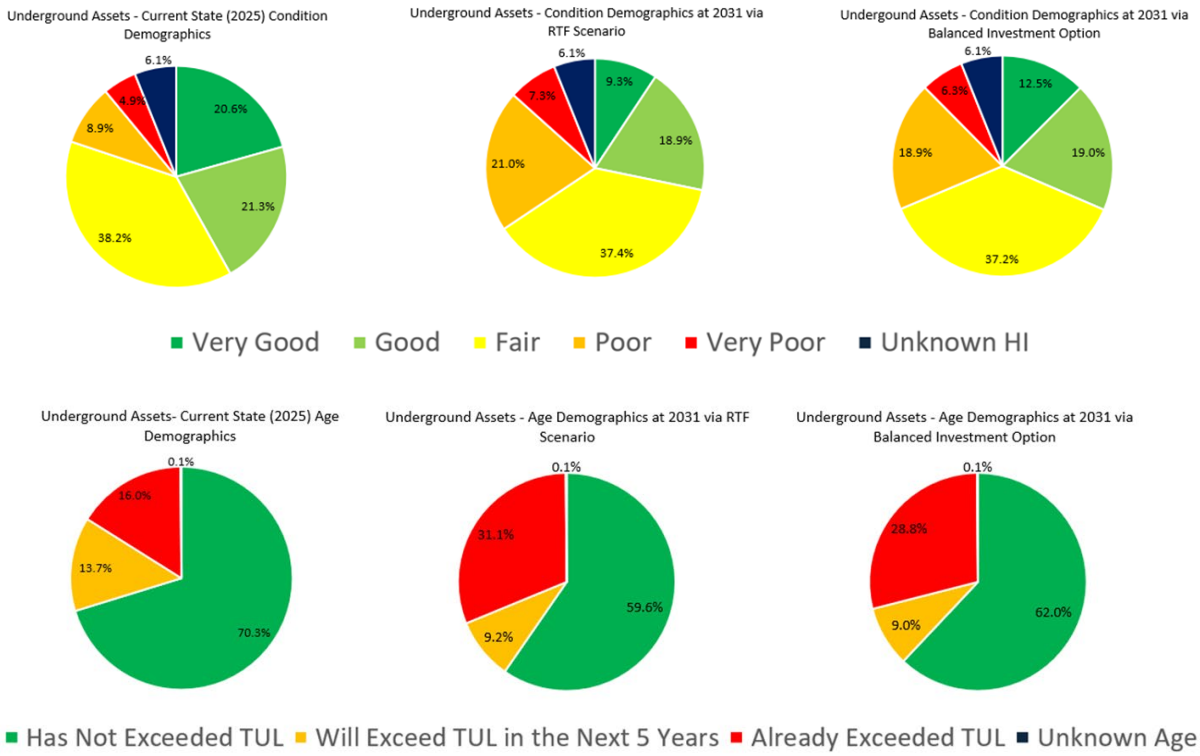
Total forecasted investment within the Underground System Renewal program is $84.15M from 2027 to 2031. Investments will ramp up over this period, and through executing a phased renewal strategy, Elexicon ensures that resources are efficiently allocated while balancing affordability for customers. Through a structured and risk-based approach, Elexicon will replace aging and high-risk underground assets, ensuring long-term service while reducing the frequency and impact of future outages.

The execution of this investment program will enable Elexicon to balance the needs of the underground system with customer rate affordability, while also considering available resources and system constraints. Currently, 14% of underground assets are rated as Very Poor or Poor condition. By the end of 2031, this amount is expected to grow to 25% in the balanced investment option, as opposed to 28% under the run-to-fail scenario.

In addition, this program will also manage the proportion of assets that have already exceeded or will exceed their TUL. Currently, 30% of underground assets have already exceeded or will exceed their TUL in the next 5 years. By the end of 2031, this amount is expected to grow up to 38% in the balanced investment option, as opposed to 40% under the run-to-failure scenario (with no capital investment taking place).

Figure 1 illustrates the forecasted summary of age and condition demographics results as per the run-to-fail and proactive Balanced investment options.

**Figure 1: Summary of Underground Age (TUL) and Condition Demographics Results**




## 2. INVESTMENT DESCRIPTION

**Table 1: Program Segments**

| | |
|---|---|
| Underground System Renewal | Underground Cables (Direct-Buried, Cables-in-Conduit) |
| | Underground Transformers (Padmount, Submersible & Vault Transformers) |
| | Underground Switchgear (Padmount Switchgear, Multiplex Junction Units) |

Elexicon's Underground System Renewal program is designed to target the replacement of high risk, aging and deteriorating underground equipment and accessories that have reached or exceeded their Typical Useful Life (TUL) or will exceed their TUL within the next 5 years, and are in poor or very poor condition.

Legacy underground infrastructure will be proactively replaced with new standardized underground equipment to reduce future reliability and safety risks. This will include either the replacement or rejuvenation through injection of direct-buried cables, which are known to contribute to reduced reliability and increased customer interruptions. It will also involve replacing live-front connection terminations and legacy dead-front transformer elbows, both of which present significant safety risks to field personnel.

Total investment within this program will be $84.15 from 2027 to 2031, which represents 30% of total investment within the System Renewal portfolio. Key segments within the Underground System Renewal program are identified in Table 1. The following subsections serve to provide further details on each program segment to be delivered over the DSP period (2027 to 2031).

## 2.1 Underground Cables (Replacement & Rejuvenation)

### 2.1.1 Underground Primary Cables

Underground primary cables are medium-voltage cables that distribute electricity from substations to local distribution networks, supplying residential, commercial, and industrial customers. These cables are located below ground and are either direct buried, within direct buried Polyvinyl Chloride (PVC) ducts, or in concrete encased ducts.

Elexicon's underground system consists of 2,624.2 km of underground primary cables, of which 44% are in Poor or Very Poor condition, and 49% have already exceeded their TUL or are expected to do so by 2031. To address this, Elexicon will target the prioritized replacement of approximately 89.5 km of underground primary cables and 2.7 km of submarine cables (cable replacement is approximately $55.98M in total), along with rejuvenating 100.0 km of cables that have not exceeded their TUL and are in Poor or Very Poor condition (cable rejuvenation is approximately $14.36M).

Replacement of underground primary cables will be managed in either a targeted approach or as part of a broader area rebuild. Broader area rebuild projects are ideal when a combination of conditions within a concentrated geographical area makes it necessary or economically prudent to reconstruct an entire section of the system. For instance, areas with a high concentration of assets at risk of failure will be addressed through targeted underground rebuild projects. If adjacent underground equipment is also

found to be in in Poor or Very Poor condition, both cables and associated infrastructure will be replaced as part of a comprehensive area rebuild.

The specific activities within this segment include:

- Cable Replacement: The replacement of underground cables that are beyond repair, ensuring compliance with modern standards and improved system performance.
- Cable Rejuvenation: The injection of specialized compounds into aging cables that have not exceeded their TUL and are in Poor or worse condition to extend their operational life, reducing the need for immediate replacement while improving insulation properties.

By proactively replacing or rejuvenating these underground primary cables, Elexicon aims to:

- Reduce the risk of outages associated with those assets that are in Poor and Very Poor condition and past their TUL,
- Reduce the risk of safety-related events by replacing legacy infrastructure with standardized equipment
- Mitigate the risks associated with degraded direct-buried cables, by replacing these with new cables-in-conduit, where the entire cable segment can be replaced device-to-device with a new cable segment rather than being reactively repaired by excavation and splicing.
- Restore reliability to targeted performance levels by minimizing the risk of unexpected failures and outages.
- Support future growth and electrification needs by upgrading aging cables to accommodate increasing load demand.

This program will manage the intervention of legacy first-generation cross-linked polyethylene (XLPE) cables that are direct-buried. When direct-buried cables fail, the reactive response is to locate the fault, excavate and remove the damaged section of cable, and install a spliced piece of new TR-XLPE cable to reinstate the aged first-generation XLPE cable to service. This represents a “band-aid” intervention, where the degradation may continue propagating within the remaining aged XLPE cable sections, increasing the risk of future failures and outages. Between 2020 and 2024, underground primary cable failures accounted

for 84% of UG Defective Equipment Failure CHI, excluding Major Event Days (MEDs) and Loss of Supply (LOS) events, with most of these failures attributed to direct-buried cables. This highlights the urgent need for systematic replacement of legacy underground cables to mitigate reliability risks and reduce long-term outage impacts.

These cables will be replaced with new TR-XLPE cables in PVC conduit infrastructure (cables-in-conduit). When cables-in-conduit fail, the entire cable segment from device to device can be replaced with brand new cable, meaning that the degradation can no longer spread and is effectively removed from the system. TR-XLPE cables are more resilient and robust when compared to XLPE cables, as they have been manufactured using "super-smooth, super-clean" ("SS/SC") manufacturing techniques, which greatly reduce the risk of impurities forming an interstitial impurity defect within the insulation material during the manufacturing process.

Cable rejuvenation represents an alternative intervention strategy that can be performed to extend the life of direct-buried underground cables. This strategy involves the injection of specialized compounds within the cable stranded conductor wire core, which then migrates into the cables' conductor shield and insulation material. These specialized compounds react with water within the cables' water trees to fill in the voids and restore the cable insulations' dielectric strength. Ultimately, this injection procedure mitigates the risks of future voids, water trees, and other impurities that may exist within the insulation.

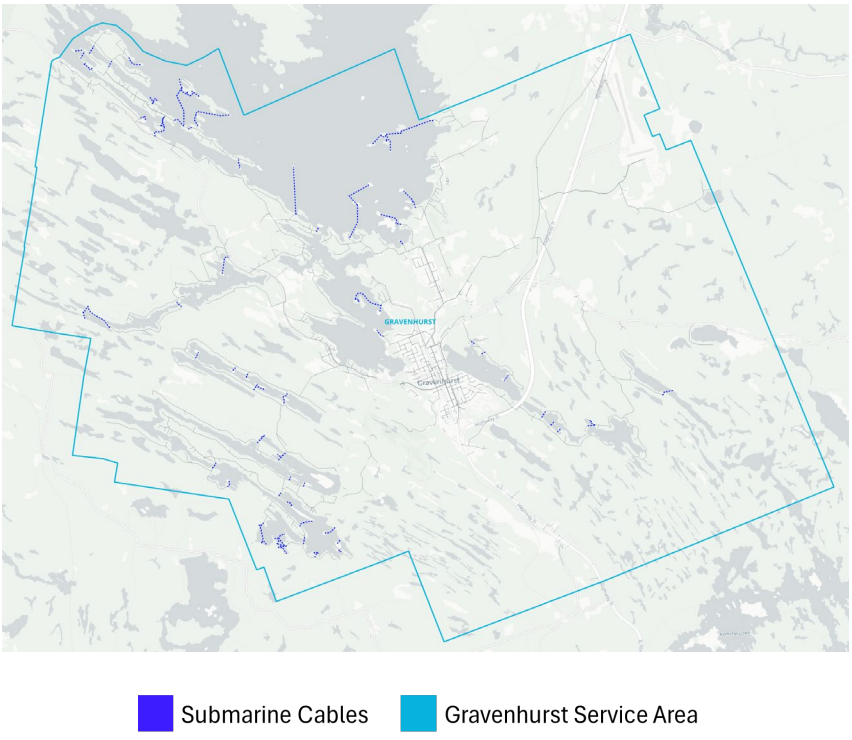
Cable rejuvenation is performed by a third-party contractor on cables which are tested to assess the overall condition of the cable segments and elbow connections, thereby ensuring that the cables are viable candidates for injection. During the testing procedure, a time-domain reflectometry (TDR) test is performed to ensure that the cable to be rejuvenated is free of any cable splices, which can block the propagation of the specialized compounds within the cable. Any identified cable splices are excavated and removed prior to the rejuvenation procedure. Direct-buried cables that have been tested and found to have insulation degraded beyond the point of effective rejuvenation will be targeted for full replacement with new cables installed in ducts.

### 2.1.2 Submarine Cables

Submarine cables are specialized power cables that are installed beneath bodies of water, such as rivers, lakes, or bays, to connect different parts of Elexicon's distribution system. These cables are designed to withstand underwater conditions, including water pressure, temperature variations, and mechanical stresses, ensuring the continuous delivery of electricity to areas separated by water.

Submarine cables play a critical role in providing power to customers in geographically separated areas, specifically in the Gravenhurst service area. They serve as essential links in the network, enabling reliable power distribution where overhead and traditional underground cables are not feasible.

**Figure 2: Elexicon's Submarine Cables**




Of the 25.6 km of submarine cables still in service, 62% of these cables have reached or exceeding their TUL or will exceed their TUL by 2031, and 11% of these cables are in Poor or Very Poor condition, increasing the risk of failure and potential service disruptions. Factors such as water ingress, insulation breakdown,

corrosion, and mechanical stress contribute to their degradation over time. When these cables fail, repairs are complex, costly, and time-consuming, often requiring specialized marine equipment and coordination with environmental agencies.

Elexicon plans to invest $1.16M to replace 2.7 km of submarine cables. By proactively replacing aging and deteriorated submarine cables, Elexicon aims to:

- Ensure continued reliability and minimize power interruptions for customers dependent on these connections.
  Reduce maintenance costs and emergency repairs, as reactive repairs are significantly more expensive and disruptive.
  Upgrade to modern, more resilient cable designs that offer improved insulation, durability, and environmental protection.

## 2.2 Underground Transformers

### 2.2.1 Padmount Transformers

Elexicon's underground system consists of 14,770 padmount transformers, of which 7.3% are in Poor or Very Poor condition, and 25% have already exceeded their TUL or will do so by 2031. To address this, Elexicon is investing $5.55M from 2027 to 2031 replace approximately 332 padmount transformers that have exceeded their TUL and are in poor or very poor condition. Padmount transformers are installed at grade level and used within the underground distribution system to step down primary voltage to secondary voltage levels suitable for customer use. These transformers play a crucial role in ensuring safe and reliable power delivery, particularly in urban and suburban areas where underground infrastructure is used to eliminate overhead lines.

As part of this program, legacy transformer elbows used to terminate and connect underground cables to padmount transformers will also be replaced. These older-style elbows pose safety risks due to the potential risk of flashovers when disconnected or reconnected while energized. The new standardized elbows are designed to mitigate this flashover risk, as these elbows can be safely connected or

disconnected while energized. Replacing these components will help mitigate potential electrical hazards for field crews and improve the safety and reliability of Elexicon's distribution network.

Elexicon will also replace legacy live-front padmount transformers, which have exposed bushings and require direct manual operation, increasing the risk of accidental contact and arc flash hazards. Live-front designs present higher safety risks for field crews, as energized components are not fully shielded. In contrast, dead-front padmount transformers feature fully insulated and enclosed connections, reducing exposure to live components and enhancing worker safety.

Additionally, non-switchable padmount transformers connected to the 27.6 kV system will be replaced with switchable transformers utilizing load-break switches, allowing for switching to be performed under load to enhance operational flexibility, safety, and system reliability. Non-switchable transformers require a full power shutdown within an underground distribution loop to perform replacements or maintenance activities, leading to a greater number of customers experiencing the resulting outage event. Conversely, switchable transformers allow crews to perform switching and isolation at both ends of the transformer, meaning that only the customers directly connected to the transformer will experience the unplanned or planned outage event, while all other customers within the underground distribution loop can remain energized.

Through this targeted investment, Elexicon aims to minimize power interruptions, enhance safety, and modernize aging infrastructure to align with current system standards and operational best practices.

**Figure 3: Padmount Transformer**




### 2.2.2 Vault Transformers

Elexicon's underground system consists of 655 vault transformers, of which 50% are in Poor or Very Poor condition, and 52% have already exceeded their TUL or will do so by 2031. Of the vault transformers in Poor or Very Poor condition, approximately 204 are in Pickering and 95 in Belleville, while the remaining 30 units are distributed across Ajax, Bowmanville, Port Hope and Whitby. To ensure continued service reliability, Elexicon is investing $0.95M from 2027 to 2031 to proactively replace approximately 32 of these transformers that have exceeded their TUL and are in poor or very poor condition, minimizing the risk of unexpected failures and service interruptions.

Vault transformers are housed within civil vaults located on customer properties or under roadways/sidewalks. These transformers are used to step down primary voltage from the distribution system to a lower voltage suitable for commercial, industrial and residential customers. Unlike traditional padmount transformers, vault transformers are enclosed within dedicated vault structures, which provide protection and containment while requiring specialized access for maintenance and replacement.

Vault transformers are critical components of Elexicon's distribution system, particularly in urban and high-density areas where traditional overhead or padmount transformers are not feasible. Elexicon plans to replace high-risk vault transformers that have surpassed their TUL and are in poor or very poor condition, posing an increased risk of failure. These transformers, located within civil vaults on customer properties,

present maintenance challenges due to accessibility constraints, requiring specialized coordination for servicing and replacements. Additionally, these units can experience insulation breakdown, overheating, and structural degradation as a result of prolonged service life, further increasing the likelihood of failure and system disruptions.

**Figure 4: Vault Transformer**



## 2.3 Underground Switchgear

Elexicon's system consists of 457 underground switchgear, including padmount switchgear and multiplex junction units (MJUs), of which approximately 1.1% are in Poor or Very Poor condition, and 20% have already exceeded their TUL or will do so by 2031. To ensure continued service reliability, Elexicon will invest $7.3M from 2027 to 2031 to proactively replace 5 padmount switchgear units and 40 MJUs (with padmount switchgear) that have exceeded their TUL and are in Poor or Very Poor condition, minimizing the risk of unexpected failures and service interruptions.

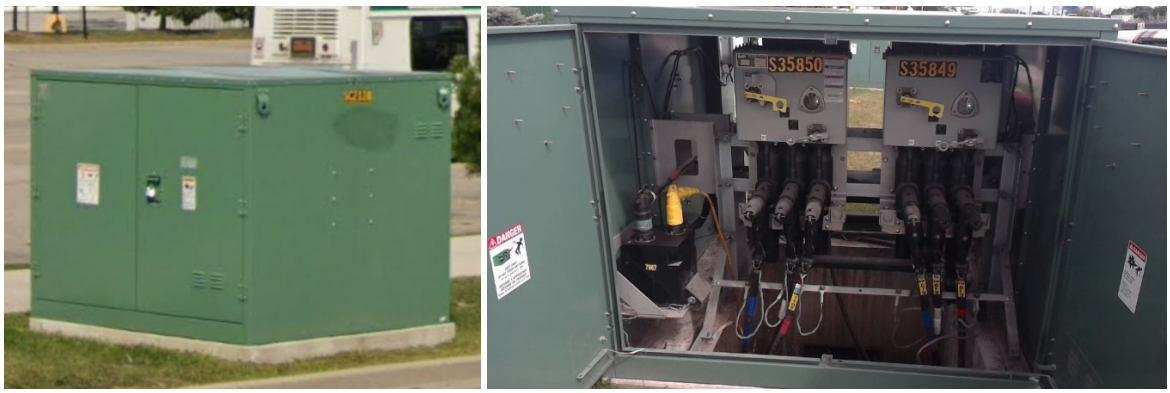
Padmount switchgear is used to control, protect, and isolate electrical circuits within Elexicon's underground distribution network. It allows for safe switching operations, enabling power to be redirected in response to faults, maintenance, or load balancing. Typically installed in padmount enclosures,

underground switchgear plays a key role in managing the flow of electricity within the distribution system while ensuring safe and efficient operation.

Padmount Switchgear is essential for maintaining system reliability and operational flexibility. It allows Elexicon to quickly isolate faults, preventing widespread outages and minimizing customer impact. Additionally, it supports efficient power restoration by enabling manual switching, reducing downtime when issues occur. Without properly functioning switchgear, fault isolation becomes more challenging, leading to longer outages and increased operational risks.

The Underground System Renewal program aims to replace legacy air-insulated padmount switchgear (as illustrated in Figure 5) with new dielectric padmount switchgear. Existing air-insulated padmount switchgear can be easily contaminated internally, which can result in a catastrophic flashover event. To avoid this risk, these assets must be regularly cleaned and maintained. New dielectric switchgear is fully sealed and is not subject to the same level of risk of internal contamination. These new standardized assets require only visual inspections, and do not require extensive cleaning, thus optimizing future maintenance expenditures.

**Figure 5 Dielectric Switchgear**




Elexicon will also replace live-front padmount switchgear, which have exposed bushings and require direct manual operation, increasing the risk of accidental contact and arc flash hazards. Live-front designs present higher safety risks for field crews, as energized components are not fully shielded. These assets contain outdated insulation that can introduce an elevated risk of an arc-flash event. These elevated safety

risks introduce further complexities and increase the length of time needed to perform day-to-day maintenance activities. Within the scope of this program, Elexicon will replace these assets with standardized dead-front padmount switchgear, which feature fully insulated and enclosed connections, reducing exposure to live components and enhancing worker safety. Unlike live-front padmount switchgear, dead-front switchgear is easier to maintain and fully compatible with newer system upgrades. By replacing these aging assets, Elexicon can mitigate the risk of future asset failures and safety risks towards field crews and customers.

MJUs were traditionally used to connect and distribute power within the underground system, facilitating terminations and branching. However, these legacy units lack modern protective and switching capabilities, making them less effective for system control and fault isolation. Over time, MJUs have become increasingly difficult to maintain due to aging infrastructure, insulation degradation, and mechanical wear. They do not support remote operation or automation, requiring manual intervention for reconfirmation and fault isolation, which can lead to longer outage durations and increased operational risks. Additionally, these units provide limited fault protection, increasing the risk of widespread service disruptions when failures occur.

These MJUs are either replaced or reconfigured on a case-by-case basis. One scenario is to replace these assets with standardized padmount switchgear, which possess modern protective and switching capabilities, which will provide enhanced operational flexibility for crews to perform switching, sectionalizing and isolation functions during an outage event. Certain locations along the feeder trunk will be SCADA-enabled, allowing for remote operation and faster customer restoration. An alternative scenario is to reconfigure these locations, by removing the MJU entirely and reconfiguring the cables in the location. This scenario is considered when additional switching capability is unnecessary and is a lower cost alternative to replacing the MJU with a padmount switchgear.

**Figure 6: Multiplex Junction Units (MJUs)**




## 2.4 Summary of Investment Outcomes and Benefits

Table 2 provides a summary of outcomes and benefits achieved by the Underground System Renewal program. Key program outcomes, including Customer Focus, Operational Effectiveness – Reliability, and Operational Effectiveness – Safety, are further described in Table 2, and further detailed and defined in Section 3.

**Table 2: Program Investment Benefits & Objectives**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Focus | • Customer impacts are mitigated through the proactive replacement of underground infrastructure that is high risk, past their TUL and in Poor or Very Poor condition.<br>• Through the installation of SCADA-enabled switchgear as well as switchable transformers, sectionalizing, isolation and restoration activities can be performed more rapidly, resulting in shorter customer duration impacts.<br>• Cable injection rejuvenation offers a cost-effective alternative to full cable replacement by restoring insulation integrity and dielectric strength, thereby reducing failure risk and lowering outage frequency. |
| Operational Effectiveness – Reliability | • Reliability impacts are mitigated through the replacement or rejuvenation of underground infrastructure that is high risk, past their TUL and in Poor or Very Poor condition.<br>• Outage management and response is improved through the installation of switchable transformers as well as SCADA-enabled underground switchgear.<br>• By replacing direct-buried XLPE cables with standardized TR-XLPE cables-in-conduit, Elexicon can mitigate the risks of future failures due to the enhanced cable properties of TR-XLPE, as well as the ability to remove the entire cable segment when it fails, as opposed to splicing (repairing) direct-buried cable, which represents a band-aid solution that can lead to future reliability impacts. |
| Operational Effectiveness – Safety | • Replacement of legacy transformer elbows as well as live-front underground transformers and switchgear will result in the mitigation of potential safety risks, while also bringing these locations into full alignment with Elexicon's current policies and practices. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

Elexicon's Underground System Renewal program is designed to target the replacement of high risk, aging and deteriorating underground infrastructure that are already at or exceeding their TUL and are in poor or very poor condition. This includes the replacement or rejuvenation of legacy underground direct-buried XLPE cables, the replacement of underground transformers as well as live-front switchgear.

This program is primarily driven by the need for the utility to manage failure risk within their distribution system which is predominantly found in those assets that are at or have exceeded their TUL (age), are in Poor or Very Poor condition based upon the in-field inspection & testing results (condition) and have a high criticality of failure (risk). Through proactive replacements, this program is aimed at mitigating the risk of underground asset failures, which accounted for 39% of total Defective Equipment CHI within the system from 2020 to 2024.

Secondary drivers for this program include Reliability and Safety. By replacing direct-buried underground cables with cables-in-conduit, and non-switchable transformers with switchable transformers, future outage impacts and durations can be reduced. Replacement of live-front underground transformers and switchgear can result in the mitigation of safety impacts to crews. Finally, the replacement of XLPE cables and MJUs with standardized equipment can allow for improvement to operating practices and procedures.

Primary and secondary drivers are further defined in Table 3.

**Table 3: Summary of Primary & Secondary Program Drivers**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| Primary Driver: Failure Risk | This program is primarily driven by the need to replace assets over the planning period from 2027-2031 which are:<br>• At, approaching or already exceeding their TUL (age)<br>• In Very Poor or Poor condition based upon in-field inspection & testing results (condition), and<br>• Carry a high criticality of failure (risk)<br>Cable injection and rejuvenation is an alternative to full cable replacement for select cables that provides restored insulation properties and dielectric strength, reducing failure risk and outage frequency. |
| Secondary Driver: Reliability | Through replacement of assets at end-of-life (based upon age, condition and risk), Elexicon expects through this program that future outage events and frequency of reliability impacts can be mitigated within the underground system. Through the installation of switchable transformers and SCADA-enabled underground switchgear, grid reliability and resiliency for customers will be improved. |
| Secondary Driver: Safety | Through the replacement of live-front equipment, including live-front underground transformers and switchgear, with new dead-front equipment, Elexicon can ensure that all energized components are fully shielded, thereby minimizing the safety risks for crews associated with live components. |

## 3.2 Underground System Failure Risk

The Underground System Renewal program is primarily driven by the need for the utility to manage and address the risk of asset failure within the underground distribution system.

To prioritize assets for intervention, Elexicon will consider age, condition and critically results as part of their broader AM planning process (as detailed in Exhibit 2B – Tab 3 – Schedule 1). Figure 7 illustrates the breakdown of underground distribution assets that are already past their TUL, will exceed TUL in 5 years and will not exceed their TUL. This figure illustrates that 16% of underground assets have already exceeded their TUL, with an additional approximately 14% of underground assets projected to exceed their TUL

within the DSP planning period, requiring the utility to proactively respond to manage the risk of asset failure.

**Figure 7: Underground Distribution Asset Demographics Results by Quantity (%)**

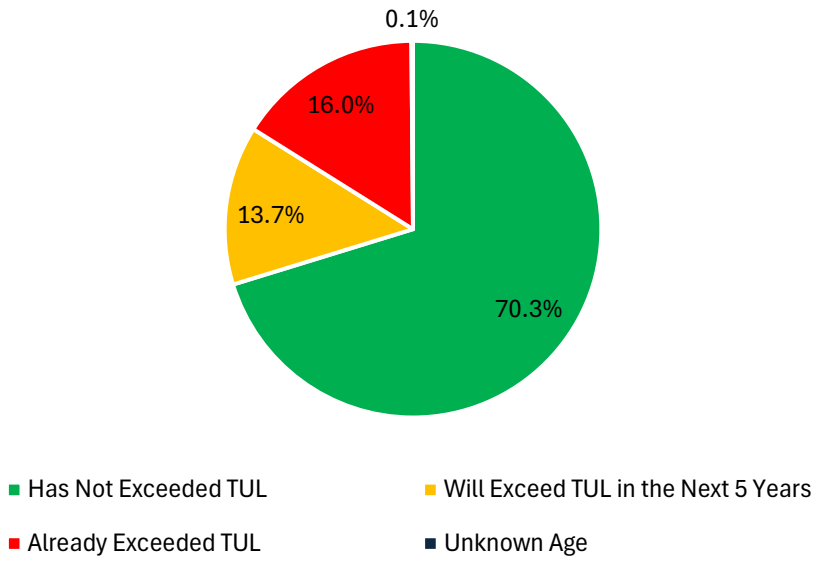



Table 4 further illustrates the breakdown of underground distribution asset demographics across the asset classes.

**Table 4: Underground Distribution Asset Class Demographics Results by Quantity (%)**

| Asset Class | Typical Useful Life | Asset Demographics Results (%) | | | |
|---|---|---|---|---|---|
| | | Has Not Exceeded TUL | Will Reach TUL in 5 Years | Already Exceeded TUL | Unknown |
| Underground Primary Cables (km) | 25-40 | 50.7% | 10.3% | 38.7% | 0.0% |
| Submarine Cables (km) | 25 | 8.8% | 0.0% | 62.2% | 29.0% |
| Padmount Transformers | 40 | 74.5% | 14.7% | 10.7% | 0.0% |
| Vault Transformers | 35 | 48.1% | 7.0% | 44.9% | 0.0% |
| Submersible Transformers | 35 | 85.2% | 3.7% | 0.0% | 11.1% |
| Padmount Switchgear | 30 | 79.2% | 9.4% | 10.7% | 0.7% |

Figure 8 further illustrates the breakdown of underground distribution assets that are in Very Poor, Poor, Fair, Good and Very Good condition as established by the ACA framework. These results indicate that 4.9% are in Very Poor, 8.9% are in Poor, and 38% of assets are in Fair condition respectively, and will require intervention over the next 10-year period.

**Figure 8: Underground Distribution Condition Demographics by Quantity (%) based upon 2025 ACA Results**

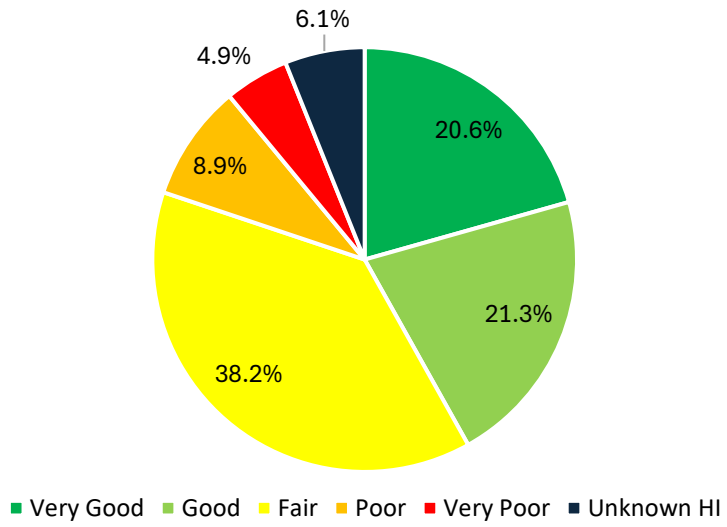



Table 5 further illustrates the current-state condition demographics snapshot for all underground distribution assets across the individual Health Index (HI) categories – from Very Good to Very Poor. Those assets that receive an "Unknown HI" result include new assets that have yet to be inspected, as well as those assets that possess an insufficient amount of available inspection data at the time of the assessment.

**Table 5: Underground Distribution Asset Condition Demographics Results (%) based upon 2025 ACA Results by Asset Class**

| Asset Class | Total Population[1] | Assets Investments (2027-31) | Extrapolated Health Index Distribution (%)[2] | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Very Good | Good | Fair | Poor | Very Poor | Unknown HI |
| Underground Cables (km) | 2,624 km | 89.5 km replaced, 100 km rejuvenated | 22% | 9% | 25% | 17% | 27% | 0% |
| Submarine Cables (km) | 25.6 km | 2.7 km | 22% | 16% | 13% | 8% | 2% | 39% |
| Padmount Transformers | 14,770 | 332 | 20% | 24% | 42% | 7% | 0% | 7% |
| Vault Transformers | 655 | 32 | 1% | 22% | 27% | 24% | 26% | 0% |
| Submersible Transformers | 27 | 0 | 7% | 78% | 4% | 0% | 0% | 11% |
| Padmount Switchgear & MJUs | 457 | 45 | 54% | 18% | 10% | 1% | 0% | 17% |

Table 6 illustrates the forecasted outcomes to underground asset condition demographics as a result of executing this program.

[1] Minor differences to be expected between ACA population count and other data sources due to data analysis and assumptions process.
[2] Results have been rounded – totals may not add up to 100% due to rounding

**Table 6: Underground Distribution Forecasted Asset Condition Demographics Results (%) by end of 2031 by Asset Class**

| Asset Class | Population [3] | Forecasted Health Index Distribution (%)[4] | | | | | |
|---|---|---|---|---|---|---|---|
| | | Very Good | Good | Fair | Poor | Very Poor | Unknown HI |
| Underground Cables (km) | 2,624 km | 18% | 13% | 14% | 20% | 35% | 0% |
| Submarine Cables (km) | 25.6 km | 32% | 16% | 13% | 0% | 0% | 39% |
| Padmount Transformers | 14,770 | 11% | 20% | 43% | 19% | 0% | 7% |
| Vault Transformers | 655 | 5% | 9% | 16% | 30% | 40% | 0% |
| Submersible Transformers | 27 | 7% | 26% | 56% | 0% | 0% | 11% |
| Padmount Switchgear & MJUs | 457 | 56% | 22% | 5% | 0% | 0% | 17% |

The following subsections serve to provide further details on individual asset classes contributing to Failure Risk within Elexicon's underground distribution system.

### 3.2.1 Underground Cables (including Underground Primary & Submarine Cables)

Underground primary cables are critical assets within the underground distribution system, responsible for delivering power from substations to customers. Approximately 8% of underground primary cables

[3] Minor differences to be expected between ACA population count and other data sources due to data analysis and assumptions process
[4] Results have been rounded – totals may not add up to 100% due to rounding

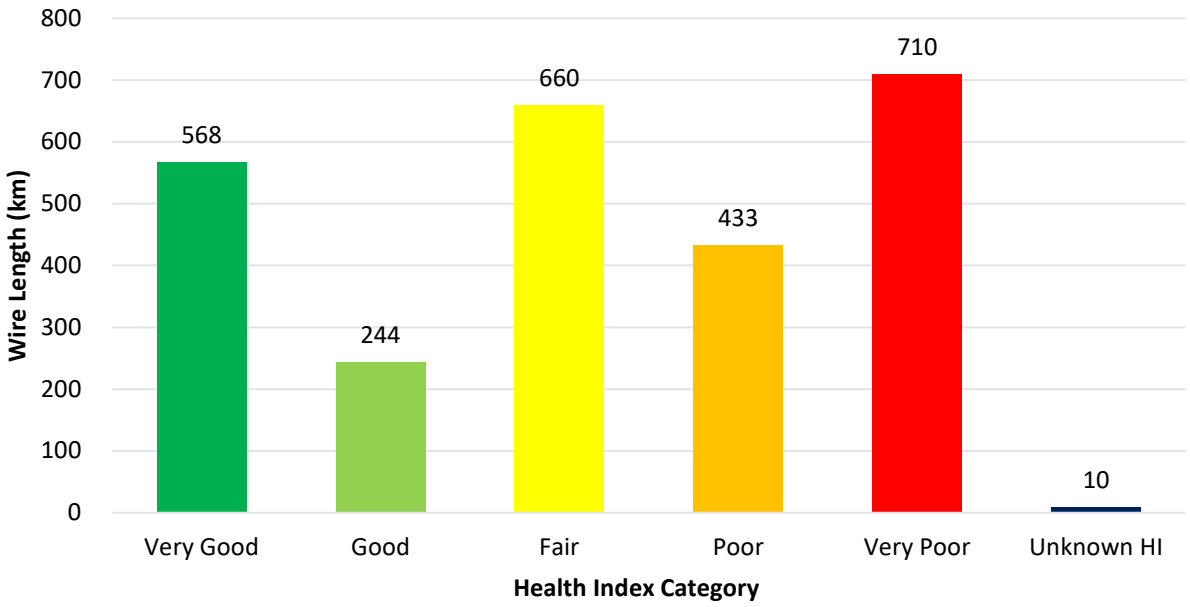
within Elexicon's system are first-generation XLPE cables, which were the only type of polymeric cables available at the time. Due to the manufacturing processes of the time, these cables were subject to contaminants and impurities, which have resulted in the elevated risk of water and electrical treeing, as well as partial discharge within the insulation – all of which will eventually result in the failure of the cable, resulting in customer outages.

Approximately 61% of underground primary cables within the system are directly buried, making fault locating, isolation and restoration activities more complex. The direct-buried installation of these assets prevents crews from fully replacing the cable during an outage event. Instead, the only reactive option is for crews to excavate the problematic location, remove the direct portion of failed cable, and install a polymeric cable splice in its place. This represents a "band-aid" solution, as the splice can become a future point of failure for the cable, and degradation may continue to spread within the adjacent segments of original XLPE cable segments that already have tree defects forming, resulting in additional outages over time.

Underground primary cables identified for intervention will either be replaced or rejuvenated via the injection of specialized compounds to extend their operational life. Ultimately, this injection procedure mitigates the risks of voids, water trees, and other impurities that may exist within the insulation. Where cable testing activities (as described in Exhibit 4 – Tab 1 – Schedule 4) identify that the cables' condition is too poor for injection to be beneficial, these cables will be fully replaced with new TR-XLPE cables in conduit infrastructure. Through full cable replacement, crews can optimise reactive underground cable failure response, eliminating the need for follow-up reactive repairs/splices. In addition, TR-XLPE cables are more resilient and possess a longer TUL compared to the legacy XLPE cable type. By replacing these cables with new standardized TR-XLPE cables-in-conduit, Elexicon can reduce the frequency of future outages. The conduit infrastructure allows for an entire failed cable segment to be removed from device-to-device, thereby eliminating the likelihood for cable segments to experience repeat failures due to insulation degradation. TR-XLPE cables are manufactured using super-smooth super-clean (SS/SC) manufacturing techniques, greatly reducing the risk of impurities that can penetrate the cables' insulation material during the manufacturing process, thereby resulting in a reduced failure risk.

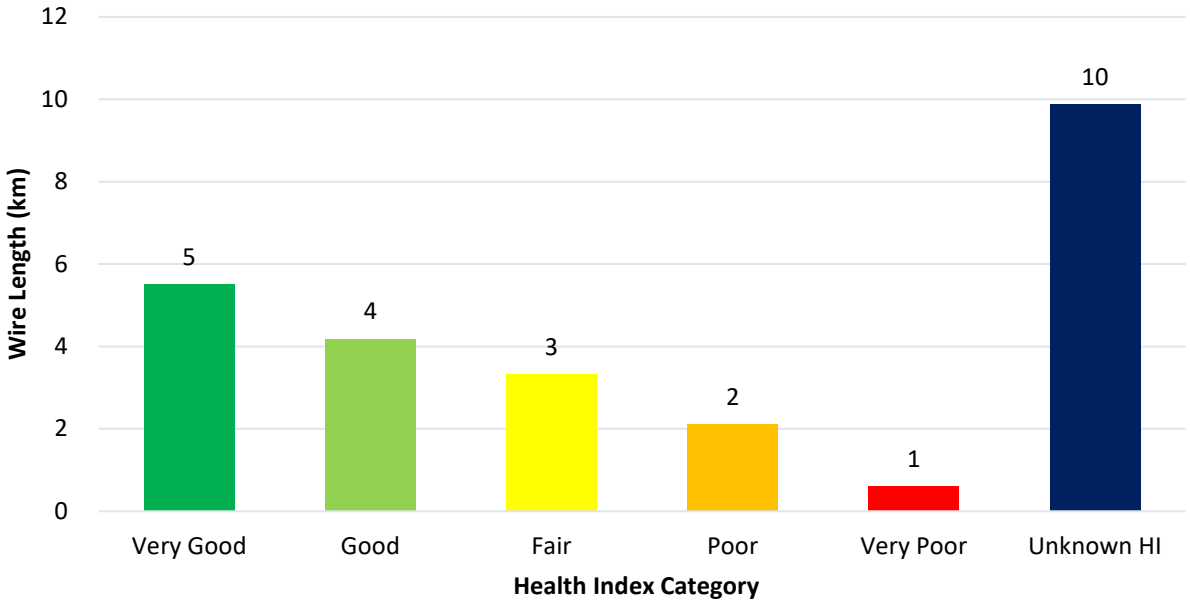
Approximately 27% of underground primary cables are in Very Poor condition, with an additional 17% in Poor condition. Figure 9 presents the breakdown of condition demographics for underground primary cables across Elexicon's system.

**Figure 9: Underground Primary Cable Condition Demographics Results (Quantity) based upon 2025 ACA Results**



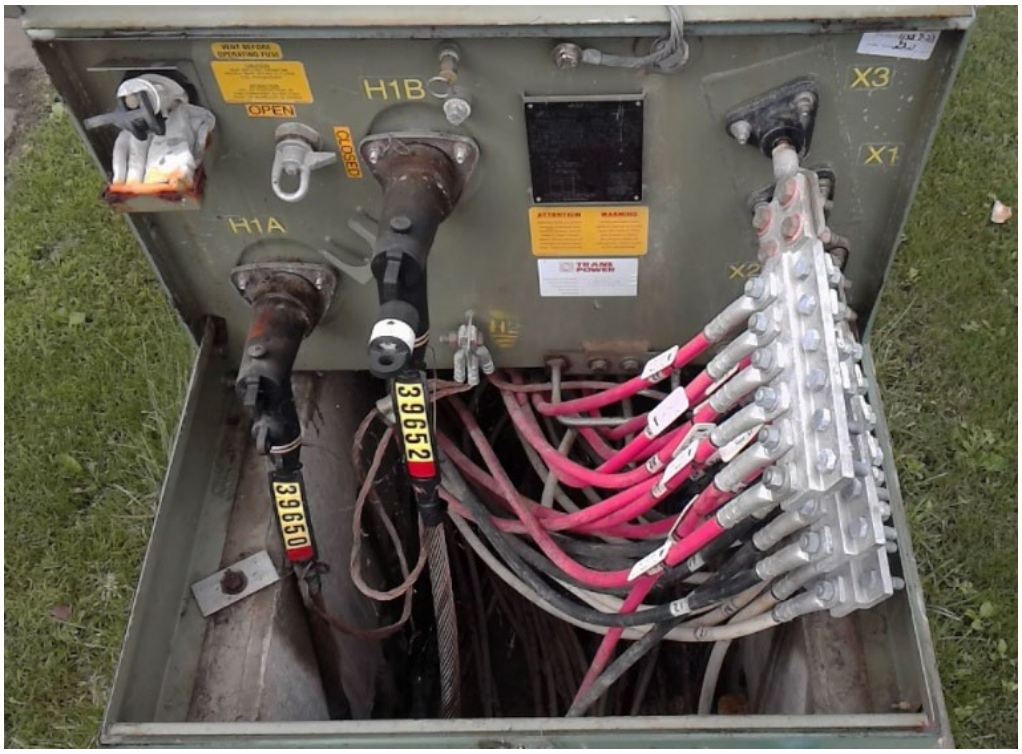

Elexicon's system also includes submarine cables, which are installed beneath bodies of water, such as rivers, lakes, or bays, to connect different parts of Elexicon's distribution system. Approximately 2.4% of submersible cables are in Very Poor condition, and an additional 8.2% of these cables are in Poor condition. 0 presents the breakdown of condition demographics for submarine cables across Elexicon's system. This program will target the replacement of 2.7 km of submarine cables where ACA results have been derived, and continued assessment of the submarine cable with unknown HI is planned.

**Figure 10: Submarine Cable Condition Demographics Results (Quantity) based upon 2025 ACA Results**



3.2.2 Underground Transformers (including Padmount, Vault & Submersible Transformers)

Figure 11: **Padmount Transformer with Open Enclosure & Connections**




Underground transformers are critical assets within the underground distribution system, responsible for stepping down primary voltage levels to secondary voltage levels suitable for the customer. As underground transformers are either installed below grade or at grade, they will be impacted by various degradation modes, including corrosion of the transformer tank, which can result in moisture penetration and oil leaks. As part of Elexicon's maintenance activities (further described in Exhibit 4 - Tab 1 - Schedule 4), when minor deficiencies are identified, such as loose elbow connections, secondary service termination tightness, damaged foundations, damaged locks, fading paint, or rust, the deficiency can be addressed on-site through the annual maintenance program. Major deficiencies which require replacement of the transformer will be addressed through this investment program, depending on the condition of the asset and severity of the deficiency. In some cases, deterioration of the supporting civil infrastructure (e.g.

submersible vault, pad foundation, duct banks) can contribute to the need to replace the entire transformer.

All distribution transformers generally consist of a winding core that is surrounded by paper insulation which is immersed in dielectric mineral oil. This mineral oil is designed to act as a dielectric medium, while also acting as a cooling agent within the transformer. The paper insulation is designed to insulate the windings within the transformer. As the transformer remains energized, the paper insulation will gradually breakdown within the mineral oil – this process is known as depolymerization and it will eventually result in the mineral oil turning into sludge, with its dielectric properties being significantly reduced. Once this occurs and the paper insulation has fully broken down, an internal winding fault can occur within the transformer, resulting in an internal failure. Should this failure occur violently, a catastrophic failure can occur. In the case of a padmount transformer, this can result in buckling of the pad enclosure. In the case of a submersible or vault transformer, a catastrophic failure could result in an explosion, leading to potential safety & environmental risks.

Underground transformer degradation due to environmental factors will generally be driven by the installation type associated with the transformer. For instance, vault transformers will experience the least degradation when compared to submersible and padmount transformers, since these are installed at grade within dedicated electrical rooms within a building or structure. Padmount transformers experience environmental degradation, with exposure to the outside elements year-round, since these are installed outside at grade level. Submersible transformers would experience the greatest environmental degradation, as these assets are installed outside, below grade level within underground enclosures, and therefore subjected to the greatest amount of contamination and moisture.

Figure 12, Figure 13, and Figure 14 illustrate the breakdown of padmount, submersible and vault transformers across the condition categories from Very Good to Very Poor. In total, approximately 7% of padmount transformers have been found to be in Poor or Very Poor condition. Approximately half of the population of Vault transformers have been found to be in Poor or Very Poor condition. In both cases, these transformer populations will need to be addressed within the 2027-2031 DSP planning period. It

should be noted that approximately 876 of the 1,028 padmount transformers with Unknown HI are less than 7 years old.

**Figure 12: Padmount Transformer Condition Demographics Results (Quantity) based upon 2025 ACA Results**

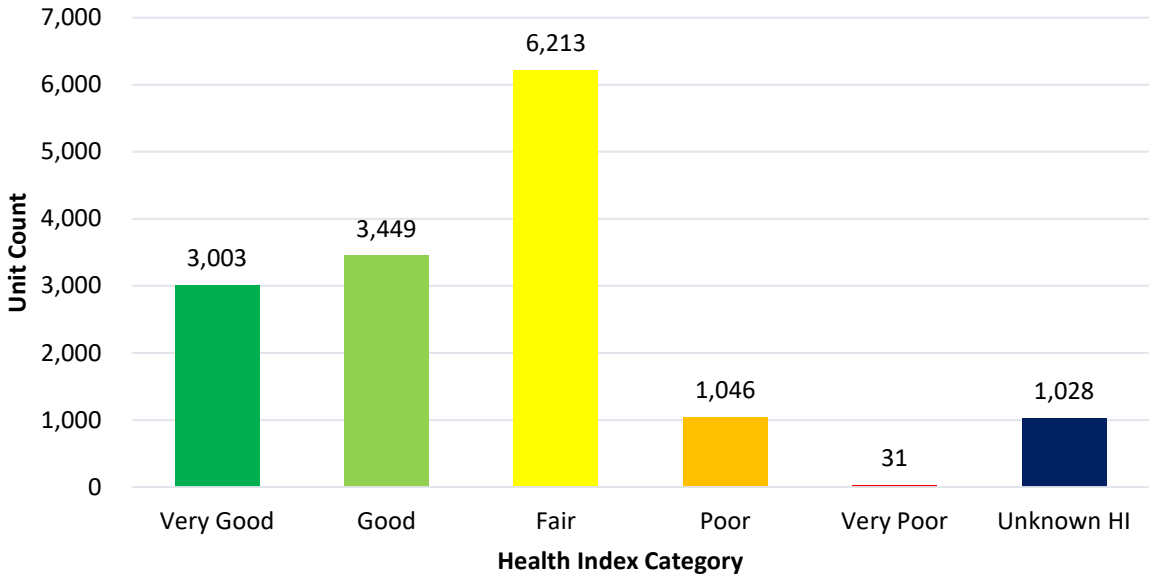


Figure 13: **Submersible Transformer Condition Demographics Results (Quantity) based upon 2025 ACA Results**

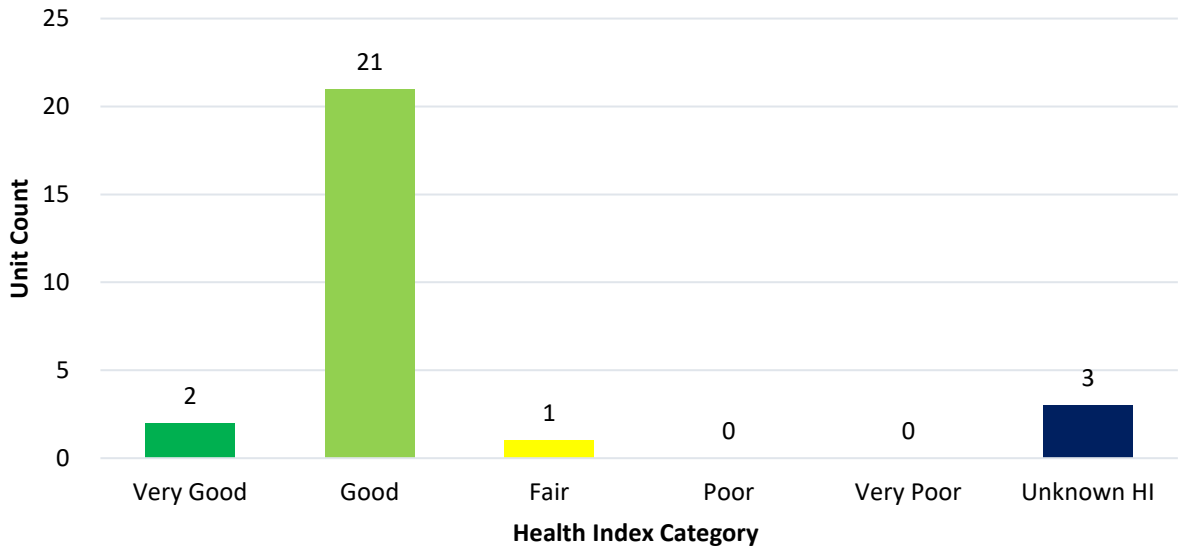
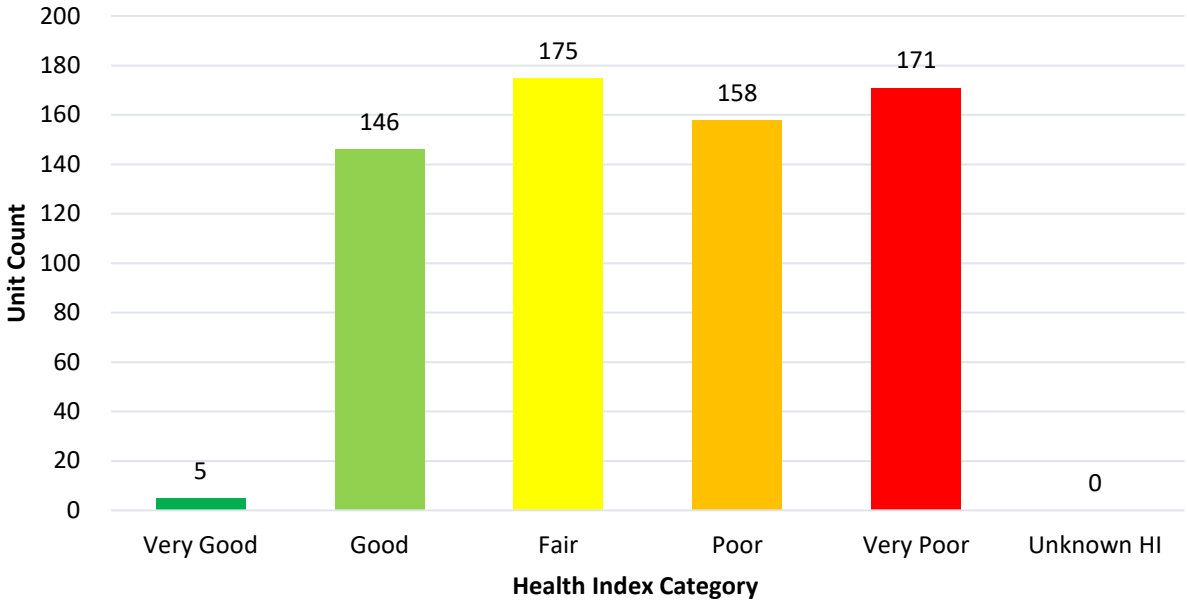



Figure 14: **Vault Transformer Condition Demographics Results (Quantity) based upon 2025 ACA Results**



### 3.2.3 Underground Switchgear

Figure 15**:** **Padmount Switchgear**



**Figure 16: Air-Insulated Padmount Switchgear**



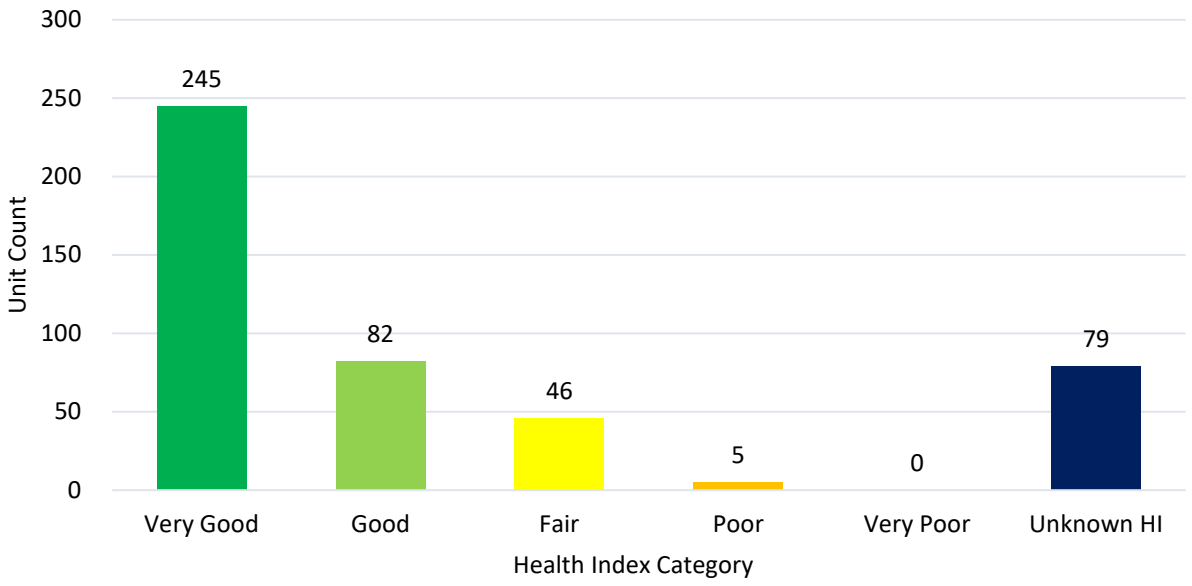

Underground switchgear represent a crucial asset class within the underground system, responsible for providing switching, isolation and protection functions within the system. Air-insulated padmount switchgear is the most susceptible to contamination, due to its open-air design and lack of sealing. As a result, these assets must be regularly inspected and cleaned to ensure optimal performance.

These assets will typically degrade over time due to physical deterioration of the pad enclosure, the internal workings of the switchgear, and in some cases the extent of deterioration to the concrete pad.

Preventative maintenance options for switchgear may include the replacement of components such as interphase barriers, arc chutes, and high-pressure cleaning.

Figure 17 illustrates the breakdown of underground switchgear across the condition categories from Very Good to Very Poor. Approximately 1% of underground switchgear have been found to be in Poor condition and will be replaced within the DSP planning period, and continued assessment of the padmount switchgear with unknown HI is planned.

**Figure 17: Padmount Switchgear Condition Demographics Results (Quantity) based upon 2025 ACA Results**




## 3.3 Underground System Reliability

When assessing Elexicon's historical reliability performance from 2020 to 2024, Defective Equipment was the leading cause of outages, accounting for 30% of total Customer Hours Interrupted (CHI) excluding Loss of Supply (LOS) and Major Event Days (MEDs). Within this category, underground (UG) equipment failures contributed significantly, resulting in 84,457 CI and 153,051 CHI over the period. Figure 18 and Figure 19 illustrate the year-over-year historical reliability and performance of Elexicon's underground system from

2020 onwards to 2024. These figures illustrate that underground cable failures remain the leading cause of reliability challenges within the underground system. When comparing these results to the Underground System Renewal investment profile as illustrated in Table 6, increased investment in underground renewal activities between 2020 and 2022 resulted in improved reliability performance beginning in 2022. As Underground Renewal investment declined in 2023, due to the need to complete necessary System Access investments from 2023 to 2024, including Customer Connections and Externally-Initiated Plant Relocation investments, reliability degraded again in 2023.

**Figure 18: Underground System SAIDI (Excluding LOS & MEDs) Distribution by Year**

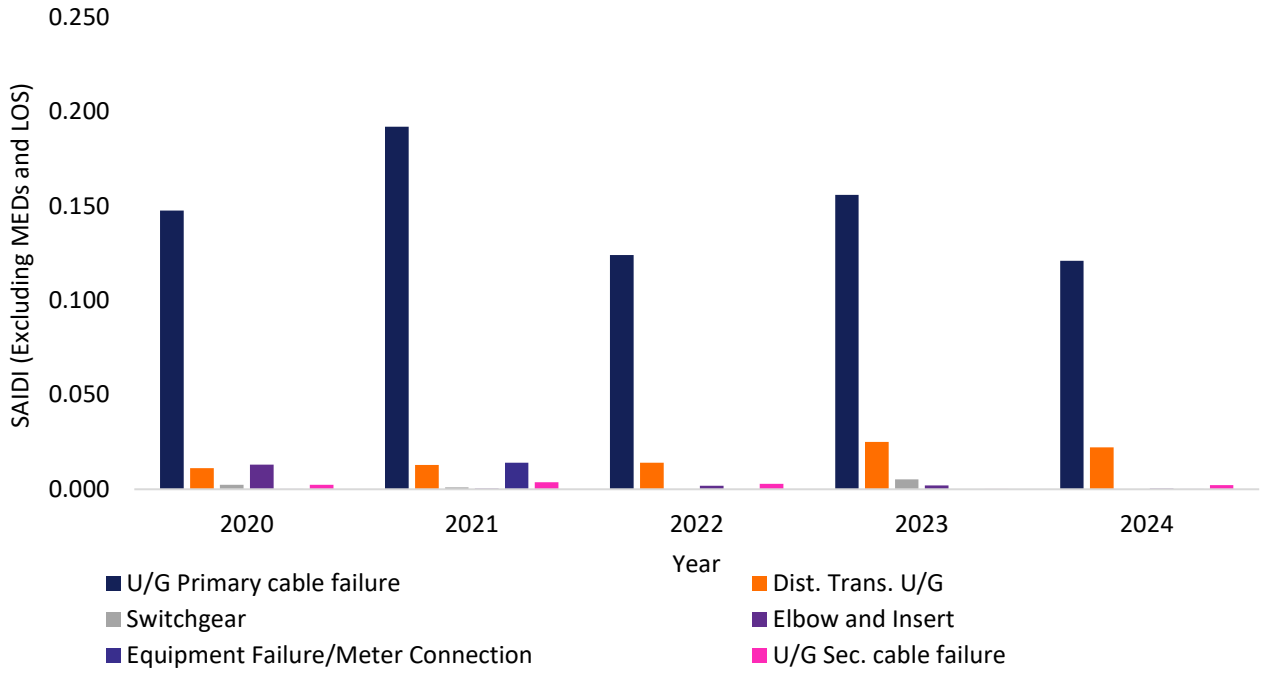
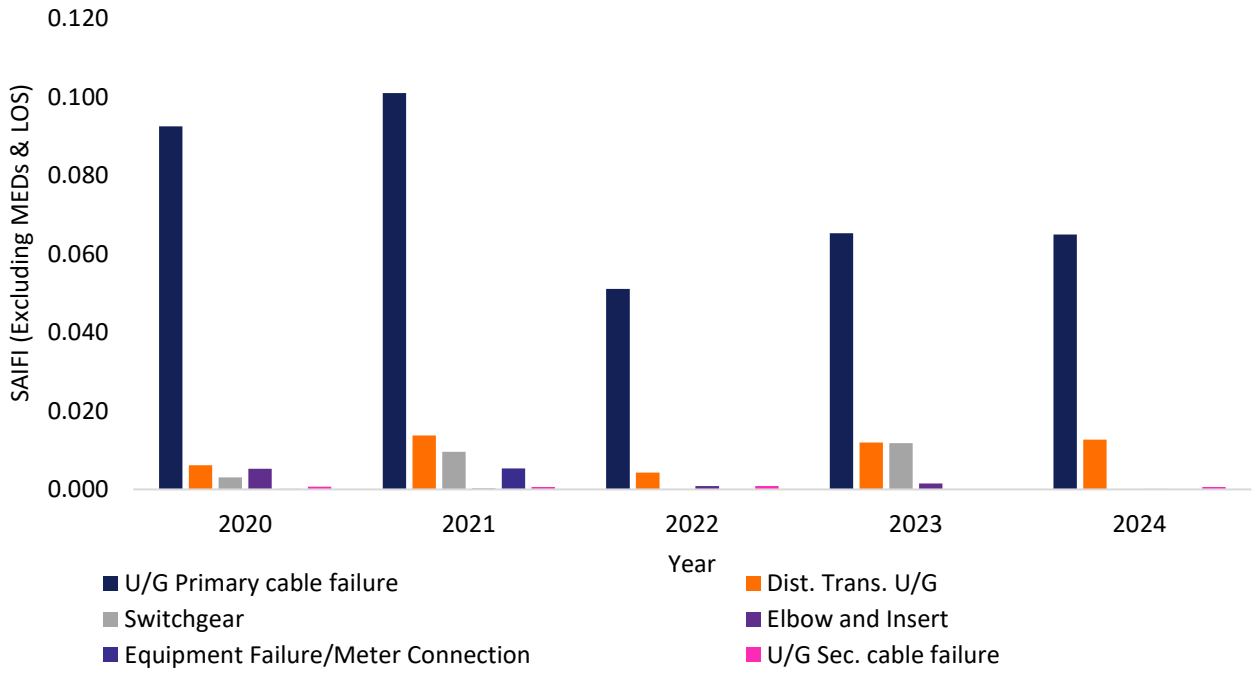


**Figure 19: Underground System SAIFI (Excluding MEDs & LOS) Distribution by Year**




Past reliability performance has largely been driven by deteriorating underground asset infrastructure. Legacy underground infrastructure such as direct-buried cables can contribute to a larger frequency of outage events, due to the fact that these cables can only be spliced once they fail, with the degradation continuing to spread within adjacent cable sections, and the splice itself becoming a potential point of failure in the future.

Non-switchable transformers also contribute to outages that can impact a greater number of customers, as the entire underground loop must be de-energized to perform the necessary replacements of the failed assets. These assets will be replaced with switchable transformers, which allow for the sectionalizing and restoration of customers that are not directly connected to the failed transformer.

Finally, this program will manage the intervention of MJUs on a case-by-case basis. One available option is to replace these assets with standardized underground dielectric switchgear, as existing MJUs can only facilitate termination and branching of underground feeders within the system. This option is considered

in cases where there is a clear need for additional fusing and switching capabilities. As per this option, future outages will be limited to customers downstream from the switchgear due to its fuse compartments. In addition, the switches within the switchgear allow crews to perform isolation and sectionalization of the underground feeders during the outage, thereby reducing the scope and duration of the outage for customers, while also providing greater flexibility to crews to isolate problematic and impacted locations and restore unaffected sections of the underground feeder in a more rapid manner.

The alternative option is to reconfigure these locations, by removing the MJU entirely and reconfiguring the cables in the location. This option is considered in situations where there is no need for additional switching capabilities within the evaluated location, and is a lower cost alternative when compared to replacing the MJU with padmount switchgear.

### 3.4 Underground System Safety

The proactive replacement of high-risk underground assets that are past their TUL and in poor or very poor condition will not only help to mitigate the risks of reliability impacts to customers, but also safety risks to Elexicon crews and the general public associated with catastrophic failure modes. Safety risks can emerge due to catastrophic transformer failures or catastrophic flashovers associated with underground switchgear.

Legacy underground infrastructure that no longer aligns with Elexicon's standard practices and procedures can also introduce elevated safety risks for Elexicon's crews. This includes the replacement of live-front underground equipment, including live-front underground transformers and switchgear with new dead-front underground infrastructure. Live-front transformers and switchgear possess exposed bushings and require direct manual operation by the crews. The live-front design of these assets increases the risk of accidental contact as well as elevated hazards associated with arc flashing. In addition, the energized live-front components are not fully shielded. In 2025 alone there have been two flashover events associated with live-front switchgear, resulting in extensive customer outages as well as introducing safety risks to field crews. By comparison, the dead-front equipment that will be installed as per this program will feature fully insulated and enclosed connections, thereby adding protection and safety barriers for field crews.

Legacy elbows for padmount transformers will also be replaced within the scope of this program. Since 2022, there have been five near-miss incidents associated with these elbows, which are designed to terminate and connect underground cable infrastructure to the transformers. When these elbows are disconnected or reconnected to the transformer, there may be an elevated risk of a flashover event, due to the elbows' design. Common risks associated with these elbows include:

- The inability to accurately confirm if these elbows are energized or de-energized, even when utilizing potential meters.
- The ability for the elbow to unseat itself from the connection with the transformer.
- The ability for the elbow to arc and smoke when disconnecting it from the transformer.
- The possibility for the feed-through connection with the elbow to fail, resulting in a potential explosive event.

Within the scope of this program, these legacy elbows will be replaced with new standardized elbows that offer an enhanced design that minimizes the potential flashover risks during connection and disconnection activities.

Elexicon will also replace legacy live-front padmount transformers, which have exposed bushings and require direct manual operation, increasing the risk of accidental contact and arc flash hazards. Live-front designs present higher safety risks for field crews, as energized components are not fully shielded. In contrast, dead-front padmount transformers feature fully insulated and enclosed connections, reducing exposure to live components and enhancing worker safety.

Ultimately, through the replacement of end-of-life and degraded underground assets, Elexicon is mitigating future safety risks for field crews and the general public.

# 4. INVESTMENT TIMING & PACING

## 4.1 Summary of Expenditures

Table 7 summarizes the total investments associated with the Underground System Renewal program, including the historical period from 2020 to 2024, the bridge period from 2025 to 2026, and the forecast period from 2027 to 2031. This summary reveals constraints in Underground System Renewal investments beginning in 2023. These constraints have largely been due to the need for Elexicon to balance other competing priorities, including the execution of non-discretionary System Access investments such as Customer & Generation Connections (as detailed in Exhibit 2B - Tab 4 - Schedule 3 - Appendix B), Externally-Initiated Plant Relocations (as detailed in Exhibit 2B - Tab 4 - Schedule 3 - Appendix A) and System Expansion investments (as detailed in as detailed in Exhibit 2B - Tab 4 - Schedule 3 - Appendix C) which have continued to grow in scope and quantity. In addition, to support new customer connection and system expansion requests, Elexicon has also had to increase investment into Substation Growth (as detailed in Exhibit 2B - Tab 4 - Schedule 3 - Appendix I), beginning in 2022.

From 2023 to 2027, Elexicon is continuing to balance investments within the Underground System Renewal program with essential System Access and Substation Growth investments to manage continued customer and load growth. Elexicon is planning to ramp up investments from 2027 to 2031, including the prioritization of key underground cable renewal activities.

The proposed investment plan ultimately aims to balance the needs of the underground system with non-discretionary and system growth investments, while also managing customer rate affordability in alignment with customer engagement survey results.

**Table 7: Summary of Expenditures ($M)**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Total | 4.23 | 6.90 | 4.15 | 1.81 | 0.93 | 0.53 | - | 0.72 | 9.66 | 16.65 | 24.62 | 32.50 |

Table 8 summarizes the breakdown in quantity of assets being replaced within with the Underground System Renewal program, including the historical period from 2020 to 2024, the bridge period from 2025 to 2026, and the forecast period from 2027 to 2031.

**Table 8: Summary of Underground Asset Investments**

| | Actuals | | | | | Bridge | | Forecast | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020[5]** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| U/G Transformers | 27 | 153 | 74 | 43 | 30 | 40 | - | 11 | 80 | 91 | 91 | 91 |
| U/G Switches | 26 | 53 | 29 | 9 | 5 | 1 | - | 1 | 11 | 11 | 11 | 11 |
| U/G Cable Replacement (km) | 2.7 | 5.4 | 1.7 | 0.4 | - | - | - | - | 9.2 | 17.4 | 26.1 | 36.8 |
| U/G Submersible Cable Replacement (km) | - | - | - | - | - | - | - | - | 0.9 | 0.9 | 0.9 | - |
| U/G Cable Injection (km) | - | 33.4 | 19.7 | - | - | - | - | 4.0 | 9.8 | 21.5 | 30.7 | 34.0 |

Total expenditures during the forecast period of 2027-2031 exceed total expenditures during the historical and bridge periods, as minimal investment within Underground System Renewal has been made between the 2023 to 2026 period. Increased investment during the 2027-2031 DSP period in this program is essential for addressing outage risk and ensuring safe and reliable power. Investment increases are driven both by the need to replace assets over the planning period which are at, approaching or exceeding their TUL, in very poor or poor condition, and carry a high criticality of failure.

## 4.2 Investment Pacing and Prioritization

Elexicon's AM Planning Process (Exhibit 2B – Tab 3 – Schedule 1) describes Elexicon's broader approach to developing capital & maintenance investment plans, including investment pacing and prioritization functions. Elexicon leverages this process to both identify and prioritize individual underground assets as part of discrete capital investment projects. Key analytical parameters that are first leveraged to prioritize underground assets, and identify discrete project opportunities across Elexicon's service area include:

[5] Historical asset count data for 2020 reflect estimated amounts.

- Asset condition: Leveraging a combination of visual inspection and testing results, health index (HI) results as produced by the Asset Condition Assessment (ACA) framework are leveraged to identify and prioritize specific underground assets for intervention that are in Very Poor and Poor condition, and integrate these into discrete capital projects.
- Asset criticality (risk): Leveraging financial, reliability, environmental and safety criticality factors, discrete underground system investments are prioritized for execution within the DSP planning period. This not only considers the financial and reliability impacts of underground asset failures but also accounts for potential safety risks associated with legacy underground infrastructure.

Asset age: At the system-level, assets that are past their TUL, or to exceed their TUL by 2031, are identified to ascertain overall investment needs within the underground system.

In addition to these foundational analytics, there are other constraints that will influence the scheduling and pacing of underground system renewal investments, including:

- Execution & resource availability: Certain underground investments, including underground cable renewal, can only be performed at certain times of the year under optimal weather conditions and temperatures, and require specialized labor, civil construction and coordination with contractors. Availability of these resources, particularly in peak construction seasons, may impact project execution. Through strategic planning, advanced ordering of materials and maintaining strong relationships with the contractor community, Elexicon will endeavor to optimize the delivery of their investment program, while also managing the risks of cost overruns and increases due to the impacts of inflation.
- System constraints: Underground investments require planned outages in order to safely remove end-of-life equipment and install new standardized equipment. To ensure effective operability of the distribution system, only so many underground projects and planned outages can be performed at any given time within the system.
- Investment constraints: There is a need to balance the investments within this program with investment requirements across the DSP planning period. This also includes the need to respond

to new customer connections, new capacity upgrades, third-party requests as well as the need to increase capacity within the system to support these new customers.

Elexicon's Underground System Renewal investments from 2027 to 2031 have been configured to allow the utility to ramp up renewal activities while continuing to balance other parallel investments, including growing non-discretionary System Access as well as Substation Growth investments. Beginning in 2027, the focus of this program will be contained to the Underground Cable asset class, as this represents a leading contributor to underground system reliability and performance.

Investments will continue to ramp up and expand from 2028 to 2031 to all remaining underground asset classes. Overall, this investment program has been structured in such a manner that Elexicon can complete renewal activities with the current complement of constraints, including resourcing, system-related constraints, as well as the continued need to balance overall investment across all investment programs and categories. Investments within this program have been designed to account for the recent period of constrained investment from 2023 to 2026, while enhancing system resiliency and restoring reliability to targeted performance levels.

The program's pacing strategy is structured to ensure ramp-up in underground renewal investment, allowing for efficient deployment of capital and optimal resource alignment. Elexicon is implementing a phased approach that prioritizes high-risk underground infrastructure while incorporating lower-cost interventions such as cable rejuvenation where viable. This ensures that investments are both cost-effective and targeted toward assets that pose the highest risk of failure.

A key consideration in pacing expenditures is outage mitigation and minimizing customer impacts. By proactively addressing the most failure-prone areas first, Elexicon aims to reduce the frequency and duration of outages while enhancing system resilience.

If the underground system renewal continues to be deferred, Elexicon anticipates significant negative impacts. Reliability deterioration will accelerate, as failure rates of direct-buried XLPE cables and aged transformers are expected to increase, contributing to further deterioration in SAIDI and SAIFI

performance. The longer these assets remain in service, the greater the risk of failures, leading to more frequent and prolonged outages and greater costs.

Additionally, deferring strategic investments in underground switchgear and switchable transformers will result in increased outage impacts and duration to customers. Reactive maintenance expenditures would also escalate due to emergency repairs/replacements, fault isolation challenges, and unplanned service interruptions. This reactive approach is less cost-effective than planned renewals and places additional strain on field crews and operational budgets. Furthermore, deferral will also result in increased operational and maintenance investment related to specific legacy asset classes, such as air-insulated underground switchgear which must continue to be inspected and cleaned. Replacing these legacy assets with standardized fully sealed dielectric switchgear will allow for reduced operational and maintenance costs to be incurred.

By prioritizing assets based on risk, condition, and reliability impact, and by strategically pacing expenditures, Elexicon aims to enhance system resilience, improve customer reliability, and mitigate long-term costs. The program's structured investment approach ensures that the most critical underground assets are addressed first, minimizing failure risks and securing the long-term performance of Elexicon's distribution network.

## 4.3 Execution Approach

As part of program execution, Elexicon applies several procedures in order to manage emerging risks that may occur, to ensure that projects are executed in a timely and optimal manner. This includes the following risk mitigations as summarized in Table 9.

**Table 9: Summary of Program Risks & Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| Resource Availability: Need to ensure that specialized labor, civil construction, and coordination with contractors is in place to deliver the work on time and on budget. | • Resource Balancing: Investment program has been optimized to ensure that it can be executed within the given timeframe, with necessary specialized labor, civil construction and external contractor resources. |
| Project Delivery Constraints: Need to ensure that all work is deliverable in-field given weather, system and other physical constraints that can impact or delay project executability. | • Scope Validation: Each produced scope undergoes a validation process upon conversion to project, to ensure that there are no potential delivery constraints.<br>• Materials & resources are optimized for effective utilization, resulting in optimal sequencing of projects throughout the course of the year. |
| Project Quality: Ensuring that the project is delivered as per the original and intended scope, resulting in mitigation of risk to the system. | • Project Validation: Validation of the project continues during project execution and following execution, where a post-analysis is undertaken to assess the overall effectiveness of project delivery. |
| Project Scheduling: Ensuring that the projects are executed on time and on schedule. | • Project Tracking: Elexicon leverages a series of key performance indicators as well as team engagements to ensure that project delivery remains on track and on schedule. |

# 5. OPTIONS ANALYSIS

## 5.1 Options for U/G System Renewal

An integral component as part of Elexicon' s AM Planning Process (Exhibit 2B - Tab 3 - Schedule 1) is to assess the prudency of each investment program through the consideration of various investment options. Elexicon evaluated three investments options as part of their assessment of the Underground System Renewal program, including Needs-Based, Balanced and Low investment options. As part of this evaluation, both the accumulative current and forecasted asset condition and age of underground Distribution assets were carefully considered to ensure that investment decisions reflect asset condition, risk, and lifecycle performance. These investment options also considered the customer engagement results and preferences to balance rates with investment outcomes.

### 5.1.1 Balanced Investment Option ($84.15M) – Recommended

The "balanced" investment option represents a form of investment strategy where asset and system needs are balanced against customer rate impacts, which ultimately results in a reduced overall scope of investment when compared to the "needs-based" plan. This balanced investment option aligns with customer engagement results to balance system needs with rate and reliability preferences.

This program will result in the percentage of Very Poor and Poor underground assets increasing from the current 14% of the total underground asset population up to 25% by the end of 2031, as opposed to increasing up to 28% under a run-to-failure scenario (with no capital investment taking place)

In addition, this program will also manage the 30% of underground assets that have already exceeded or will exceed their TUL in the next 5 years. By the end of 2031, this amount will be expected to increase to 38%, as opposed to 40% under the run-to-failure scenario.

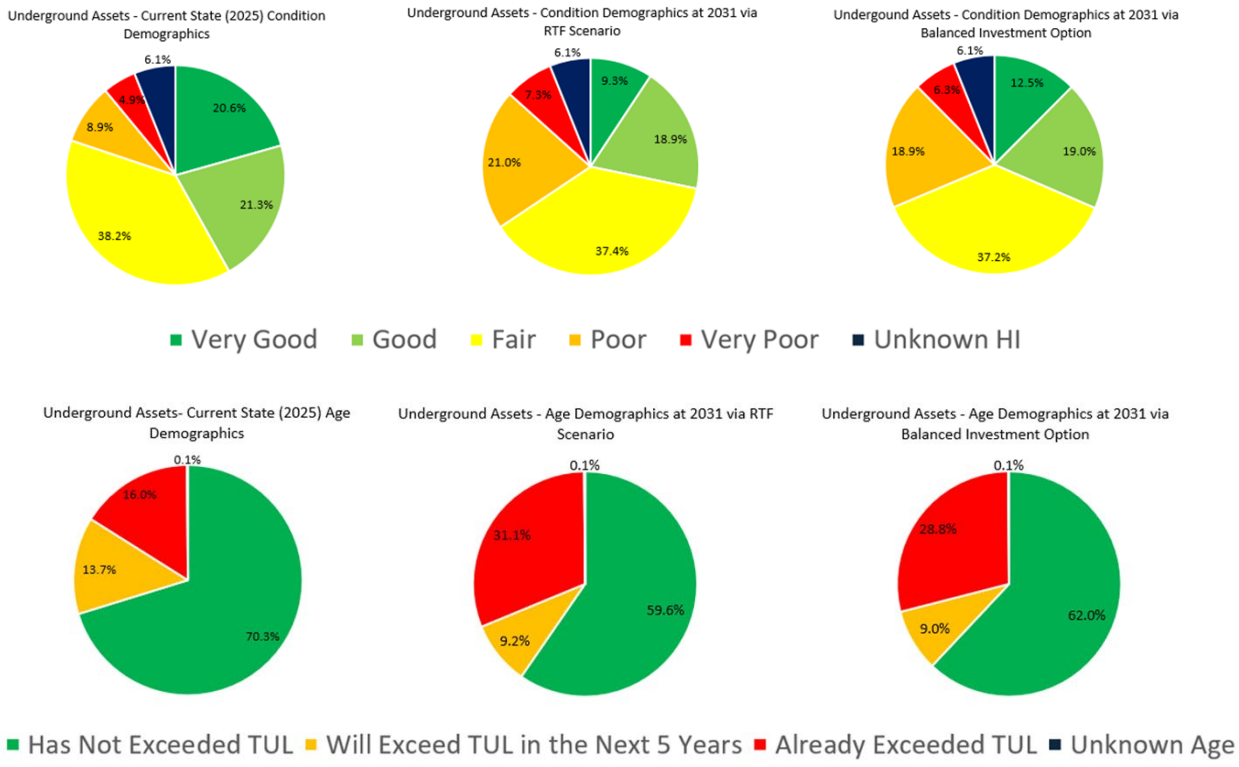
To establish balance between growing System Access and Substation Growth investments, this investment option aims to focus on cable rejuvenation, underground switches and transformer replacement in 2027. In subsequent years, the program ramps to also manage replacement of underground cables with rejuvenation, along with replacement of submarine cables recognizing that underground cables remain a leading factor in underground system reliability

When compared to the "Needs-Based" investment option, the Balanced investment option is designed to decelerate the growing asset backlog at a reasonable pace, while balancing System Access and Substation Growth needs along with rate impacts and available resourcing. Results from the Balanced option are further summarized in Table 10. Figure 20 provides the individual breakdown of results achieved from the Balanced Investment option and Run-to-Failure scenario, when compared to current state results.

**Table 10: Change in Asset Demographics after Balanced Investment**

| | 2025 – Current State | 2031 – After Balanced Investment | 2031 – After Run-to-Failure |
|---|---|---|---|
| Assets in Poor and Very Poor Condition | 13.8% | 25.2% | 28.3% |
| Assets that have exceeded their TUL or will exceed their TUL in the next 5 years | 29.7% | 37.8% | 40.3% |

**Figure 20: Summary of Underground Age (TUL) and Condition Demographics Results**




### 5.1.2 Needs-Based Investment Option ($136.87M)

The "needs-based" investment option represents an accelerated investment strategy across Elexicon's underground distribution system. Within this option, there will be an accelerated form of investment to manage and replace underground infrastructure.

By increasing capital deployment in the near term, Elexicon can create a more stable, reliable, and cost-effective underground distribution system, reducing risks to customers and supporting long-term service sustainability. The needs-based option includes extensive replacements of underground cables, transformers and switchgear, in addition to the rejuvenation of underground cables over the 5-year period. However, this needs-based option requires significantly more investment, which does not align with customer engagement results due to higher costs for customers.

Figure 21 presents the projected assets past TUL and assets in very poor and poor condition by 2031 under the Needs-Based plan. This program will result in the percentage of Very Poor and Poor underground assets increasing from the current 14% of the total underground asset population up to 24% by the end of 2031, as opposed to increasing up to 28% under a run-to-failure scenario.

In addition, this program will also manage the 30% of underground assets that have already exceeded or will exceed their TUL in the next 5 years. By the end of 2031, this amount will be expected to increase to 36%, as opposed to 40% under the run-to-failure scenario.

Therefore, the Needs-Based option is designed to provide the greatest deceleration of Elexicon's growing backlog consisting of assets past TUL and assets in Poor/Very Poor condition. Results from the Needs-Based option are further summarized in Table 11. Figure 21 provides the individual breakdown of results achieved from the Needs-Based Investment option and Run-to-Failure scenario, when compared to current state results.

**Table 11: Change in Asset Demographics after Needs-Based Investment**

| | 2025 – Current State | 2031 – After Needs-Based Investment | 2031 – After Run-to-Failure |
|---|---|---|---|
| Assets in Poor and Very Poor Condition | 13.8% | 23.5% | 28.3% |
| Assets that have exceeded their TUL or will exceed their TUL in the next 5 years | 29.7% | 36.0% | 40.3% |

**Figure 21: Projected Asset Age & Condition Demographics results after 2031 for Needs-Based Option**




### 5.1.3 Low Investment Option ($48.64M)

The "low" investment option represents an investment strategy that prioritizes rate impacts above all else, allowing reliability degradation and asset risks to remain largely unaddressed. Under this plan, Elexicon would not be leveraging its full complement of resources to deliver renewal activities while also managing functionally obsolete assets within the system.

The low investment option materially reduces the amount of renewal expenditures in key asset classes such as underground switchgear, while maintaining low levels of investment for underground cables and transformers. This low investment plan does not align with customer engagement results due to deteriorating reliability.

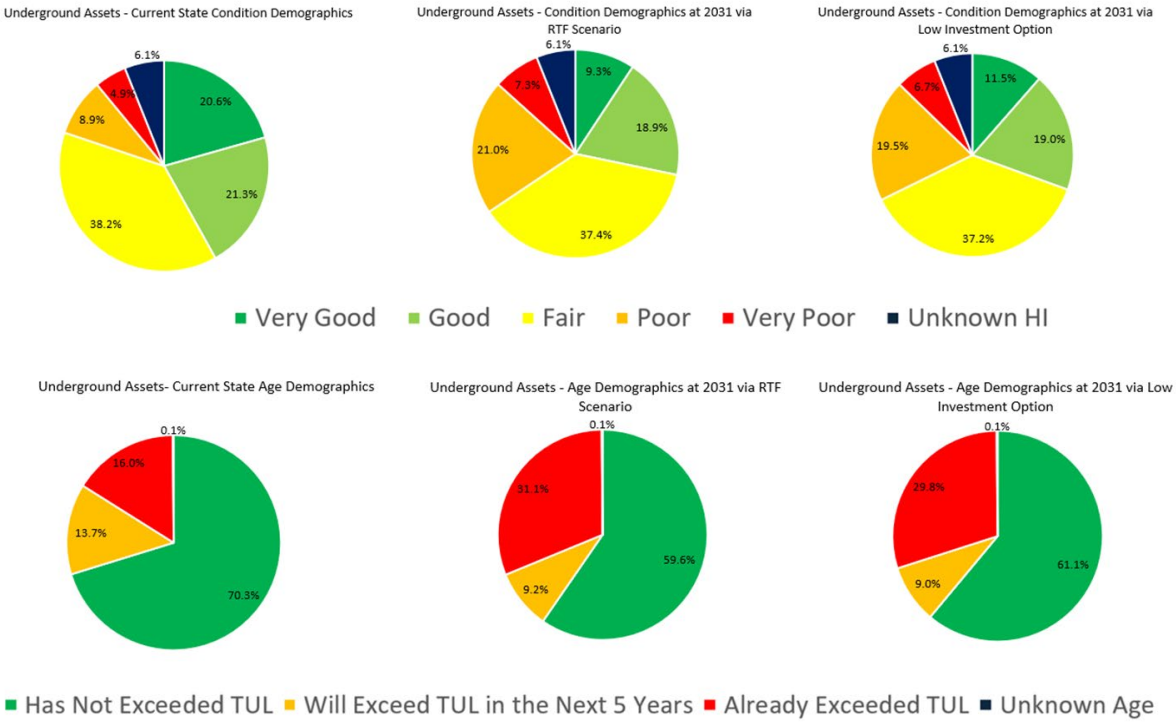
Figure 22 presents the projected assets past TUL and assets in very poor and poor condition by 2031 under the low investment plan. This program will result in the percentage of Very Poor and Poor underground assets increasing from the current 14% of the total underground asset population up to 26% by the end of 2031.

In addition, this program will also manage the 30% of underground assets that have already exceeded or will exceed their TUL in the next 5 years. By the end of 2031, this amount will be expected to increase to 39%, as opposed to 40% under the run-to-failure scenario. Ultimately, the Low option provides the least deceleration of Elexicon's growing backlog consisting of assets past TUL and assets in Poor/Very Poor condition. Results from the Low option are further summarized in Table 12. Figure 22 provides the individual breakdown of results achieved from the Needs-Based Investment option and Run-to-Failure scenario, when compared to current state results.

**Table 12: Change in Asset Demographics after Low Investment**

| | 2025 – Current State | 2031 – After Low Investment | 2031 – After Run-to-Failure |
|---|---|---|---|
| Assets in Poor and Very Poor Condition | 13.8% | 26.2% | 28.3% |
| Assets that have exceeded their TUL or will exceed their TUL in the next 5 years | 29.7% | 38.8% | 40.3% |

**Figure 22: Projected Asset Age & Condition Demographics results after 2031 for Low Option**




Selecting the optimal investment option must depend on several factors, including:

- Risk & Reliability: The need to manage critical assets within the underground system that are in Very Poor or Poor condition and past TUL,
- Competing Budgetary Priorities: The need to balance Underground System Renewal investments with increasing competing budgetary priorities, including non-discretionary customer requests such as new connections,
- Capacity Needs: The need to balance Underground System Renewal investments with capacity management, including Substation Growth investments, and,

Customer Affordability: The need to ensure that overall investment levels result in manageable and affordable rate impacts for customers.

When balancing all the above factors, the Balanced investment option ultimately best aligns to the factors above, as this option allows for Elexicon to deliver an executable program that still manages risk and reliability while achieving customer value and engagement results.

#### 5.1.4 Option Comparison and Recommendation

Elexicon has adopted the "Balanced" investment option, due to the need to balance asset and system needs with customer affordability, by maintaining investment at a level that prevents further deterioration in system performance. The Balanced option will not reduce the proportion of Poor and Very Poor assets but will contain and manage equipment failure risks in a cost-effective manner, and in conjunction with other programs (station renewal, grid enhancements, station growth), enables the utility to address declining reliability and restore historic performance levels. Ultimately, the Balanced option is designed to decelerate the growing asset backlog at a manageable pace, accounting for available resourcing to deliver the work, along with known system constraints and rate impacts.

Table 13 provides a summary of the three considered investment options, including associated costs, assets to be replaced, condition & age demographic impacts, along with pros and cons for each option.

**Table 13: Option Analysis Summary**

| Investment Level | Cost | Assets Replaced 2027-31 | Asset Condition Impact | Asset Age Impact | Pros | Cons |
|---|---|---|---|---|---|---|
| Low Investment | $48.64M | 291<br>135 km of cables | 12.4% Decline in Condition Demographics (from 14% to 26.2% VP/P assets) | 9.1% Decline in Age Demographics (from 30% to 40% assets past TUL or to exceed TUL in 5 years) | • Lower near-term rate impacts. | • Failure risks in the system may increase over the rate period.<br>• Continued degradation of reliability during the rate period<br>• Increased operating/reactive costs to manage assets in poor condition.<br>• As asset population continues to get older the risk of higher capital investment in the future increases.<br>Does not align with customer engagement results due to deteriorating reliability. |
| Balanced Investment | $84.15M | 414<br>192 km of cables | 11.4% Decline in Condition Demographics (from 13.8% to 25.2% VP/P assets) | 8.1% Decline in Age Demographics (from 29.7% to 37.8% assets past TUL or to exceed TUL in 5 years) | • Balances asset and system needs with customer affordability<br>• Aligns with customer engagement results for rate and reliability preferences.<br>• Lowers the risk of asset failures while managing reliability<br>• Reduced reactive/capital costs to manage assets in poor/very poor shape | • Continued decline in condition & age demographics |
| Need-Based Investment | $136.87M | 697<br>269 km of cables | 9.7% Decline in Condition Demographics (from 13.8% to 23.5% VP/P assets) | 6.3% Decline in Age Demographics (from 29.7% to 36.0% assets past TUL or to exceed TUL in 5 years) | • Highest deceleration of growing backlog and corresponding asset degradation during the DSP planning period.<br>• Lowers reliability and asset failures risks | • Higher near-term rate impacts.<br>• Does not align with customer engagement results due to higher costs. |

# R3 OVERHEAD SYSTEM RENEWAL

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $29.63M | 2025-2026 Plan: $3.63M | 2027-2031 Forecast: $55.72M |
| Primary Driver: Failure Risk | | |
| Secondary Drivers: Reliability, Safety | | |
| Outcomes: Customer Focus, Operational Effectiveness - Reliability, and Operational Effectiveness - Safety | | |
| Segments: Overhead Transformers, Poles & Associated Accessories, Overhead Switches, Overhead Conductors, Connections & Sleeves, Overhead Accessories, Rear Lot Infrastructure. | | |

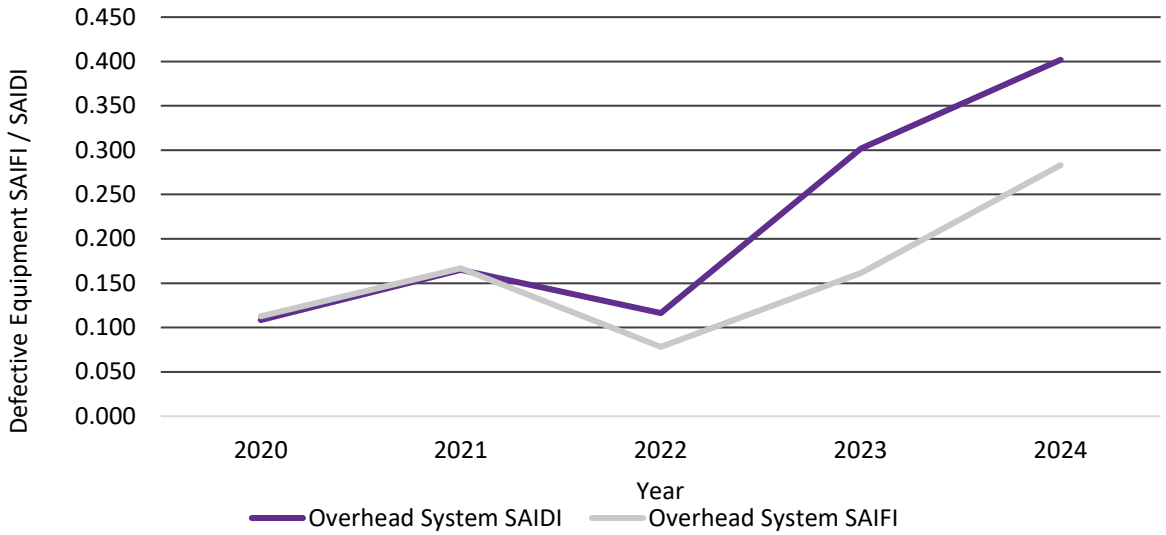
Elexicon's Overhead System Renewal program is a strategic investment program designed to proactively replace high-risk, aging, and poor-to-very poor condition overhead infrastructure that has exceeded its Typical Useful Life (TUL) or will exceed by 2031. The program addresses overhead equipment including poles, pole-mounted transformers, overhead switches, overhead conductor and overhead accessories that have been identified as being in a degraded condition during the future rate period from 2027-2031, or that have contributed to system reliability challenges. Replacing these assets with standardized overhead equipment will allow for the risk of outages to be reduced, while improving operational efficiencies, enhancing system resiliency and restoring reliability to targeted performance levels.

Over the 2027-2031 DSP planning period, total investment within the Overhead System Renewal program is forecasted to be $55.72M, which represents nearly 20% of total expenditures within the System Renewal category. This investment will target the mitigation of failure risk through the replacement of end-of-life overhead infrastructure across Elexicon's service area, in addition to replacement of legacy equipment that contributes to reliability and safety risks.

Elexicon's overhead infrastructure, which includes approximately 4,696 km of overhead conductor wire, 34,874 poles, 8,832 polemount transformers and 16,844 overhead switches, is constantly exposed to the elements, including extreme weather & temperatures, tree contacts and other external stressors. A primary driver for this investment is failure risk, as end-of-life overhead equipment accounts for 55% of total System Customers Interrupted (CI), and 50% of total System Defective Equipment Customer Hours

Interrupted (CHI) from 2020 to 2024, excluding LOS and MED. As illustrated in Figure 1, Defective Equipment SAIDI has shown a consistent upward trend annually, while Defective Equipment SAIFI has experienced a comparable rising trend starting in 2023.

**Figure 1: Overhead System – Historical Defective Equipment Reliability (2020 to 2024)**




Between 2020 and 2024, there has been a 271% increase in Defective Equipment SAIDI and a 151% increase in Defective Equipment SAIFI outages related to the overhead system. Continued deferrals of asset replacement would compound reliability challenges, leading to more frequent and prolonged outages in addition to increased safety risks to Elexicon's staff and contractors performing this work.

Investments in Overhead System Renewal are critical to maintaining reliability. While system needs justify a higher investment level to further mitigate failure risks, Elexicon has selected a balanced investment level that focuses on the most severe risks in alignment with customer engagement results for rate and reliability preferences.

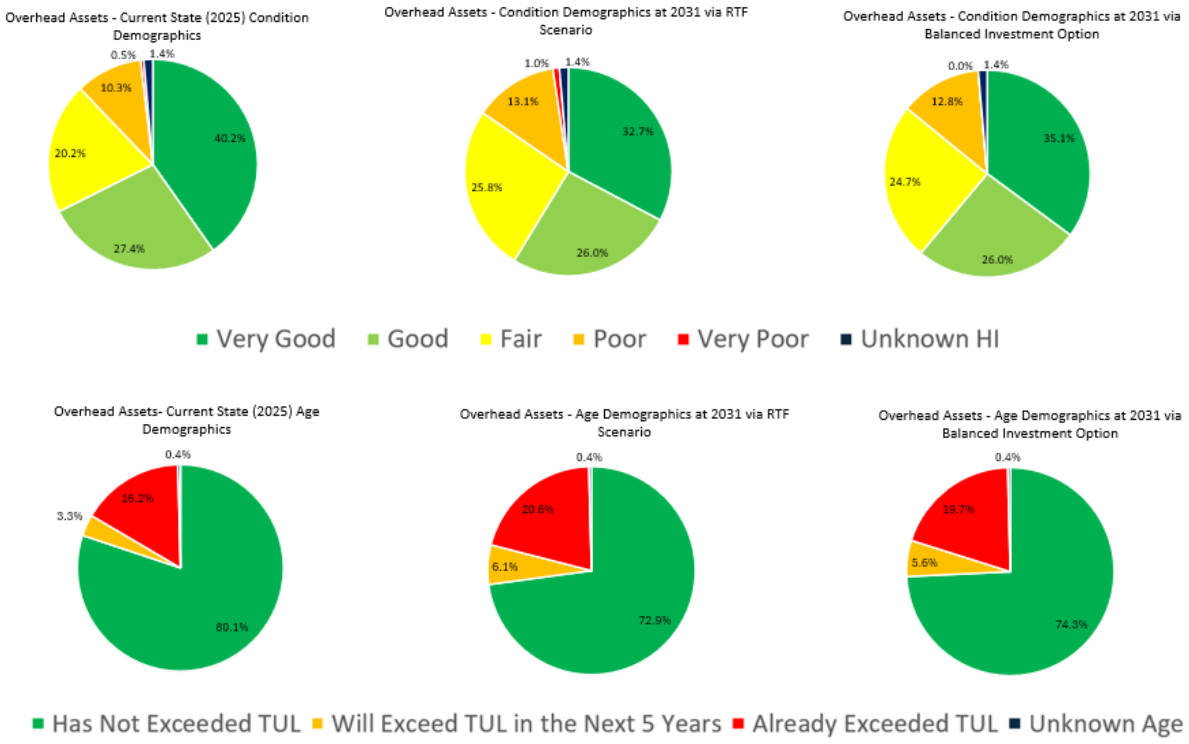
The proportion of assets that are in Poor to Very Poor condition serves as a key measure of failure risk and potential outages. Given customer concerns about affordability (Exhibit 2B - Tab 1 - Schedule 1), this program aims to maintain investment at a level that prevents further deterioration in system performance.

Planned replacements will not reduce the proportion of Poor and Very Poor assets but will prevent it from increasing during the rate period, while targeting assets that pose the greatest risk of failure to the system. As shown in Figure 1, the planned investment level does not lower the overall proportion of assets in poor condition. Instead, it contains equipment failure risks and, together with other capital investment programs (Underground Renewal, Substation Renewal, Grid Enhancements Exhibit 2B - Tab 4 - Schedule 3 - Appendix F, E and J), enables the utility to address declining reliability performance.

The current proportion of overhead assets classified as Poor or Very Poor is approximately 11%. The planned balanced investment option is designed to constrain deterioration, limiting this proportion to 12% by the end of 2031, with no overhead assets remaining in the Very Poor category. In contrast, under a run-to-failure scenario (with no capital investment taking place), the proportion was projected to reach 14%, including 1% assets of overhead assets in Very Poor condition. This balanced investment option ensures all Very Poor assets are addressed while mitigating the most critical reliability and safety risks in alignment with affordability considerations outlined in Section 5.1.

In addition, this program will also manage the nearly 20% of overhead assets that have already exceeded or will exceed their TUL within the next 5 years. By the end of 2031, this amount is expected to increase to 25% under the balanced investment option, compared to approximately 27% under the run-to-failure scenario. Figure 2 illustrates the forecasted summary of age and condition demographics results as per the run-to-fail scenario and proactive Balanced investment option respectively, which illustrates that such planned expenditures will not meaningfully change asset demographics, but will impact reliability by targeting assets at greatest risk of failure.

**Figure 2: Summary of Overhead Assets Past TUL and Condition Demographics Results**




The execution of the Overhead System Renewal program will allow Elexicon to balance the needs of the overhead system with customer rate affordability in alignment with customer engagement results, while strategically reducing the overhead assets that are in very poor condition and reducing safety risks to Elexicon's staff and contractors that perform this work.

## 2. INVESTMENT DESCRIPTION

**Table 1: Program Segments**

| | |
|---|---|
| Overhead System Renewal | Overhead Transformers (Pole-mounted & PoleTran Transformers) |
| | Poles & Associated Accessories (e.g. guywires, porcelain insulators, etc.) |
| | Overhead Switches (Load Interruption Switches, Fused Cut-Outs, In-Line Switches) & Reclosers |
| | Overhead Conductors, Connections & Sleeves |
| | Overhead Accessories (Insulators, Arrestors, Animal Guards) |
| | Rear Lot Infrastructure |

Elexicon's Overhead System Renewal program is designed to target the replacement of high risk, aging and deteriorating overhead equipment and accessories that have reached or exceeded their Typical Useful Life (TUL) or will exceed their TUL within the next 5 years, and are in poor or very poor condition. This program also targets legacy overhead infrastructure that introduce reliability and safety risks, replacing them with new standardized overhead equipment.

This program further addresses legacy overhead assets that present increased risks and costs. These assets include PoleTran transformers, which can introduce safety risks and operational challenges due to their installation inside of poles; porcelain insulators and cut-outs which possess an elevated probability of catastrophic failure, as well as rear-lot overhead infrastructure which is complex to maintain and access.

Total investment within this program will be $55.72M from 2027 to 2031, which represents 20% of total investment within the System Renewal portfolio. Key segments within the Overhead System Renewal program are identified in Table 1. The following subsections provide further details on each program segment to be delivered during the DSP planning period.

## 2.1 Overhead Transformers

**Figure 3: New Standardized Polemount Transformer**



Overhead polemount distribution transformers play a critical role in stepping down the voltage from the primary voltage levels within the distribution lines (27.6 kV, 13.8 kV, 12.47 kV, 8.32 kV, 4.16 kV) down to secondary voltage levels (120/240 V, 120/208 V and 347/600 V) suitable for customers. These transformers are mounted to poles where they connect with the overhead primary distribution lines. Secondary service connections are made between the transformer and the customer meter base, via overhead or underground service connections.

This program is designed to replace high-risk polemount transformers that are past their typical useful life (TUL) and that are in poor or very poor condition. In addition, this program targets the replacement of legacy PoleTran transformers, which are similar to pole-mounted transformers, but installed within large diameter concrete poles. As these transformers are situated inside a pole, this can introduce enhanced safety risks including the risk of arc flash or overheating occurring within the pole which can lead to a fire. As these transformers are subjected to higher-than-normal ambient temperatures when compared to

traditional polemount transformers, this can result in accelerated degradation, including depolymerization of the paper insulation around the transformer core. Once this paper insulation fails, this can lead to a winding fault and failure within the transformer.

## 2.2 Poles

**Figure 4: New Standardized Wood Pole**



Poles are designed to support overhead distribution infrastructure, including overhead conductors, pole-mounted transformers, overhead switches & reclosers, as well as overhead accessories including insulators, cut-outs and arrestors. Elexicon's system includes two primary pole types: approximately 34,874 wood poles and 2,379 concrete poles. The Overhead System Renewal program targets poles for replacement based upon a combination of elements, including pole age, condition assessment and system risk.

This program also rebuilds entire pole lines in instances where larger conductors must be accommodated, or where additional feeders and conductors must be installed to convert single-phase feeders to three-phase feeders.

Pole failures can result in extensive and prolonged service disruptions, as well as pose safety risks to utility crews and the public. The Overhead System Renewal Program focuses on replacing poles that are high-risk, beyond their Typical Useful Life (TUL), and in poor or very poor condition. Wood poles are frequently exposed to severe weather conditions, making them vulnerable to internal rot, decay, and infestation. As of 2025, approximately 29% of Elexicon's wood poles are beyond their useful life, increasing their susceptibility to failure. Additionally, based upon Asset Condition Assessment (ACA) results, approximately 16% of wood poles are already showing signs of material deterioration, with condition evaluated as poor to very poor. Without intervention, this figure is projected to rise to 19% by 2031.

To address these risks, Elexicon plans to replace approximately 253 wood poles over the 2027-2031 period, thereby reducing the likelihood of failure and enhancing public and worker safety.

## 2.3 Overhead Switches

Overhead switches support isolation, load balancing, emergency response, system reconfiguration, sectionalizing and restoration functions within the overhead distribution system. Key overhead switch subtypes include the following:

- Gang-operated load interrupter switches (LIS), designed for manually breaking load on three-phase circuits,
- SCADA-enabled gang-operated load interrupter switches designed for remotely (from the System Control Centre) breaking load on three-phase circuits,
- Fused cut-out switches, which are a combination of a fuse and switch, designed to support isolation of the overhead circuits while adding fused protection, and,
- In-line switches designed to help isolate single-phase overhead connections.

- Reclosures designed to trip a pre-determined quantity of times to clear transient faults such that outage times are significantly reduced. These SCADA-enabled devices can be installed on single-phase and three-phase circuits.

**Figure 5: Inline Double Insulator & SCADA Gang Operated Overhead Switch**



LIS and SCADA-enabled switches are critical for performing sectionalizing, isolation and restoration functions along the feeder-trunk portion of the overhead circuit during an outage event. These assets are also used as part of day-to-day load transfer and operational activities. When these switches malfunction, customers experience prolonged outages as crews must spend additional time locating the next available switching point to perform isolation and minimize the number of customers impacted by the outage. Approximately 37% of Overhead Defective Equipment CI and 20% of System Defective Equipment CI from 2020 to 2024 is attributed to the overhead switches.

Fused cut-outs are designed to provide additional protection for overhead lateral connections. These fuses ensure that lateral-level faults do not continue upstream to the next protective device – such as the circuit breaker – potentially resulting in an outage affecting the entire distribution feeder. In-line switches introduce operational flexibility for crews, as these switches can be leveraged to perform fault isolation to make repairs around identified outage locations, thereby allowing the remainder of the customers to be restored as repairs are being conducted.

In-line switches are designed to allow in-field crews to perform isolation at strategic feeder locations as part of planned investment activities to isolate sections for maintenance or as part of reactive efforts to respond to outage events, providing visible break points to ensure safety for in-field crews. Single-insulator

in-line switches possess a design flaw consisting of two pathways for current to flow through the switch. If the desired current pathway develops a high resistance, this results in more current flowing through the undesired current pathway, leading to heating issues and ultimately resulting in the mechanical failure of the switch and introducing safety risks to in-field crews and the public. This program replaces these single-insulator in-line switches with standardized dual-insulator in-line switches, which increase the number of current pathways, thereby reducing the risk of heating and degradation issues.

In addition to switches and fuses, Elexicon also leverages reclosers, which is a medium-voltage switch that can automatically restore power after clearing of a temporary fault event or perform fault isolation in the case of a permanent fault event. These reclosers support Elexicon in the detection of faults and will perform fault interruption and testing of the lines to ensure that the fault has been cleared.

The Overhead System Renewal program targets the replacement of overhead switches that are high-risk, past their TUL and in poor and very poor condition. In addition, legacy asset classes which pose potential safety concerns, such as porcelain fused cut-out switches and porcelain single-insulator in-line switches are replaced with standardized fused cut-outs and dual-insulator in-line switches leveraging polymeric materials, which are less susceptible to contamination, degradation and potential flashover events. These flashover events can lead to a highly destructive failure mode due to the nature of the porcelain materials.

## 2.4 Overhead Conductors, Connections & Sleeves

Overhead conductors distribute electricity across Elexicon's service area, at the 44 kV, 27.6 kV, 13.8 kV, 12.47 kV, 8.32 kV and 4.16 kV voltage levels. Collectively, overhead conductors, connections, sleeves and taps represent the second largest contributor to System Defective Equipment CHI at 24% from 2020 to 2024. These assets contribute towards 36% of Overhead Defective Equipment CI and 20% of System Defective Equipment CI from 2020 to 2024.

**Figure 6: Overhead Conductor**



When overhead distribution lines are to be rebuilt, the existing conductors may be re-used, unless they are deemed to be high-risk, past their TUL, in poor or very poor condition, or do not meet the latest minimum Elexicon standard sizing and capacity requirements for the new build primary voltage levels (e.g. 4.16 kV, 8.32 kV, 12.47kV, 13.8 kV, 27.6 kV or 44 kV).

In addition, this program targets the replacement of legacy overhead automatic sleeves ("overhead sleeves"), or approximately 40% of the legacy overhead sleeve population, that are designed to act as a splice between two conductor segments. These devices are not designed to be crimped to create a strong permanent connection but instead are installed by hand. These legacy splices are prone to moisture, salt and dirt ingress, which aggravates the thermal instability within the splice connection, resulting in internal corrosion and eventual failure. Failure of a splice results in downed energized conductor lines, posing significant safety risks to crews and the public.

## 2.5 Overhead Accessories (Insulators, Arrestors, Animal Guards)

Overhead accessories, including insulators, arrestors and animal guards, play an essential role in the day-to-day protection and operation of the overhead system. These assets include:

- Overhead insulators comprised of non-conductive materials which support and separate the overhead conductors at a safe distance from nearby structures such as poles and associated hardware.
- Lightning arrestors protect overhead systems from severe lightning events, by providing a conductive pathway for the surge energy (produced by lightning) to bypass the overhead line assets and conduct directly to ground.
- Animal guards provide added protection to overhead infrastructure from external animal contacts, including birds, squirrels and other small animals that can interfere with the assets.

The Overhead System Renewal program targets the replacement of porcelain overhead insulators and porcelain lightning arrestors, which are highly susceptible to contamination and premature failure. Collectively, these assets represent 14% of Overhead Defective Equipment CI and 7.7% of System Defective Equipment CI from 2020 to 2024.

Porcelain materials are highly susceptible to contamination, which can lead to flashover events, where this material can shatter in a highly explosive and destructive manner, thereby introducing potential safety risks to field crews and the public. Some of the key issues associated with porcelain materials include the following:

- Brittleness & Shattering: Porcelain is a brittle material that can fracture easily under mechanical stresses, impacts or thermal shocks. As a result, if these assets were to catastrophically fail, they can shatter in an explosive manner, sending sharp fragments flying, which can result in potential safety impacts to field crews and the general public. New standardized polymeric materials, by comparison, are more resilient to contamination, and fail in a more gradual and ductile fashion, resulting in cracking and burning as opposed to shattering.

- Weight: Porcelain materials are heavier when compared to polymeric materials, which can increase the risks of injury when handling, installing and maintaining these assets.
- Flashovers: Porcelain materials can develop hairline cracks from regular handling or in-service stress, which can result in electrical tracking taking place internally within the material. This form of degradation can be difficult to visually identify. By comparison, polymeric materials provide greater visual indicators of degradation (e.g. tracking, chalking) well before failure. In general, polymeric material degradation is easier to detect.
- Environment: Porcelain materials are greatly susceptible to contamination from the surrounding environment, including dust, salt and other forms of industrial pollutants. In particular, porcelain materials near highways and major roadways will have a greater susceptibility to salt spray contamination during the winter seasons. Repeated freeze-thaw cycles or mechanical shocks can result in eventual failure. Polymeric materials are more resilient to contaminants due to their water-beading properties.

To mitigate these safety and reliability risks, this program replaces these existing assets with new polymeric insulators and arrestors which are more resilient against contamination and have a longer useful life leading to better reliability performance.

## 2.6 Rear Lot Infrastructure

The Overhead System Renewal program converts the most problematic rear lot infrastructure within Elexicon's system to front lot underground infrastructure, thereby allowing the deployment of standardized vehicles and operations to take place for the new underground infrastructure. These underground assets are more resilient as they will be shielded from exposure to elements and external factors, including vegetation and animal contacts. This will include re-routing electrical connections to the customer from the rear-lot to the front-lot, where new underground infrastructure, including underground transformers, switchgear and cables, will be installed. New secondary connections will be made between the underground transformers and the customers' meter base.

**Figure 7: Rear Lot Infrastructure**



Rear lot overhead infrastructure, including poles, overhead pole-mounted transformers, overhead conductors and overhead switches, are installed in the backyards of residential homes and neighbourhoods. Due to their location, often with fences, uneven terrain, landscaping and narrow pathways, these assets are difficult to access by traditional means. For these reasons, rear lot infrastructure can expose crews to greater safety risks when compared to traditional front-lot overhead infrastructure, which can be accessed directly from the front street using traditional bucket trucks. Furthermore, due to the propensity of these assets within residential backyards, there are greater conflicts between rear lot pole lines and adjacent vegetation, thereby increasing the frequency of tree contacts, reliability impacts as well as planned outages when performing day-to-day maintenance and operational activities. As an example, a series of rear lot locations in South Ajax required as many as 33 individual

planned outages to safely perform tree trimming activities, due to the need of working in close proximity to energized infrastructure, as well as the inability to leverage traditional bucket trucks in these areas.

## 2.7 Summary of Investment Outcomes and Benefits

Table 2 provides a summary of outcomes and benefits achieved by the Overhead System Renewal program.

**Table 2: Program Investment Benefits & Objectives**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Focus | • Customer impacts are mitigated through the proactive replacement of overhead infrastructure that is:<br>o At, approaching or already exceeding their TUL (age),<br>o In Very Poor or Poor condition based upon in-field inspection & testing results (condition), and,<br>o Carry a high criticality of failure (risk)<br>• The backyards of customer residential properties no longer need to be accessed following the conversion of rear lot infrastructure to standardized front lot underground infrastructure. |
| Operational Effectiveness – Reliability | • Reliability impacts are mitigated through the replacement of overhead infrastructure that is high risk, past their TUL and in Poor or Very Poor condition.<br>• Outage management and response is improved through the conversion of rear-lot overhead infrastructure – which can only be manually accessed – to front-lot underground infrastructure – which can be accessed and managed using standardized vehicles and work practices. |
| Operational Effectiveness – Safety | • Safety risks to crews and the public associated with catastrophic flashover events are mitigated through the proactive replacement of porcelain in-line switches, insulators and arrestors.<br>• Safety risks associated with downed conductors are mitigated through the replacement of legacy overhead sleeves.<br>• Safety risks associated with the degradation and breaking apart of legacy single-insulator in-line switches are mitigated by replacing these with standardized dual-insulator in-line switches. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

Elexicon's Overhead System Renewal program targets the replacement of high risk, aging and deteriorating overhead infrastructure that are high-risk, already at or exceeding their TUL and are in poor or very poor condition. This includes the replacement of legacy porcelain in-line switches, insulators and arrestors, rear-lot infrastructure, overhead sleeves as well as PoleTran transformers.

This program is primarily driven by the need for the utility to manage Failure Risk within Elexicon's distribution system which is predominantly found in those assets that are at or have exceeded their TUL (age), are in Poor or Very Poor condition based upon the in-field inspection & testing results (condition), and have a high criticality of failure (risk). Through proactive replacements, this program helps mitigate the risk of overhead asset failures, which accounted for 50% of total Defective Equipment CHI and 55% of total Defective Equipment CI within the system from 2020 to 2024.

Secondary drivers for this program include Reliability and Safety. Replacement of legacy porcelain in-line switches, insulators and arrestors along with rear-lot infrastructure mitigates potential safety risks to Elexicon's staff and the general public. Replacement of rear-lot infrastructure with standardized front-lot underground infrastructure allows for standardized vehicles and practices to be applied, thereby reducing future outage impacts to customers. Furthermore, the replacement of switches, transformers, poles and conductor that are past TUL, high-risk and in poor/very poor condition mitigates future reliability impacts for customers.

In addition, this program introduces operational flexibilities in the form of improved capacity, where smaller diameter conductors are replaced with larger standardized conductors, or where additional feeders and conductors are installed to convert single-phase feeders to three-phase feeders as part of pole line rebuilds. This ultimately allows Elexicon to connect and upgrade customers looking to increase their service connection size (i.e. from 200A up to 600A).

Primary and secondary drivers are further defined in Table 3.

**Table 3: Summary of Primary & Secondary Program Drivers**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| Primary Driver: Failure Risk | This program is primarily driven by the need to replace assets over the planning period from 2027-2031, which are:<br>• At, approaching or already exceeding their TUL (age),<br>• In Very Poor or Poor condition based upon in-field inspection & testing results (condition), and,<br>• Carry a high criticality of failure (risk) |
| Secondary Driver: Reliability | • Replacement of overhead infrastructure at their end-of-life criteria (based upon age, condition and risk), as well as legacy rear lot assets, improves grid resiliency and mitigates reliability performance risk, in terms of both the frequency and the duration of outages due to defective equipment and other factors such as animal contact to overhead lines.<br>• Overhead equipment failures contribute to approximately 55% of the System Defective Equipment CI, while the majority of the CHI by animal contact are associated to overhead equipment.<br>• Larger sized conductors as part of pole line rebuilds allow for improved capacity management, including the ability to upgrade customer services if required. |
| Secondary Driver: Safety | This program mitigates a number of current-state safety risks & concerns:<br>• Replacement of rear-lot infrastructure mitigates the need for in-field crews to manually replace assets within the backyards of residential properties, thus mitigating safety risks.<br>• Replacement of porcelain in-line switches, insulators and arrestors with standardized polymeric switches, insulators and arrestors mitigates safety risks associated with catastrophic porcelain failures.<br>• Replacement of legacy overhead sleeves, which are prone to moisture, salt and dirt ingress, mitigates the potential for failure of the splice connection and resulting downed energized conductor lines which introduce significant safety risks to crews and the public. |

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| | • Replacement of single-insulator in-line switches, which are highly susceptible to thermal degradation and breakage, with new standardized dual-insulator in-line switches. |

The following subsections provide further details on the above primary and secondary drivers as they relate to the major assets being intervened upon within this program.

## 3.2 Overhead System Failure Risk

The Overhead System Renewal program is primarily driven by the need for the utility to manage and address the risk of asset failure within the overhead distribution system. As overhead assets operate and are exposed to the outside elements on a day-to-day basis, these assets degrade over time.

To prioritize assets for intervention, Elexicon leverages age, condition and risk results as part of their broader Asset Management Planning Process (as detailed in Exhibit 2B - Tab 3 - Schedule 1). Figure 8 illustrates the breakdown of overhead distribution assets that are already past their TUL or will exceed TUL in the next 5 years. This figure illustrates that approximately 20% of assets have already exceeded their TUL or will exceed their TUL within the DSP planning period, requiring the utility to proactively respond to manage the risk of asset failure.

**Figure 8: Overhead Distribution Asset Demographics by Quantity (%)**

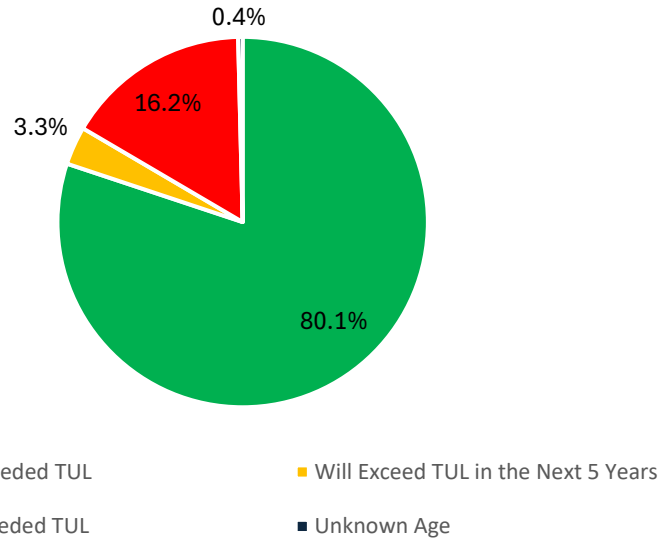



Table 4 further illustrates the breakdown of overhead distribution asset demographics across the asset classes:

**Table 4: Overhead Distribution Asset Class Demographics Results by Quantity (%)**

| Asset Class | Typical Useful Life | Asset Demographics Results (%)[1] | | | |
|---|---|---|---|---|---|
| | | Has Not Exceeded TUL | Will Reach TUL in 5 Years | Already Exceeded TUL | Unknown |
| Wood Poles | 45 | 66.5% | 4.4% | 28.8% | 0.3% |
| Concrete Poles | 60 | 99.2% | 0.6% | 0.2% | 0.0% |
| Overhead Conductors | 60 | 97.8% | 0.4% | 0.1% | 1.7% |
| Polemount Transformers | 40 | 84.8% | 6.9% | 8.3% | 0.0% |
| Overhead Switch | 45 | 98.1% | 0.5% | 0.8% | 0.5% |

Figure 9 illustrates the condition demographics of overhead assets, revealing 31% of assets that are in Very Poor, Poor or Fair condition that will require attention over the next 10-year period. This includes

[1] Numbers may not sum due to rounding.

approximately 0.5% of assets in Very Poor, 10% of assets in Poor and 20% of assets in Fair condition categories respectively.

**Figure 9: Overhead Distribution Condition Demographics by Quantity (%) based upon 2025 ACA Results**

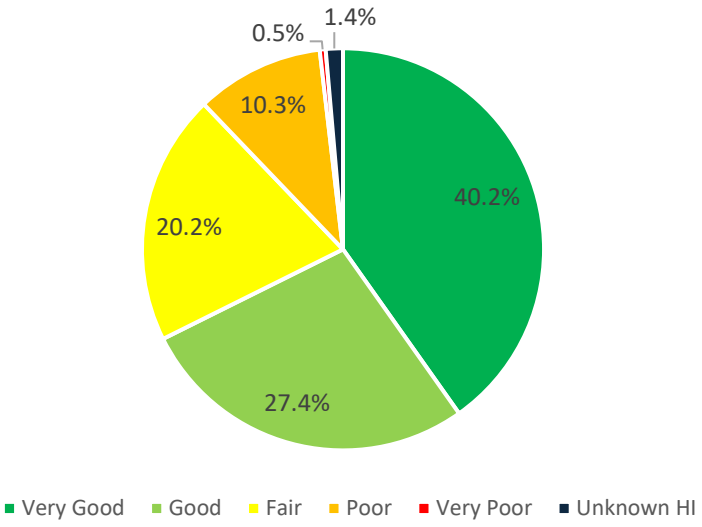



Table 5 illustrates the breakdown of overhead distribution assets across the individual Health Index (HI) categories – from Very Good to Very Poor. Those assets that receive an "Unknown HI" result include new assets that have yet to be inspected, as well as those assets that possess an insufficient amount of available inspection data at the time of the assessment.

**Table 5: Overhead Distribution Asset Condition Demographics Results (%) based upon 2025 ACA Results by Asset Class**

| Asset Class | Population [2] | Assets to be Replaced (2027-31) | Health Index Distribution (%)[3] | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Very Good | Good | Fair | Poor | Very Poor | Unknown HI |
| Wood Poles | 34,874 | 357 | 26% | 24% | 31% | 16% | 1% | 2% |
| Concrete Poles | 2,379 | 308 | 2% | 40% | 30% | 27% | 1% | 0% |
| Overhead Conductors (km) | 4,696 | - | 67% | 26% | 5% | 0% | 0% | 2% |
| Polemount Transformers | 8,831 | 92 | 57% | 20% | 14% | 8% | 1% | 0% |
| Overhead Switch | 16,844 | 842 | 59% | 36% | 4% | 0% | 0% | 1% |

Table 6 illustrates the forecasted outcomes to overhead asset condition demographics as a result of executing this program.

**Table 6: Overhead Distribution Forecasted Asset Condition Demographics Results (%) by end of 2031 by Asset Class**

| Asset Class | Population[4] | Forecasted Health Index Distribution (%)[5] | | | | | |
|---|---|---|---|---|---|---|---|
| | | Very Good | Good | Fair | Poor | Very Poor | Unknown HI |
| Wood Poles | 34,874 | 24% | 22% | 33% | 18% | 0% | 2% |
| Concrete Poles | 2,379 | 13% | 29% | 24% | 34% | 0% | 0% |
| Overhead Conductors (km) | 4,696 | 53% | 34% | 10% | 1% | 0% | 2% |
| Polemount Transformers | 8,831 | 47% | 23% | 18% | 12% | 0% | 7% |
| Overhead Switch | 16,844 | 51% | 33% | 15% | 0% | 0% | 1% |

[2]Minor differences to be expected between ACA population count and other data sources due to data scrubbing and assumptions process.
[3] Numbers may not sum due to rounding.
[4] Minor differences to be expected between ACA population count and other data sources due to data scrubbing and assumptions process.
[5] Numbers may not sum due to rounding.

The following subsections serve to provide further details on individual asset classes contributing to Failure Risk within Elexicon's overhead distribution system.

### 3.2.1 Wood Poles

**Figure 10: Wood Pole with Shell Rot**



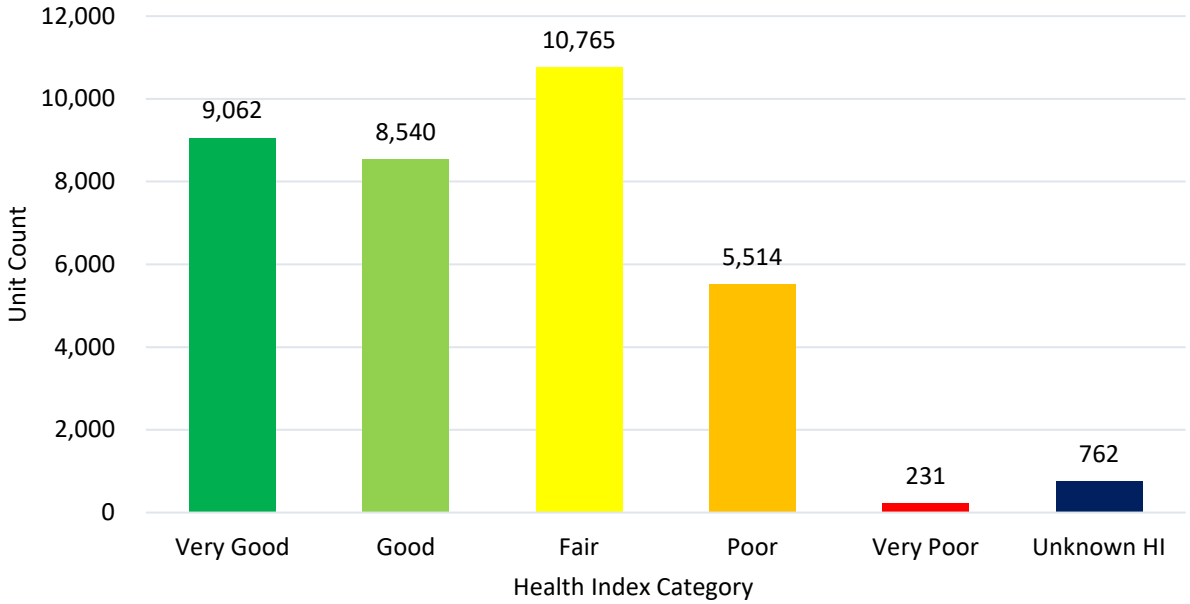
Wood poles are the most common asset found within an electric distribution system and represent the primary support structure for overhead distribution infrastructure, including overhead transformers, switches and conductors.

As wood is a natural material, it degrades due to biological and environmental mechanisms which include internal rot & fungal decay, external impacts such as damage from woodpeckers and insects, as well as the

impacts of extreme weather and temperatures that can reduce the mechanical strength of the pole over time. As pole strength decreases, additional safety and environmental risks can emerge.

Figure 11 further illustrates the breakdown of wood poles across the condition categories from Very Good to Very Poor. These results show a material quantity of poles within the "Fair" category range, that are expected to deteriorate in condition over the DSP planning period, and continued assessment of the wood poles with unknown HI is planned.

**Figure 11: Wood Pole Condition Demographics Results (Quantity) based upon 2025 ACA Results**



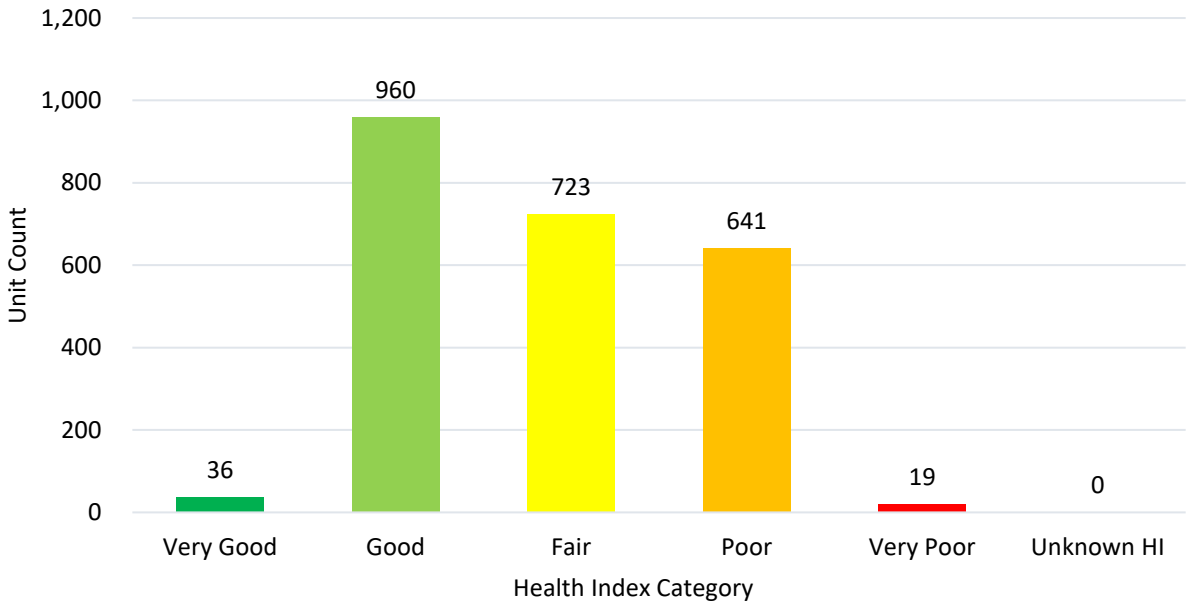

### 3.2.2 Concrete Poles

Concrete poles have a similar application as wood poles within the overhead distribution system, with the exception being that concrete poles are often utilized for targeted applications. For instance, these poles are generally used in dense urban portions of Elexicon's service area, or in areas such as downtown cores where appearance and aesthetics must be prioritized. However, it should be noted that when these poles reach their end-of-life criteria and need to be replaced, these will be replaced with wood poles, as concrete poles are more prone to leakage and tracking. The cement materials within concrete poles can absorb

moisture, creating a surface path for leakage current. As these poles become more wet and/or contaminated, this can result in an increased surface current flow. Concrete poles also have a greater susceptibility to surface tracking – particularly where the insulator connects with the pole. By comparison, wood poles are much less conductive, as they are an excellent insulator when dry. In addition, wood poles have improved tracking resistibility. Finally, unlike wood poles, concrete poles are hollow on the inside, with bolts that hold the pole materials together. These bolts are inaccessible and therefore cannot be maintained. Ultimately, these bolts will rust and corrode over time.

Figure 12 further illustrates the breakdown of concrete poles across the condition categories from Very Good to Very Poor. These results show a material quantity of concrete poles within the "Poor" and "Fair" category ranges, that are expected to worsen over the DSP planning period and will require intervention.

**Figure 12: Concrete Pole Condition Demographics Results (Quantity) based upon 2025 ACA Results**



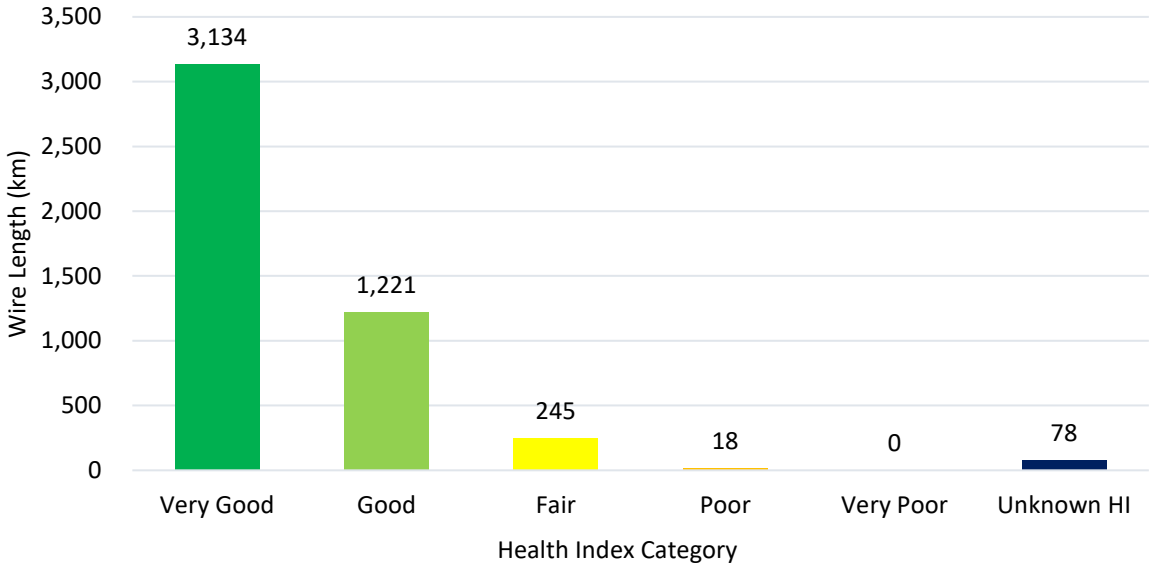

### 3.2.3 Overhead Conductor

Overhead conductors represent a critical component within the broader overhead distribution system. The age and size of the conductors are the primary factors used to determine the Health Index for these

assets due to the very limited in-field visual inspection data or maintenance that can be performed. Figure 13 illustrates the breakdown of overhead conductor across the condition categories from Very Good to Very Poor. Approximately 5.6% of the total population of conductors are in the Fair and Poor condition categories, and continued assessment of the overhead conductor with unknown HI is planned.

While this program focuses on the proactive and targeted replacement of overhead sleeves & connections, overhead conductors are replaced as part of pole line rebuilds, where surrounding assets including polemount transformers, poles, and switches are beyond their TUL and in Poor or Very Poor condition and need replacement due to failure risk. This approach achieves economies of scale and minimizes customer interruption and community impacts associated with future line rebuilding.

**Figure 13: Overhead Conductor Condition Demographics Results (Quantity) based upon 2025 ACA Results**




### 3.2.4 Polemount Transformers

**Figure 14: Three-Phase Polemount Transformer with Corrosion & Leakage**



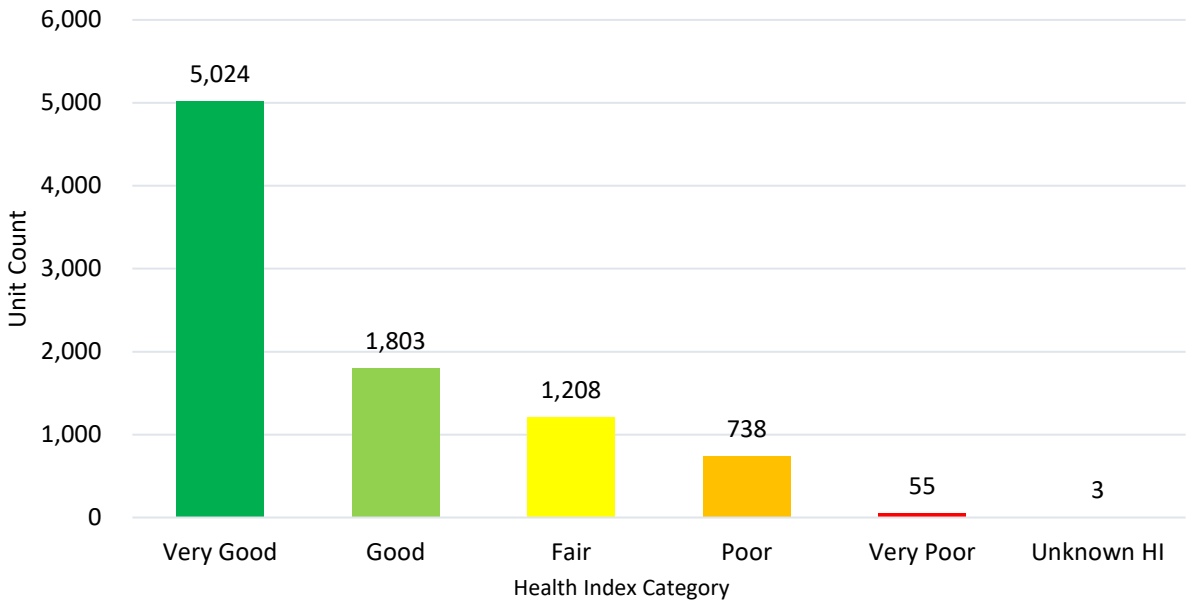
Polemount transformers represent a critical asset within the overhead distribution system, responsible for stepping down the voltage from primary voltage levels to the secondary voltage levels suitable for the customer. Key inputs used as part of the polemount transformer condition assessment include asset age as well as infrared scanning results.

Polemount distribution transformers consist of an iron core, paper insulated wire windings and mineral oil insulating liquid contained within a covered steel tank. Throughout the TUL of the transformer, the paper insulation degrades, releasing impurities and contaminating the insulating mineral oil, diminishing its dielectric insulating and thermal conductivity properties. This degradation can lead to internal winding faults and potentially explosive catastrophic failures which can cause the transformer steel lid to pop off, posing safety risks as well as environmental contamination hazards due to oil leakage.

Corrosion can further accelerate this depolymerization effect, by exposing the mineral oil to oxygen and moisture. Where corrosion is detected, a transformer may be repaired, with repainted materials and replacement of gaskets. Other failure modes include overheated connections due to the primary or secondary voltage connections being too loose. Infrared scanning is designed to detect overheated elements, which are then considered as part of the condition assessment.

Figure 15 illustrates the breakdown of polemount transformers across the condition categories from Very Good to Very Poor. This figure shows that approximately 23% of polemount transformers are in Fair, Poor or Very Poor condition and will need to be managed over the next 10-year period, with 9.0% of these transformers in Poor or Very Poor condition necessitating replacement within the next 3-year period.

**Figure 15: Polemount Transformer Condition Demographics Results (Quantity) based upon 2025 ACA Results**




### 3.2.5 Overhead Switches

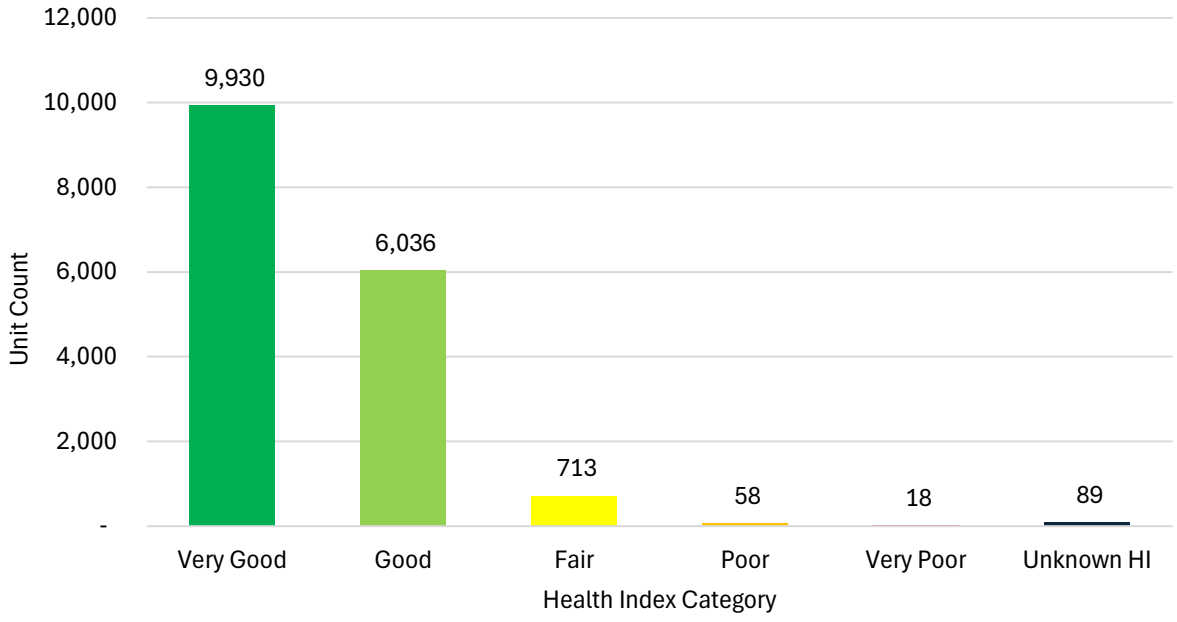
Overhead switches, such as LIS, SCADA-enabled, in-line and fused cut-outs, are crucial components of the overhead distribution system. They facilitate sectionalizing, isolation, and restoration activities during planned and unplanned outage events and are also used as part of day-to-day load transfer and operational activities.

These assets can fail passively, meaning they can fail without causing immediate impact to the distribution system. For example, if a switch becomes heavily corroded, it cannot be operated to isolate a circuit. Although this does not cause immediate reliability issues, it can prolong an outage event when the switch cannot be used as intended. Field crews may need to locate the next operational switch, leading to longer outage durations and greater impact on customers. On rare occasions, an overhead switch may fail catastrophically, causing a flashover that poses safety risks to field crews.

Overhead switches experience various degradation factors based on their type and subtype. Single-phase switches, like fused and solid-blade disconnects, degrade mainly due to corrosion, insulator tracking, and heat from loose connections. Three-phase switches, including LIS and SCADA-Mate switches, degrade due to environmental contamination, mechanical wear, electrical stress, and loose connections detectable through infrared scanning.

Figure 16 illustrates the breakdown of overhead switches across the condition categories from Very Good to Very Poor. These results reveal 76 switches that are in Poor or Very Poor condition and will require replacement within the DSP planning period, and continued assessment of the overhead switches with unknown HI is planned.

**Figure 16: Overhead Switch Condition Demographics Results (Quantity) based upon 2025 ACA Results**




## 3.3 Overhead System Reliability

Elexicon's overhead distribution system and associated assets contribute towards approximately 55% of System Defective Equipment CI and 50% of System Defective Equipment CHI from 2020 to 2024. Overhead

primary conductor, connections, sleeves and taps are the leading contributors to Overhead Defective Equipment CHI (48%) and System Defective Equipment CHI (24%). In addition, Defective switches and cutouts collectively represent the leading contributors to Overhead Defective Equipment CI (37%) and System Defective Equipment CI (20%).

Figure 17 further summarizes the asset class contributions towards Overhead Defective Equipment CI and CHI respectively.

**Figure 17: Overhead Defective Equipment CI & CHI Contribution (%)**

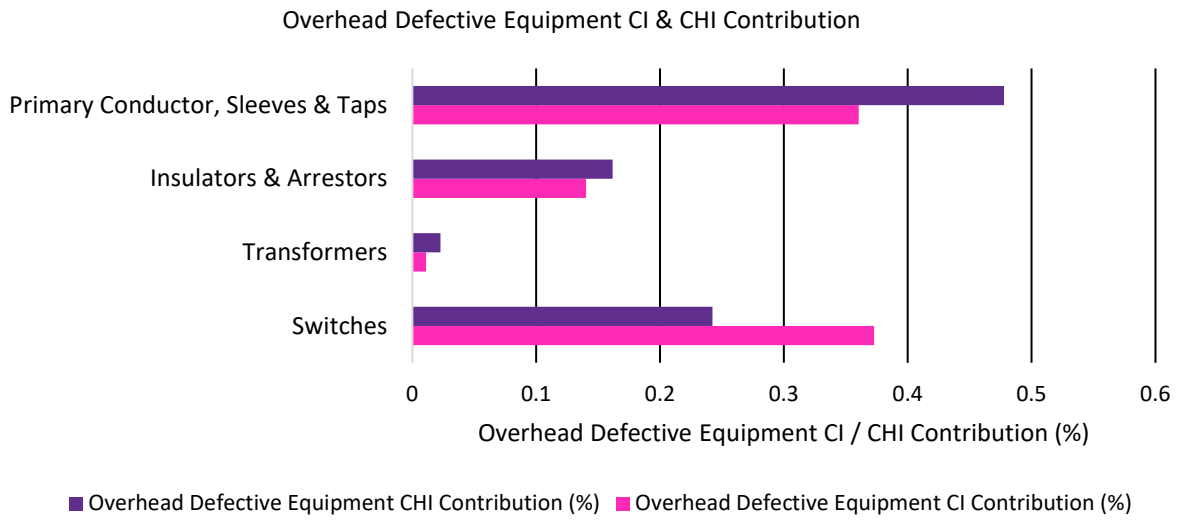



Figure 18 illustrates the Defective Equipment contribution towards SAIFI and SAIDI impacts across the Overhead System from 2020 to 2024. At the highest level, this figure illustrates how Overhead Defective Equipment SAIDI continues to trend upwards year-over-year. While Overhead Defective Equipment SAIFI was mostly stable from 2021 to 2023, it too has continued to increase from 2023 onwards.

Figure 19 further illustrates the breakdown of historical reliability cause code CI impacts from 2020 to 2024 (Excluding Loss of Supply (LOS) and MED). This figure illustrates that the two major reliability cause codes impacting overhead system reliability include defective equipment – representing on average 28% of all

interruptions from 2020 to 2024 – and foreign interference – representing on average 25% of all interruptions from 2020 to 2024.

**Figure 18: Overhead System – Historical Defective Equipment Reliability (2020 to 2024)**

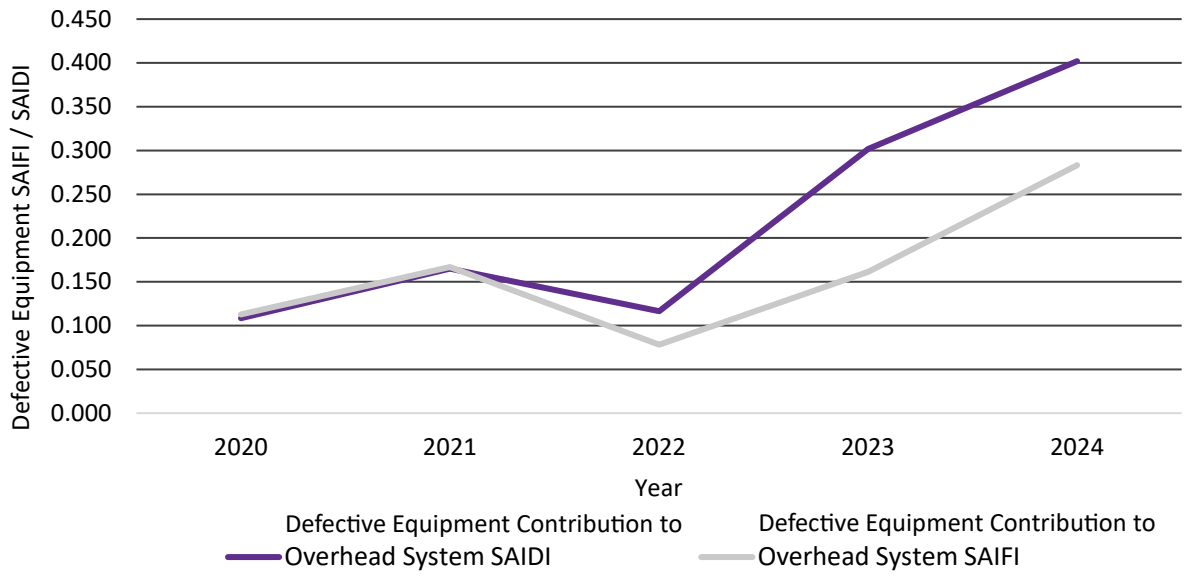


**Figure 19: Overhead System CI Cause Code Distribution by Year (Excluding LOS and MED)**

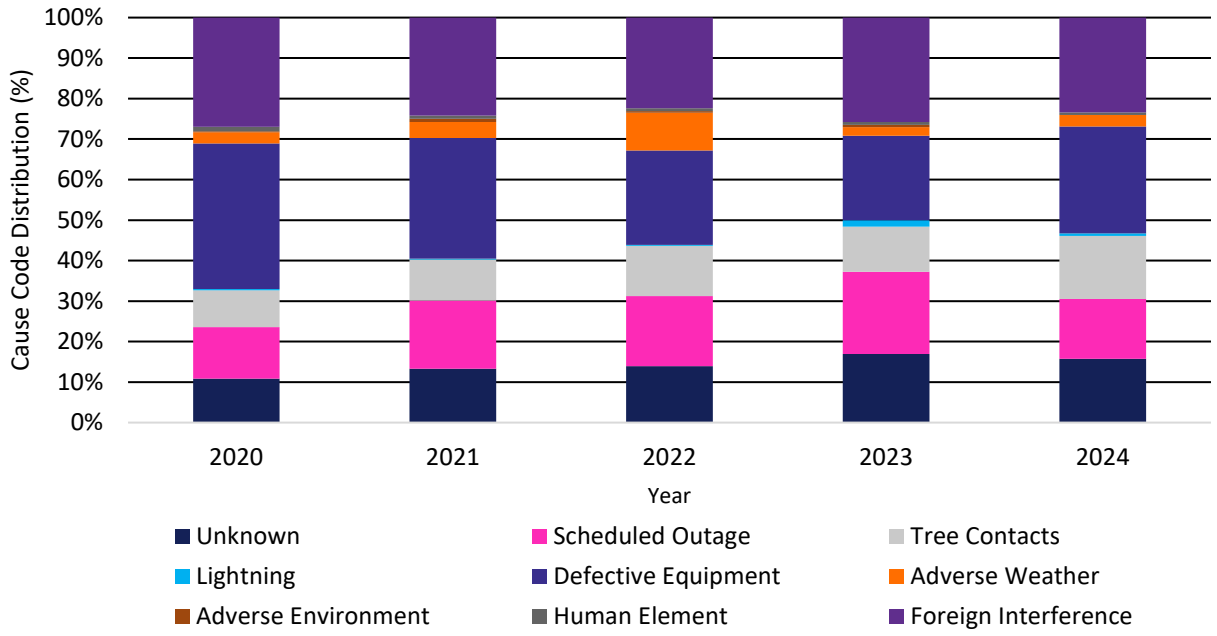



Figure 20 and Figure 21 further illustrate the breakdown of the contribution to Defective Equipment SAIDI and Defective Equipment SAIFI from individual overhead asset classes respectively. As illustrated in these figures, overhead primary connections & sleeves remains the greatest reliability contributor, with SAIDI impacts becoming progressively worse from 2020 to 2024, while SAIFI impacts have remained largely consistent during this same period. In addition, SAIDI and SAIFI impacts relating to overhead switch defective equipment has gradually worsened from 2020 to 2024.

**Figure 20: Overhead System Defective Equipment SAIDI Distribution by Year**

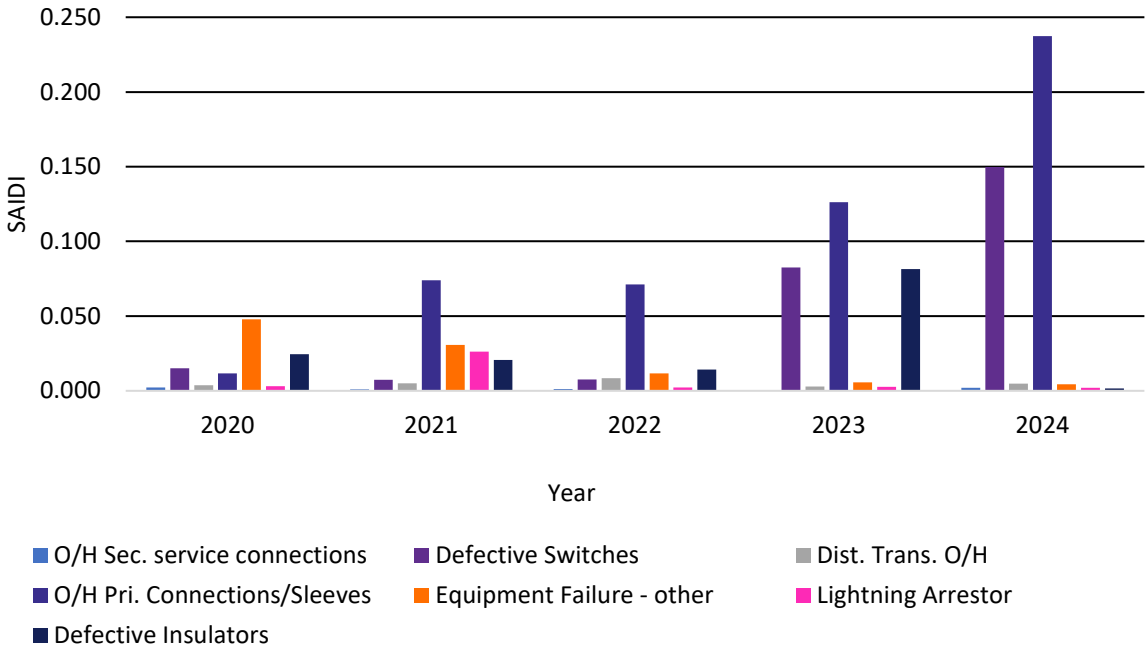
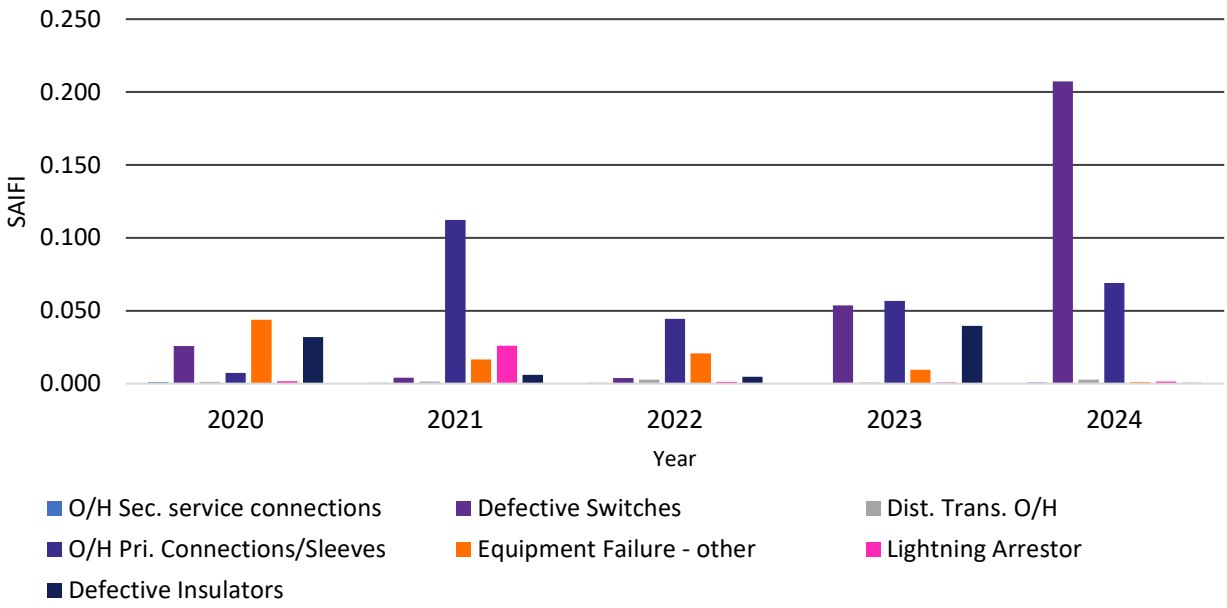


**Figure 21: Overhead System Defective Equipment SAIFI Distribution by Year**




From 2020 to 2024, feeders with associated rear-lot asset infrastructure accounted for 8.2% of the total Customer Outage Hours. Due to accessibility issues of the rear-lot infrastructure and the need for manual work processes to access and maintain rear-lot infrastructure, it takes a longer amount of time to perform day-to-day operational activities, as well as sectionalizing, isolation and restoration activities within rear-lot locations. Table 7 further summarizes a comparison of customer average interruption duration index (CAIDI) results from 2020 to 2024 on feeders with rear lot locations within the Ajax district and the 5-year average CAIDI across all of Ajax district. When comparing the 1.17 hrs (5-year average CAIDI) within Ajax to the specific rear lot feeder's restoration times within Ajax, a 44% difference in CAIDI is observed. By converting these assets to front-lot underground assets that are serviceable via standard vehicles and inspection practices, we can expect future CAIDI impacts to be reduced for these customers.

**Table 7: Rear Lot Feeder CAIDI Comparison**

| 2020 to 2024 Period | | |
|---|---|---|
| Rear Lot Feeders in Ajax | Number of Sustained Interruptions on Rear Lot Feeders in Ajax | Rear Lot Ajax CAIDI (Hrs) |
| SAND-F2 | 41 | 1.70 |
| SQUI-F1 | 13 | 1.27 |
| DOWT-F4 | 38 | 0.59 |
| PICB-F6 | 88 | 1.91 |
| PICB-F2 | 36 | 2.59 |
| PICB-F1 | 26 | 1.39 |
| PICB-F5 | 63 | 1.90 |
| PICB-F4 | 40 | 2.96 |
| MONA-F1 | 14 | 0.62 |
| MONA-F4 | 44 | 2.10 |
| Rear Lot Average | 40 | 1.71 |

## 3.4 Overhead System Safety

There are several asset types and subtypes within the overhead distribution system that have been determined to be functionally obsolete, as they introduce safety, environmental and reliability risks to the overhead distribution system. Replacing these assets with standardized equipment mitigates these risks.

### 3.4.1 Porcelain Fused Cut-Outs, Arrestors, Insulators

Porcelain hardware, such as fused cut-out switches, insulators, and arrestors, is typically found on older overhead systems and is prone to aging. Porcelain's brittleness makes it susceptible to cracking, potentially causing catastrophic flashover events and safety risks to crews and the public. Additionally, porcelain material is vulnerable to contamination derived from salt spray and brine, as well as exhaust fumes from adjacent roadways, which can result insulator tracking, leading to potential pole fires.

To address these risks, this program replaces porcelain fused cut-outs, arrestors, and insulators with standardized equipment utilizing polymeric materials. These materials are more resistant to contamination, less brittle, and more resilient to potential catastrophic failure modes. Additionally, this program also replaces porcelain single-insulator in-line switches with standardized polymeric dual-insulator in-line switches.

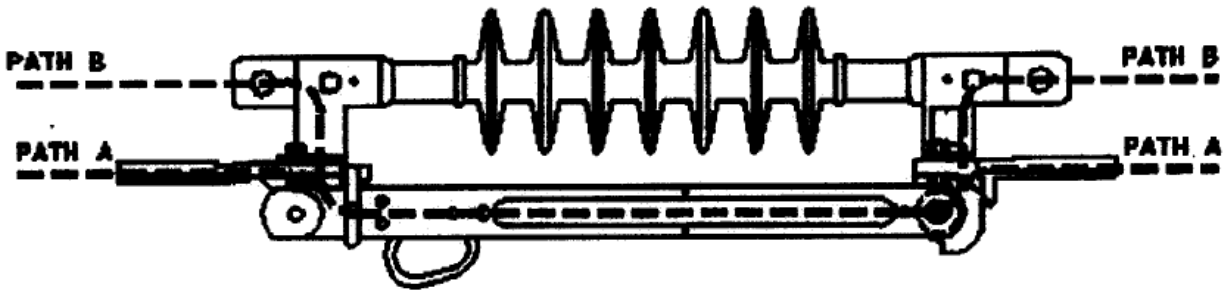
### 3.4.2 Single-Insulator In-Line Switches

Single-insulator in-line switches possess a design flaw that results in only two pathways for current to flow through the switch.

Figure 22 illustrates the design of single-insulator in-line switches, and these two pathways for current flow. In this figure, Path A represents the desired current flow pathway, while Path B represents the undesired current flow pathway.

If Path A ends up developing a high resistance, this can result in more current being forced into the undesired Path B, which can produce heating issues, leading to separation and breakage of the switch at the insulator end fitting. Exhibit 4 - Tab 1 - Schedule 4 provides further details on the relevant OM&A programs, including in-field infrared thermography that is performed to assess the temperature and identify any hotspots along these assets, along with visual inspections performed on the insulator end fittings to identify any cracks or slippage.

**Figure 22: Single Insulator In-Line Switch Operational Current Paths**




In 2023, a single insulator in-line switch failure occurred in this manner, resulting in an open switch that was broken in half, and left suspended on the overhead line, which is further illustrated in Figure 23. In this instance, the line was still energized, and the nearby recloser was unable to detect the fault, leaving the line energized, resulting in a potential safety risk to nearby customers as well as in-field crews.

For these reasons, the Overhead System Renewal program targets the replacement of these switches with dual insulator in-line switches, which contain a double string of polymeric insulators, thereby providing

additional pathways for the current to flow through the switch, and mitigate the risk of overheating within the switch.

**Figure 23: Single Insulator In-Line Switch Failure**






### 3.4.3 Rear-Lot Overhead Infrastructure

**Figure 24: Rear Lot Wood Pole**



Rear-lot overhead infrastructure is installed in the backyards of residential communities and may come into contact with vegetation and present other potential hazards to field crews. Within the scope of the Overhead System Renewal program, a targeted portion of rear lot infrastructure will be converted to front-lot underground infrastructure at the 13.8 kV system voltage. This will allow for these assets to be brought in alignment with standard operating practice and will allow in-field crews to properly maintain the new asset infrastructure and manage future outages in a far more efficient, safe and cost-effective manner.

These assets, which include wood poles, overhead conductors, pole mount transformers, switches, and service connections, are challenging to access due to the inability to utilize standard equipment. The nature of rear lot installation along uneven terrain, and with fences, landscaping and narrow pathways,

increases the overall complexity in accessing and managing these assets on a day-to-day basis. Conflicting residential assets such as swimming pools, further elevate the operational complexities as well as safety risks to in-field crews.

Referring to Table 7 within the Ajax district – which contains most of the rear lot infrastructure - the 5-year average CAIDI for feeders with rear lot infrastructure in Ajax is 44% higher compared to the system 5-year average CAIDI. This difference is largely due to the increased operational and accessibility challenges that prevent the same level and frequency of inspection and testing activities from being carried out for these assets when compared to traditional front-lot overhead and underground asset infrastructure. As visual inspection and testing activities are essential in being able to quantify asset condition and identify specific assets with deteriorating condition, these inspections are critical in supporting timely maintenance interventions, optimizing asset life cycles, and ensuring system reliability.

### 3.4.4 PoleTran Transformers

**Figure 25: PoleTran Transformer**



Elexicon's overhead system contains legacy PoleTran transformers, which are similar to polemount transformers, but installed within large diameter concrete poles. These transformers no longer align to Elexicon's standard practices, and due to their installation, are difficult to inspect and maintain. As these transformers are installed within a pole, they are subjected to higher ambient temperatures when compared to traditional pole mount transformers. This can result in an acceleration of depolarization of the mineral oil within the transformer, resulting in eventual insulation failure and winding faults. As part of the Overhead System Renewal program, these assets will be replaced with standardized pole mount transformers.

As these assets differ in design from traditional overhead and underground transformers, other operational and safety-related issues can occur. Due to their installation, there are elevated risks of an arc flash or overheating that can take place within the pole, resulting in a fire and other safety-related events.

An incident occurred in 2023 where a new fuse needed to be installed within a PoleTran unit. The existing fuse to be replaced couldn't sit properly within the fuse holder and made contact with the steel PoleTran enclosure, resulting in a flashover event. New fuse holders were promptly ordered and installed, but this event revealed the elevated safety risks associated with this type of transformer.

# 4. INVESTMENT TIMING & PACING

## 4.1 Summary of Expenditures

Table 8 summarizes the total investments associated with the Overhead System Renewal program, including the historical period from 2020 onwards to 2024, the bridge period from 2025 to 2026, and the forecast period from 2027 onwards to 2031.

Figure 1 illustrates how overhead reliability indicators – SAIFI and SAIDI – have been getting progressively worse over time from 2020 to 2024. As illustrated in Table 5, Elexicon made efforts to progressively increase investment within the Overhead System beginning in 2021 and 2022. These investments have largely contributed to the stabilization of SAIFI from 2021 to 2023. However, SAIDI has continued to increase during this time, and SAIFI is also showing signs of worsening trends from 2023 onwards.

Table 8 also reveals constraints in Overhead System Renewal investments beginning in 2023. These constraints have largely been due to the need for Elexicon to balance other competing priorities, including the execution of non-discretionary System Access investments such as Customer Connections, Externally-Initiated Plant Relocations and System Expansion investments, which have continued to grow in scope and quantity. In addition, to support new customer connection and system expansion requests, Elexicon has also had to ramp up investment into the Substation Growth program, beginning in 2022.

From 2023 to 2027, Elexicon is continuing to balance investments within the Overhead System Renewal program with non-discretionary System Access and Substation Growth investments to manage continued customer and load growth. Elexicon plans to increase Overhead System Renewal investments beginning in 2028 to balance the needs of the overhead system with non-discretionary and system growth investments, while also managing customer rate affordability.

**Table 8: Summary of Expenditures ($M)**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 4.57 | 7.67 | 7.23 | 5.37 | 4.78 | 2.78 | 1.01 | 2.58 | 10.34 | 13.25 | 14.74 | 14.80 |
| Contributions | | | | | | 0.16 | | | | | | |
| Capital (Net) | 4.57 | 7.67 | 7.23 | 5.37 | 4.78 | 2.62 | 1.01 | 2.58 | 10.34 | 13.25 | 14.74 | 14.80 |

Table 9 further summarizes the quantity of overhead assets replaced within this same time period.

**Table 9: Summary of Major Overhead Asset Replacements**

| | Actuals | | | | | Bridge | | Forecast | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Transformers | 33 | 18 | 64 | 15 | 9 | 22 | 8 | 10 | 25 | 14 | 22 | 21 |
| Switches | 51 | 102 | 74 | 20 | 39 | 21 | 8 | 4 | 207 | 211 | 212 | 218 |
| Wood Poles | 216 | 353 | 299 | 180 | 111 | 92 | 35 | 26 | 56 | 81 | 98 | 96 |
| Concrete Poles | | | | | | - | - | 32 | 30 | 64 | 91 | 91 |
| Conductor (km) | | | 2 | 0 | 0 | - | - | - | - | - | - | - |

The first year of the Overhead System Renewal program will focus on the replacement of assets that are leading contributors to reliability impacts, including the replacement of overhead sleeves, pole mount transformers, switches and poles. The reduced expenditure pace in 2027 allows for this program to be balanced against other major investments that are taking place that same year, including substation renewal, substation growth, and system expansion.

Expenditures increase in 2028 through 2031 due to additional overhead renewal work scope including the replacement of porcelain insulators, arrestors and cut-outs~~,~~ as well as the replacement of single-insulator in-line switches and conversion of rear-lot infrastructure.

While total expenditures during the forecast period of 2027-2031 exceeds total expenditures during the historical and bridge periods, cost increases are driven both by the growing need to replace assets over the planning period which are at, approaching or exceeding their TUL, in very poor or poor condition, and carry a high criticality of failure.

## 4.2 Investment Pacing and Prioritization

Elexicon's AM Planning Process (Exhibit 2B - Tab 3 - Schedule 1) describes Elexicon's broader approach to developing capital & maintenance investment plans, including investment pacing and prioritization functions. Elexicon leverages this process to both identify and prioritize individual overhead assets as part of discrete capital investment projects. Key analytical parameters that are first leveraged to prioritize overhead assets, and identify discrete project opportunities across Elexicon's service area include:

- Asset condition: Leveraging a combination of visual inspection and testing results, health index (HI) results as produced by the Asset Condition Assessment (ACA) framework are leveraged to identify and prioritize specific overhead assets for intervention that are in Very Poor and Poor condition and integrate these into discrete capital projects.
- Asset criticality (risk): Leveraging financial, reliability, environmental and safety criticality factors, discrete overhead system investments are prioritized for execution within the DSP planning period. This not only considers the financial and reliability impacts of overhead asset failures but also accounts for potential safety risks associated with legacy overhead infrastructure.
- Asset age: At the system-level, assets that are past their TUL, or to exceed their TUL by 2031, are identified to ascertain overall investment needs within the overhead system.

In addition to these foundational analytics, there are other constraints that will influence the scheduling and pacing of overhead system renewal investments, including:

- Execution & resource availability: Certain overhead investments, including rear-lot infrastructure conversion, can only be performed at certain times of the year under optimal weather conditions and temperatures, and require specialized labour, civil construction and coordination with contractors. Availability of these resources, particularly in peak construction seasons, may impact project execution. Through strategic planning, advanced ordering of materials and maintaining strong relationships with the contractor community, Elexicon will endeavour to optimize the delivery of their investment program, while also managing the risks of cost overruns and increases due to the impacts of inflation.

- System constraints: Overhead investments require planned outages in order to safely remove end-of-life equipment and install new standardized equipment. To ensure effective operability of the distribution system, only so many overhead projects and planned outages can be performed at any given time within the system.
- Investment constraints: There is a need to balance the investments within this program with investment requirements across the DSP planning period. This also includes the need to respond to new customer connections, new capacity upgrades, third-party requests as well as the need to increase capacity within the system to support these new customers.

Between 2020 and 2024, there has been a 271% increase in Defective Equipment SAIDI and a 151% increase in Defective Equipment SAIFI outages relating to the overhead system. Continued deferrals would compound reliability challenges, leading to more frequent and prolonged outages.

The program's pacing strategy is structured to ensure ramp-up in overhead renewal investment, allowing for efficient deployment of capital and optimal resource alignment. Elexicon is implementing a phased approach that prioritizes high-risk overhead infrastructure. A key consideration in pacing expenditures is outage mitigation and minimizing customer impacts. By proactively addressing the most failure-prone areas first, Elexicon aims to reduce the frequency and duration of outages while enhancing system resilience.

If Overhead System Renewal investments are further deferred, Elexicon anticipates significant negative impacts. Reliability deterioration will accelerate, as failure rates of overhead sleeves & connections, switches as well as insulators & arrestors are expected to increase, exacerbating SAIDI/SAIFI performance declines. The longer these assets remain in service, the greater the risk of unexpected failures, leading to more frequent and prolonged outages.

Additionally, program deferral would result in continued and growing CAIDI impacts – particularly in rear-lot locations such as Ajax, where a 44% difference in CAIDI is observed when comparing the 5-year average CAIDI within Ajax to the feeders restoration times associated with rear lot infrastructure within Ajax.

Reactive maintenance expenditures would also escalate due to emergency repairs/replacements, fault isolation challenges, and unplanned service interruptions. This reactive approach is less cost-effective than planned renewals and places additional strain on field crews and operational budgets.

Beyond financial and reliability concerns, program deferral will also lead to heightened customer dissatisfaction. Increased outage frequency and duration would negatively impact customers. Addressing overhead system renewal investments in a timely manner is essential to maintaining service quality and customer trust.

## 4.3 Execution Approach

As part of program execution, Elexicon applies several procedures to manage emerging risks that may occur, to ensure that projects are executed in a timely and optimal manner. This includes the following risk mitigations as summarized in Table 10.

**Table 10: Summary of Program Risks & Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| Resource Availability: Need to ensure that specialized labour, civil construction, and coordination with contractors is in place to deliver the work on time and on budget. | • Resource Balancing: Investment program has been optimized to ensure that it can be executed within the given timeframe, with necessary specialized labour, civil construction and external contractor resources. |
| Project Delivery Constraints: Need to ensure that all work is deliverable in-field given weather, system and other physical constraints that can impact or delay project executability. | • Scope Validation: Each produced scope undergoes a validation process upon conversion to project, to ensure that there are no potential delivery constraints.<br>• As part of annual work planning and tracking materials & resources are optimized for effective utilization, resulting in optimal sequencing of projects throughout the course of the year. |
| Project Quality: Ensuring that the project is delivered as per the original and intended scope, resulting in mitigation of risk to the system. | • Project Validation: Validation of the project continues during project execution and following execution, where a post-analysis is undertaken to assess the overall effectiveness of project delivery. |

| Risk | Mitigation Methods |
|---|---|
| Project Scheduling: Ensuring that the projects are executed on time and on schedule. | • Project Tracking: Elexicon leverages a series of key performance indicators as well as team engagements to ensure that project delivery remains on track and on schedule. |

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# 5. OPTIONS ANALYSIS

## 5.1 Options for Overhead System Renewal

An integral component as part of Elexicon's AM Planning Process (Exhibit 2B - Tab 3 - Schedule 1) is to assess the prudency of each investment program through the consideration of various investment options. Elexicon evaluated two investments options as part of their assessment of the Overhead System Renewal program, including Needs-Based and Balanced investment options. As part of this evaluation, both the accumulative current and forecasted asset condition and age of Overhead Distribution assets were carefully considered to ensure that investment decisions reflect asset condition, risk, safety and lifecycle performance. These investment options also considered the customer engagement results and preferences to balance rates with investment outcomes.

### 5.1.1 Balanced Investment ($55.72M) Option – Recommended

The Balanced investment option represents a form of investment where asset and system needs are balanced against customer rate impacts and represents the minimum investment level that Elexicon must make to the overhead distribution system to manage failure risk and reliability challenges. This option aligns with customer engagement results for rate and reliability preferences, and balances asset and system needs with customer affordability.

To establish balance between the non-discretionary System Access and Substation Growth investments, this proposed option aims to focus on the replacement of the worst performing wood and concrete poles, overhead switches, overhead transformers and overhead sleeves and connections beginning in 2027. From 2028-2031, the program increases the pace of investment to manage the replacement of additional overhead asset classes, including single-insulator in-line switches, porcelain hardware as well as rear-lot infrastructure conversion.

The balanced option will execute these activities at a manageable pace, accounting for available resourcing to deliver the work, along with known system constraints and rate impacts. As illustrated in Figure 26, this program will result in all Very Poor assets to be eliminated by 2031, with Poor assets increasing from the current 10% of the total overhead population up to 13%. In all, total Poor & Very Poor assets will increase

from 11% to 13% by the end of 2031, as opposed to increasing up to 14% (including 1% Very Poor) under a run-to-failure scenario (with no capital investment taking place).

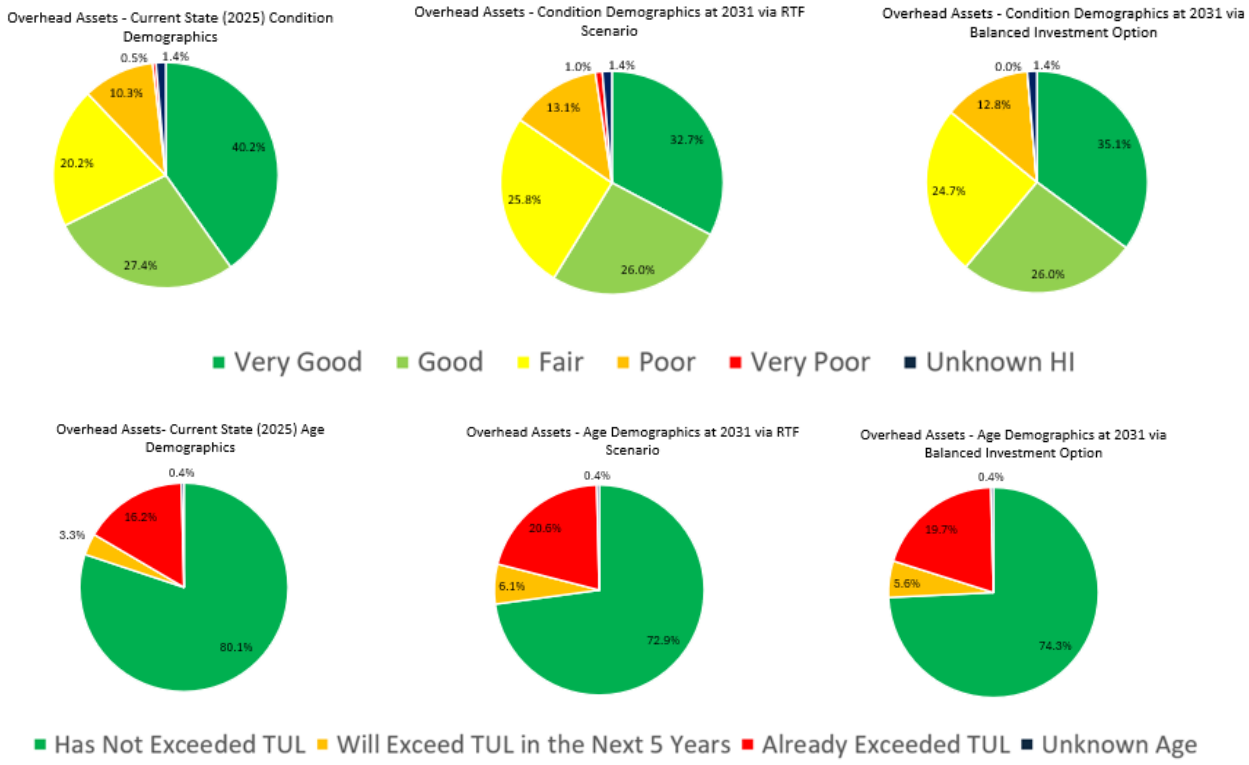
In addition, this program will also manage the 20% of overhead assets that have already exceeded or will exceed their TUL in the next 5 years. By the end of 2031, this amount will be expected to grow up to 25%, as opposed to 27% under the run-to-failure scenario. These results are further summarized in Table 11. Figure 26 provides the individual breakdown of results achieved from the Balanced Investment Option and Run-to-Failure scenario, when compared to current state results.

Ultimately, the Balanced investment option is designed to decelerate the growing asset backlog at a reasonable pace, while balancing System Access and Substation Growth needs along with rate impacts and available resourcing.

**Table 11: Change in Asset Demographics after Balanced Investment**

| | 2025 – Current State | 2031 – After Balanced Investment | 2031 – After Run-to-Failure |
|---|---|---|---|
| Assets in Poor and Very Poor Condition | 10.8% | 12.8% | 14.1% |
| Assets that have exceeded their TUL or will exceed their TUL in the next 5 years | 19.5% | 25.3% | 26.7% |

**Figure 26: Projected Asset Age & Condition Demographics results after 2031 for Balanced Investment Option**




### 5.1.2 Needs-Based ($96.67M)

The "needs-based" investment option represents an accelerated investment strategy across Elexicon's overhead distribution system. Within this option, there will be an accelerated form of spending to manage and replace overhead infrastructure.

By increasing capital deployment in the near term, Elexicon can create a more stable, reliable, and cost-effective overhead distribution system, reducing risks to customers and supporting long-term service sustainability. The needs-based option includes extensive replacements of poles, transformers, switches, conductors and overhead sleeves over the 5-year period, but at an increased cost to Elexicon's customers. This option does not align with customer engagement results to balance system needs with affordability.

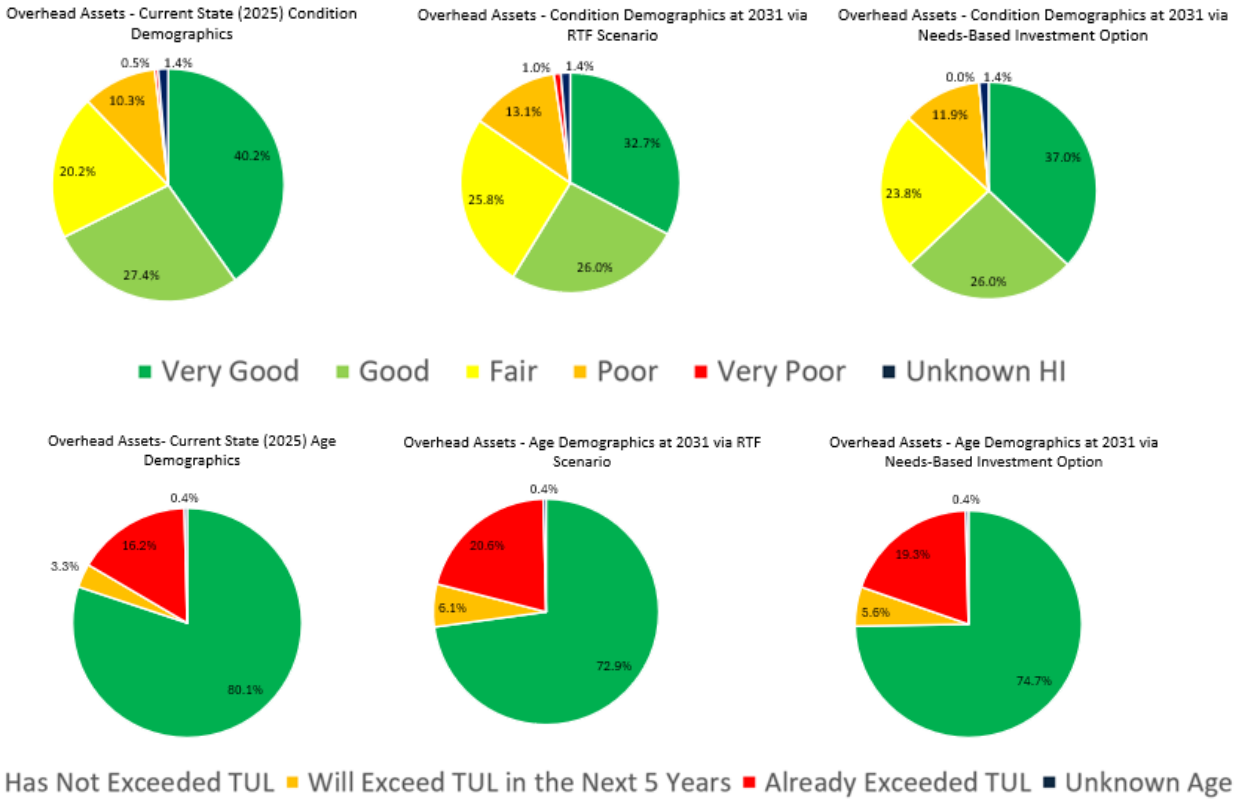
Figure 27 presents the projected assets past TUL and assets in Very Poor and Poor condition by 2031 under the Needs-Based option. This program attempts to maintain the percentage of Very Poor and Poor overhead assets as practicably as possible, increasing from the current 11% (including 0.5% Very Poor) of the total overhead asset population up to 12% (including 0% Very Poor) by the end of 2031, as opposed to increasing up to 14% (including 1% Very Poor) under a run-to-failure scenario.

In addition, this program will also manage the 20% of overhead assets that have already exceeded or will exceed their TUL in the next 5 years. By the end of 2031, this amount will be expected to increase to approximately 25%, as opposed to 27% under the run-to-failure scenario. Therefore, the Needs-Based option is designed to provide the greatest deceleration of Elexicon's growing backlog consisting of assets past TUL and assets in Poor/Very Poor condition. Results from the Needs-Based option are further summarized in Table 12. Figure 27 provides the individual breakdown of results achieved from the Needs-Based Investment option and Run-to-Failure scenario, when compared to current state results.

**Table 12: Change in Asset Demographics after Needs-Based Investment**

| | 2025 – Current State | 2031 – After Needs-Based Investment | 2031 – After Run-to-Failure |
|---|---|---|---|
| Assets in Poor and Very Poor Condition | 10.8% | 11.9% | 14.1% |
| Assets that have exceeded their TUL or will exceed their TUL in the next 5 years | 19.5% | 24.9% | 26.7% |

**Figure 27: Projected Asset Age & Condition Demographics results after 2031 for Needs-Based Investment Option**




Selecting the optimal investment option must depend on several factors, including:

- Risk & Reliability: The need to manage critical assets within the overhead system that are in Very Poor or Poor condition and past TUL,
- Competing Budgetary Priorities: The need to balance Overhead System Renewal investments with increasing competing budgetary priorities, including non-discretionary customer requests such as new connections,
- Capacity Needs: The need to balance Overhead System Renewal investments with capacity management, including Substation Growth investments, and,

- Customer Affordability: The need to ensure that overall investment levels result in manageable and affordable rate impacts for customers.

When balancing all the above factors, the Balanced investment option ultimately best aligns to the factors above, as this option allows for Elexicon to deliver an executable program that still manages risk and reliability while achieving customer value and engagement results.

### 5.1.3 Option Comparison and Recommendation

Elexicon has adopted the "Balanced" investment option, due to the need to balance asset and system needs with customer affordability, by maintaining investment at a level that prevents further deterioration in system performance. The Balanced option will not reduce the proportion of Poor and Very Poor assets but will contain and manage equipment failure risks in a cost-effective manner, and in conjunction with other programs (station renewal, grid enhancements, station growth), enabling the utility to address declining reliability and restore historic performance levels. Ultimately, the Balanced option is designed to decelerate the growing asset backlog at a manageable pace, accounting for available resourcing to deliver the work, along with known system constraints and rate impacts.

Table 13 provides a summary of the two considered investment options, including associated costs, assets to be replaced, condition & age demographic impacts, along with pros and cons for each option.

**Table 13: Option Analysis Summary**

| Investment Option | Cost | Assets Replaced 2027-31 | Asset Condition Impact | Asset Age Impact | Pros | Cons |
|---|---|---|---|---|---|---|
| Balanced Investment | $55.72M | 1,928 | 2% Decline in Condition Demographics (from 10.8% to 12.8% VP/P assets) | 5.8% Decline in Age Demographics (from 19.5% to 25.3% assets past TUL or to exceed TUL in 5 years) | • Aligns with customer engagement results for rate and reliability preferences.<br>• Balances asset and system needs with customer affordability | • Continued decline in condition & age demographics<br>• Lowest deceleration of growing backlog and corresponding asset degradation during the DSP planning period. |

| Investment Option | Cost | Assets Replaced 2027-31 | Asset Condition Impact | Asset Age Impact | Pros | Cons |
|---|---|---|---|---|---|---|
| | | | | | • Lowers the risk of asset failures while managing reliability<br>• Reduces reactive/capital costs to manage assets in poor/very poor shape<br>• Eliminates all VP assets by 2031. | |
| Need-Based | $96.67M | 3,445 | 1.1% Decline in Condition Demographics (from 10.8% to 11.9% VP/P assets) | 5.4% Decline in Age Demographics (from 19.5% to 24.9% assets past TUL or to exceed TUL in 5 years) | • Highest deceleration of growing backlog and corresponding asset degradation during the DSP planning period.<br>• Lowers reliability and asset failures risks | • Higher near-term rate impacts.<br>• Does not align with customer engagement results due to higher costs. |

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# R4 REACTIVE CAPITAL

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 ($M): $29.77M | 2025-2026 ($M): $17.27M | 2027-2031 Forecast ($M): $30.23M |
| Primary Driver: Failure | | |
| Secondary Drivers: Reliability, Safety, Environment | | |
| Outcomes: Customer Focus, Operational Effectiveness – Reliability, Operational Effectiveness – Safety, Environment | | |
| Segments: Distribution – Reactive Capital, Stations – Reactive Capital | | |

Elexicon's Reactive Capital program allocates investment to address assets that have failed or are at imminent risk of failure due to deficiencies, typically identified through inspection and maintenance activities requiring immediate intervention. The program also addresses replacements required due to unforeseen events, including foreign interference and damage caused by extreme weather conditions such as storms, high winds, flooding, and other climate-related impacts that can compromise system reliability and asset integrity. Given the emergent nature of these requirements, the program is inherently non-discretionary and demand-driven, ensuring timely action to restore service while also mitigating safety, environmental and reliability risks.

While Reactive Capital work is inherently unplanned and unpredictable, Elexicon allocates funding for the Reactive Capital program budget by analyzing a combination of historical investment trends, historical outage data, and asset condition assessments. Elexicon has forecasted $30.23M of investment within the Reactive Capital program over the 2027-2031 period. This budget is essential for Elexicon to promptly respond to unplanned failures and high-risk and priority deficiencies, ensuring reliability and safeguarding both employees and the public.

## 2. INVESTMENT DESCRIPTION

### 2.1 Investment Description

The Reactive Capital program facilitates the immediate replacement of assets during unplanned outages resulting from asset failures or assets identified as being at imminent risk of failure. This program ensures the replacement of failed or near-failing assets quickly and safely to restore service and maintain system reliability, resiliency and safety.

A large proportion of Elexicon's distribution and station assets are currently at or nearing the end of their typical useful life (TUL) within the next five years. Approximately 16.1% of distribution assets have already surpassed their TUL, with an additional 5.6% projected to do so within the next five years. Similarly, 22.8% of station assets are beyond their TUL, with an additional 5.6% projected to do so within the next five years. When coupled with Asset Condition Assessment results, there is an increasing likelihood of in-service failures and unplanned outages due to assets at high failure risks. The Reactive Capital program serves as an essential bridge between long-term planned asset renewal strategies and immediate operational needs. It enhances system reliability and supports continuous service delivery by addressing emergent asset failures. The program also strengthens public and worker safety, while reinforcing customer confidence through visible, responsive action and a demonstrated commitment to preparedness.

Assets included and budgeted under the Reactive Capital program consist primarily of critical assets requiring immediate replacement following an unplanned outage due to asset failure or assets presenting an imminent risk of failure that could compromise safety and reliability. In addition to the major assets, ancillary hardware and accessories necessary to facilitate safe and effective replacements are also accounted for in this program.

Within the distribution system, the Reactive Capital program encompasses both Overhead and Underground assets, including but not limited to:

- Wood & Concrete Poles
- Transformers (Padmount, Polemount, Submersible, and Vault)
- Underground Switchgear & Overhead Switches
- Underground Cables & Overhead Conductors

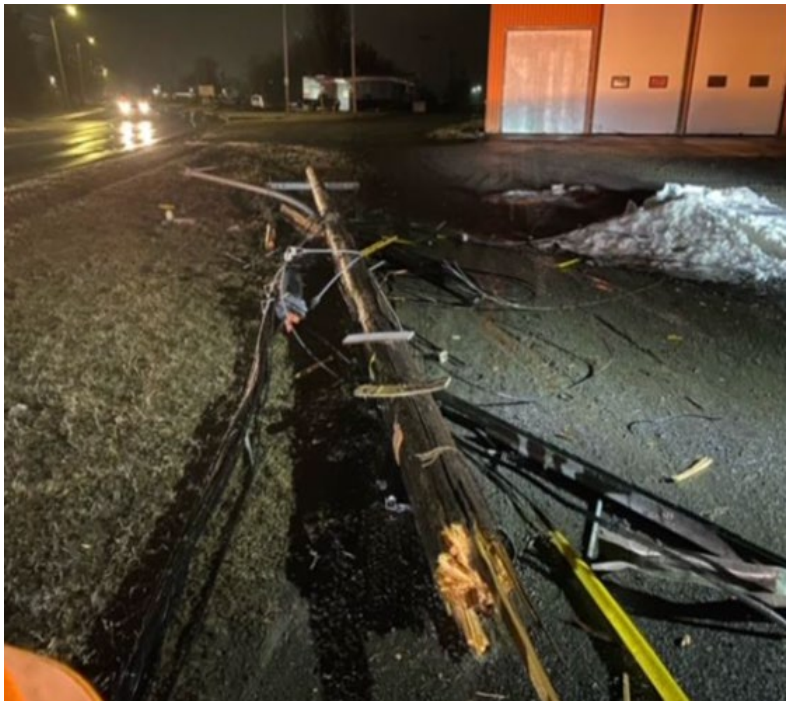
The primary objective of the Reactive Capital program is to restore service continuity to customers as quickly as possible following an unplanned outage or failure. For station assets, in many cases this does not involve replacing the major asset but instead undertaking targeted component replacements or other

remedial work to enable continued operation until longer-term capital replacement projects can be executed. Station assets addressed under the reactive capital program include:

- Power Transformers
- Switches & Switchgear
- Circuit Breakers
- Relays
- Station Cables
- Batteries & Chargers
- Building
- Fence

Figure 1 below illustrates a typical scenario requiring reactive capital intervention. In this case, a wood pole failure, resulted in a complete structural collapse that affected associated overhead assets, including overhead conductors, communication cables, and secondary connections. Elexicon promptly activated emergency response protocols to evaluate the extent of the damage and implement a comprehensive restoration plan. This intervention was essential to safeguarding public safety and ensuring uninterrupted service for affected customers.

**Figure 1: Downed Pole Requiring Reactive Capital Investment**



The Reactive Capital investment also plays a critical role in supporting Elexicon's response to severe weather events. These unplanned and often abrupt events can cause significant damage to Elexicon's infrastructure, requiring immediate intervention to restore service, replace damaged or failed assets, and safeguard both public and worker safety.

Over the past five years, Elexicon has experienced several extreme weather events, including windstorms, snowstorms, ice storms, and derechos. These events have disrupted service to tens of thousands of customers, in some cases lasting multiple days and have resulted in widespread damage to poles, conductors, transformers, and other critical infrastructure.

Table 1 below summarizes major weather events experienced between 2020 to 2024, including the number of customers affected during these storms. These incidents underscore the importance of maintaining a Reactive Capital budget to ensure timely restoration and minimize customer impacts.

**Table 1: Major Weather Event Summary (2020-2024)**

| List of Major Storms Event | Date | Customers Affected | Description |
|---|---|---|---|
| Windstorm | July 19, 2020 | 17,989 | • Interruptions lasted ~7.5 hours (to restore 90% of customers)<br>• Adverse weather conditions caused tree contacts, leading to widespread outages and loss of supply |
| Windstorm | October 23, 2020 | 2,614 | • Interruptions lasted ~18 hours (to restore 90% of customers)<br>• High winds caused tree contacts, downed poles, and fallen conductors, resulting in widespread outages |
| Windstorm | November 15, 2020 | 22,892 | • Interruptions lasted ~9 hours (to restore 90% of customers)<br>• Wind gusts reaching up to 80 km/h caused tree contacts, downed poles, and fallen conductors, resulting in widespread outages |
| Windstorm | December 11, 2021 | 30,471 | • Interruptions lasted ~22 hours (to restore 90% of customers)<br>• Winter storm with high winds caused tree contacts and damaged overhead infrastructure resulting in widespread outages |
| Windstorm | May 21, 2022 | 126,456 | • Interruptions lasted ~70 hours (to restore 90% of customers)<br>• Derecho storm caused extensive damage to Elexicon's infrastructure and led to prolonged power outages to customers |
| Windstorm | June 16, 2022 | 22,549 | • Interruptions lasted ~26 hours (to restore 90% of customers)<br>• A severe thunderstorm passed through the region of Belleville, resulting in downed trees and conductors |
| Windstorm | December 03, 2022 | 9,727 | • Interruptions lasted ~9.5 hours (to restore 90% of customers)<br>• High winds resulted in loss of supply outages for customers in Newcastle |
| Wind & Snow Storm | December 23, 2022 | 52,334 | • Interruptions lasted ~30 hours (to restore 90% of customers)<br>• An historic winter storm including blizzards, high winds and snowfall swept through the region causing widespread outages. High winds brought down trees and power lines resulting in damage to critical infrastructure. |

| List of Major Storms Event | Date | Customers Affected | Description |
|---|---|---|---|
| Snow Storm | January 25, 2023 | 13,330 | • Interruptions lasted ~5 hours (to restore 90% of customers)<br>• A snowstorm swept through the region with winds gusts and heavy snowfall resulting in power outages |
| Wind & Snow Storm | November 29, 2024 | 8,879 | • Interruptions lasted ~100 hours (to restore 90% of customers)<br>• A severe winter storm struck the Gravenhurst area bringing heavy snowfall, strong windows, and blizzard conditions |

Elexicon provides service across multiple territories with a mix of urban and rural areas that are geographically dispersed and not physically interconnected. This non-contiguous service footprint presents unique operational challenges during storm events, as restoration efforts must be mobilized and coordinated across isolated regions rather than through a contiguous network. Unlike utilities with a single, connected service area, Elexicon's field crews must often contend with additional logistical complexities in accessing affected sites, particularly in remote and rural communities.

The Gravenhurst service area, which is mostly rural, exemplifies these challenges. During storm events, fallen trees, ice accumulation, and damaged infrastructure in these remote locations can result in prolonged outages if rapid response measures are not implemented. In many cases, crews must deploy specialized transportation such as boats to access assets on island locations. Under certain circumstances, helicopters may be required to transport personnel, equipment, and materials to restoration sites.

These unique access requirements add complexity to the outage restoration efforts by increasing travel times, limiting the amount of equipment that can be transported in a single trip, and requiring specialized training and safety protocols for crews. Additional, adverse weather conditions can obstruct access routes, significantly impacting restoration efforts.

## 2.2 Summary of Investment Outcomes and Benefits

Table 2 provides a summary of outcomes, benefits, and objectives of the Reactive Capital program. Key program outcomes, including Customer Focus, Operational Effectiveness – Reliability, Operational

Effectiveness – Safety, and Environment are further described in Table 2, and further detailed and defined in Section 3.

**Table 2: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Focus | By addressing equipment failures promptly, Elexicon mitigates the impact of outages on customers and reduces the likelihood of cascading disruptions. This reactive approach supports restoration of critical services for affected customers, while maintaining grid stability and reliability for other loads on the system. |
| Operational Effectiveness - Reliability | Reactive replacements of failed equipment ensure service continuity and reliability. By addressing equipment failures promptly, Elexicon reduces cascading disruptions and maintains grid stability and resiliency. |
| Operational Effectiveness - Safety | Reactive replacements of failed equipment significantly enhance both public and worker safety by promptly mitigating hazards that could lead to accidents, injuries, or property damage. By addressing equipment failures promptly, Elexicon reduces the risk of unsafe conditions such as electrical faults and damaged infrastructure, thereby mitigating safety risks to Elexicon's employees and to the public. |
| Environment | Enables Elexicon to respond quickly to equipment failures that may pose environmental risks. By facilitating prompt cleanup of spills and the timely replacement of high-risk or failed assets, the program helps prevent further environmental damage. This approach supports environmental protection and ensures compliance with regulatory requirements. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

Elexicon's Reactive Capital program addresses the immediate replacement of assets during unplanned outages resulting from in-service failures or assets identified as being at imminent risk of failure. This program ensures that failed or near-failing assets are replaced quickly and safely to maintain service continuity while preserving system reliability and safety. Unlike planned capital investments, which are scheduled and forecasted, Reactive Capital responds to unplanned outages arising from equipment deterioration, damage or failure that can disrupt service and compromise safety. The program also targets assets identified as being at imminent risk of failure, which could lead to unplanned outages. Such failures not only interrupt customer service but may also present significant safety hazards to personnel, the public, and the environment.

A structured approach to reactive investment ensures timely restoration, mitigates future risks, and supports compliance with regulatory, safety, and environmental standards. Ultimately, this program safeguards the integrity of the grid, enhances resilience, and reinforces customer confidence in the reliability of the electricity network.

Table 3 outlines the primary and secondary investment drivers for reactive capital, along with a summary of each.

**Table 3: Summary of Primary and Secondary Drivers**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| Failure (Primary) | The Reactive Capital program addresses the need to replace assets that have failed or those at imminent risk of failing. The failure of critical infrastructure can lead to unplanned outages, customer disruptions, and potential safety and environmental hazards. The inability to proactively plan for these failures underscores the necessity of a dedicated investment program.<br><br>Investment Benefits Include:<br>• Minimizes outage duration by ensuring timely restoration of electricity.<br>• Eliminates the risk of future failure that might occur if the assets are not replaced.<br>• Prevents further infrastructure damage that could result from operating with failed or failing equipment. |
| Reliability (Secondary) | Asset failures negatively impact system reliability, increasing both SAIFI and SAIDI. Replacing compromised assets is necessary to resolve service disruptions and prevent future failures.<br><br>Investment Benefits Include:<br>• Mitigates customer interruptions and downtime due to asset failure.<br>• Restores network stability, ensuring continued safe and efficient operation.<br>• Enhances resilience, helping the grid withstand future failures with minimized disruptions. |
| Safety (Secondary) | Equipment failures can present serious safety risks, including electrical hazards, fire hazards, structural failures.<br>Investment Benefits Include:<br>• Prevents electrical hazards such as live exposed wires, arc flashes, and system overloads that could result in fires, serious injuries, or fatalities. |

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| | • Reduces risks to field crews and the public by ensuring that failed assets are promptly de-energized and replaced safely.<br>• Improves emergency response capabilities reducing the likelihood of accidents caused by inoperative or unsafe infrastructure. |
| Environment (Secondary) | Equipment failures can present environment hazards.<br>Investment Benefits Include:<br>• Reduces the potential for environmental hazards such as oil leaks and spills.<br>• Supports compliance with environmental regulations and mitigates potential penalties or remediation costs linked to spills and contamination. |

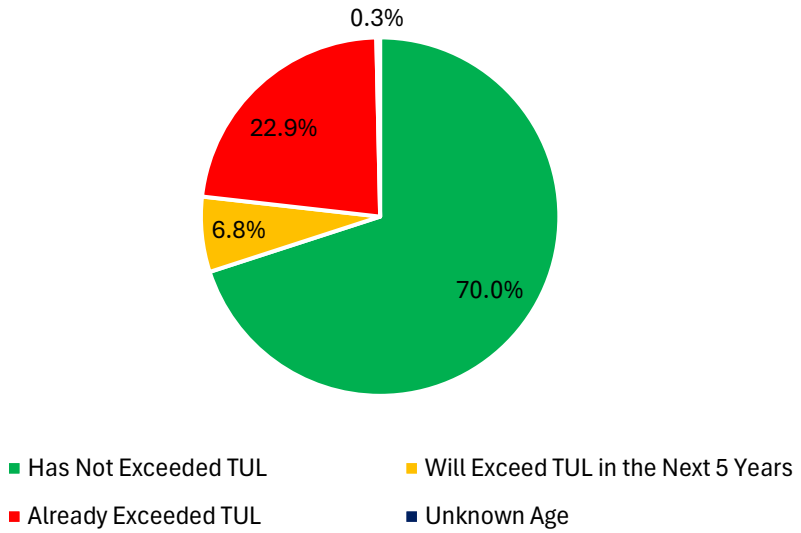
## 3.2 Failure Risk

Reactive replacements of assets are carried out either after an asset has failed or when it is deemed to be at high risk of immediate failure and requiring urgent intervention. While Elexicon employs a proactive approach to asset management identifying at-risk assets through assessments of remaining typical useful life, asset condition, and historical failure data, there are circumstances where reactive replacement becomes necessary. This may occur when an asset fails prematurely or when proactive replacement could not be executed in time.

### 3.2.1 Typical Useful Life

The Typical Useful Life (TUL) of an asset helps approximate the period over which an asset is expected to remain in service. As per Figure 2 below, by the end of 2031, 22.9% of Elexicon's distribution assets are expected to have passed their Typical Useful Life (TUL), while an additional 6.8% will exceed its TUL within the next five years without investments (run-to-fail (RTF) scenario).

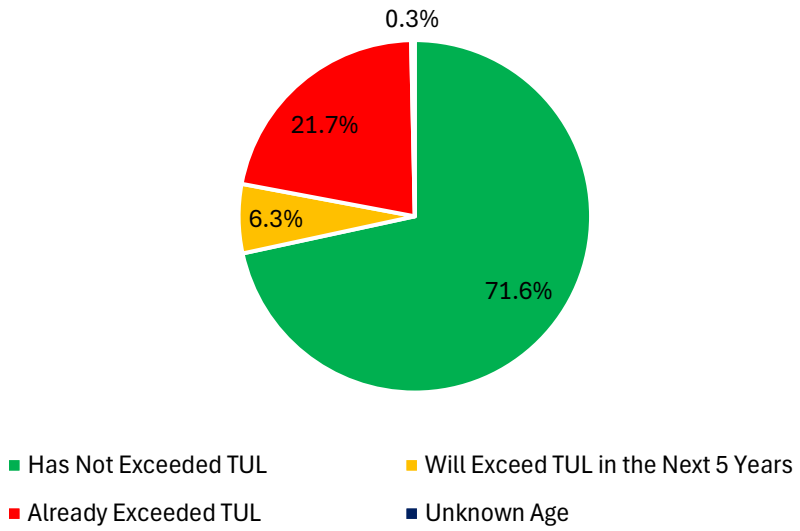
**Figure 2: Distribution Asset TUL Demographics without Investments - End of 2031 (%)**




The presence of aging assets in the system increases the likelihood of asset failures and assets near-failure requiring reactive replacements. Through Elexicon's Underground System Renewal and Overhead System

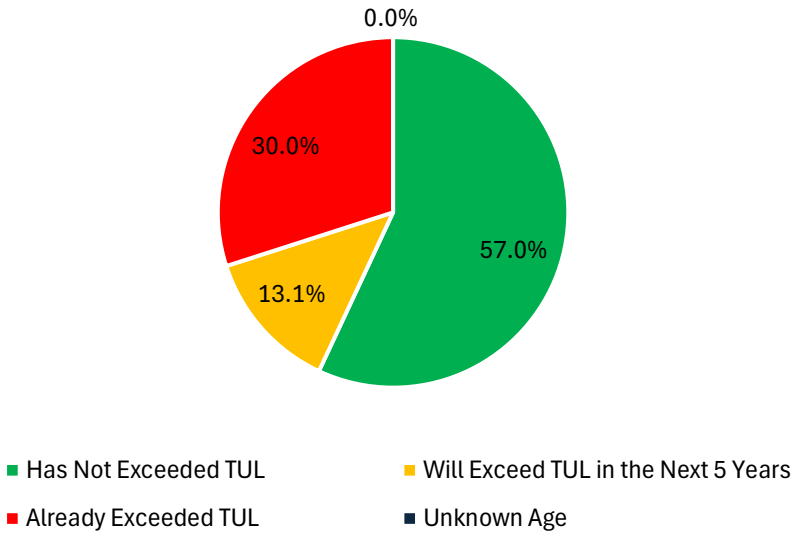
Renewal programs, a portion of these distribution assets will be proactively replaced. Figure 3 illustrates Elexicon's anticipated TUL with balanced investments in these programs. In this option, 21.7% of the distribution assets will have exceeded their TUL by the end of 2031.

**Figure 3: Distribution Asset TUL Demographics with Balanced Investments Option - End of 2031 (%)**



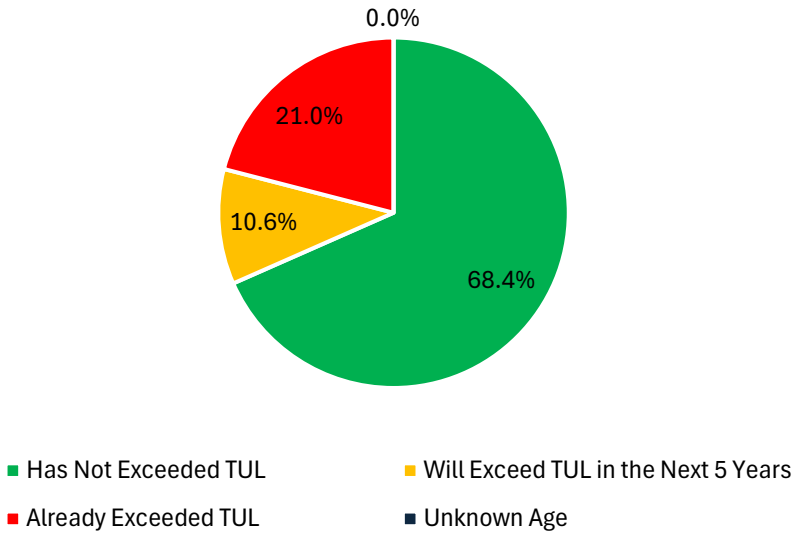

Similarly, Figure 4 below illustrates the classification of TUL of Elexicon's station assets by the end of 2031. In this scenario, Elexicon anticipates that approximately 30.0% of its assets will have exceeded their TUL by the end of 2031, while an additional 13.1% of assets will exceed their TUL within the next five years without investments (run-to-fail scenario).

**Figure 4: Station Asset TUL Demographics without Investments - End of 2031 (%)**




Through Elexicon's Station Renewal programs, these assets will be proactively replaced where possible. With the balanced investments option of this program, Elexicon anticipates that 21.0% of station assets will be past their TUL by the end of 2031.

**Figure 5: Station Asset TUL Demographics with Balanced Investments Option - End of 2031 (%)**



### 3.2.2 Asset Condition Assessment

Table 4 and Table 5 present the count and percentage of assets classified as being in Poor or Very Poor Condition based on the 2025 ACA results. While these assets are prioritized for replacement through proactive capital programs, the volume of assets in these condition categories means that a portion may need to be replaced reactively.

**Table 4: Proportion of Poor and Very Poor Distribution Assets 2025 ACA Results**

| Asset Class | Total Assets per Asset Class | Poor & Very Poor | % of Poor & Very Poor |
|---|---|---|---|
| Vault TX | 655 | 329 | 50.2% |
| UG Cables (km) | 2,624 | 1,143 | 43.6% |
| Concrete Poles | 2,379 | 660 | 27.7% |
| Step TX | 6 | 1 | 16.7% |
| Wood Poles | 34,874 | 5,745 | 16.5% |
| Submarine Cables (km) | 26 | 3 | 10.6% |
| Pole-Mount TX | 8,831 | 793 | 9.0% |
| Pad-Mount TX | 14,770 | 1,077 | 7.3% |
| Pad-Mount SWGR | 457 | 5 | 1.1% |
| OH Switch | 16,844 | 76 | 0.45% |
| OH Conductors (km) | 4,696 | 18 | 0.40% |
| Submersible TX | 27 | 0 | 0% |

**Table 5: Proportion of Poor and Very Poor Station Assets 2025 ACA Results**

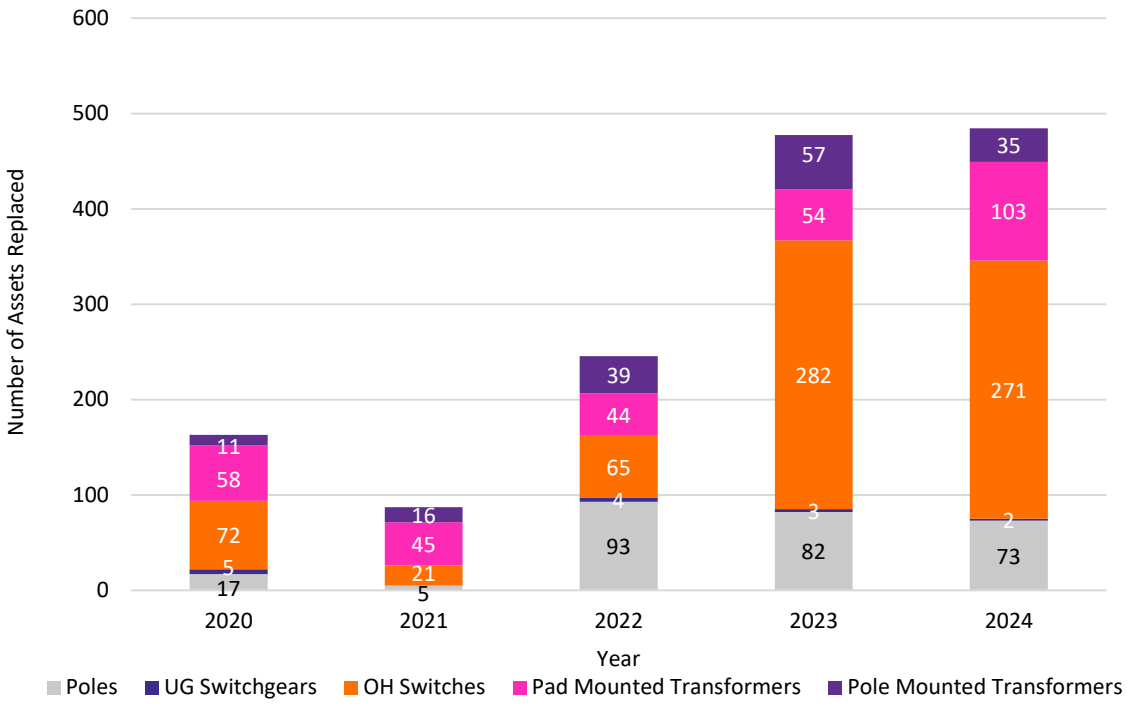
| Asset Class | Total Assets per Asset Class | Poor & Very Poor | % of Poor & Very Poor |
|---|---|---|---|
| Station Cable | 283 | 108 | 38.2% |
| Station Switchgear | 50 | 14 | 28.0% |
| Station Switch | 149 | 15 | 10.1% |
| Charger | 55 | 5 | 9.1% |
| Fence | 60 | 3 | 5.0% |
| Building | 45 | 1 | 2.2% |
| Circuit Breaker | 160 | 5 | 3.1% |
| Power Transformer | 96 | 4 | 4.2% |
| Relay | 187 | 2 | 1.1% |
| Battery | 55 | 0 | 0.0% |

Historical Failures

Historically, Elexicon has tracked the number of failures and replacements completed under the Reactive Capital program across major asset classes. This data provides insight into which asset types are most prone to failure and helps inform future investment planning.

Figure 6 below presents the replacement counts for key distribution asset classes from 2020 to 2024. These replacements were driven by in-service failure or assets with imminent risk of failure that required immediate response to restore system integrity.

**Figure 6: Reactive Capital Asset Replacements (Distribution)**




The number of reactive capital replacements for distribution assets varies year over year, reflecting the unpredictable nature of in-service failures and the emergence of high-risk assets requiring urgent attention. Unlike planned capital programs, reactive capital work is driven by real-time system conditions, asset deterioration, and external events such as weather-related damage or third-party interference. Asset

may see significant fluctuations in replacement counts depending on the specific conditions encountered each year. Factors that influence the annual reactive capital distribution budget include aging infrastructure, increased system loading, equipment operating beyond typical useful life, and findings from routine inspections or emergency response activities.

A significant portion of the Reactive Capital program is also allocated to the replacement of failed or high-risk underground cables and overhead conductors. Underground cable failures often result in prolonged outages and complex fault-locating efforts, necessitating replacement to restore service and avoid further system degradation. Similarly, overhead conductor replacements are frequently needed following storm damage or degradation due to age and environmental exposure. Given the critical role these assets play in power delivery, their inclusion in the Reactive Capital program ensures Elexicon can maintain system reliability and address emerging risk in a timely manner.

### 3.3 Reliability

Maintaining system reliability is one of the core drivers behind Elexicon's Reactive Capital program. While planned capital investments target known asset renewal needs, reliability-related failures are often unpredictable and require immediate corrective action. When unanticipated equipment failures or external events such as severe weather, vegetation contact, or third-party damage occur, Elexicon must act quickly to restore service, protect public safety, and minimize customer interruptions. The Reactive Capital program provides the flexibility and funding necessary to address these emergent reliability risks, replacing failed or high-risk assets in response to real-time system conditions.

To illustrate the underlying drivers of reliability-related Reactive Capital work, Figure 7 below depicts the Customer Hours Interrupted (CHI) from 2020 to 2024 by cause code, excluding Major Event Days (MEDs), Loss of Supply (LOS) and Scheduled Outages. These exclusions were made intentionally, as LOS and Scheduled Outages would skew trends and are not directly attributable to asset failures or conditions that would trigger Reactive Capital investment.

The included cause codes, such as Defective Equipment, Tree Contacts, Foreign Interference, Adverse Weather, Unknowns, Human Element, Lightning, and Adverse Environment, frequently lead to unplanned

capital expenditures for equipment replacement or repair. As illustrated in Figure 7, Defective Equipment has been the largest contributor to Customer Hours of Interruptions between 2020-2024 and is one of the major drivers for expenditures within this program excluding MED's and LOS.

**Figure 7: CHI (%) by Cause Code 2020-2024 (Excluding MED/LOS/Scheduled Outages)**

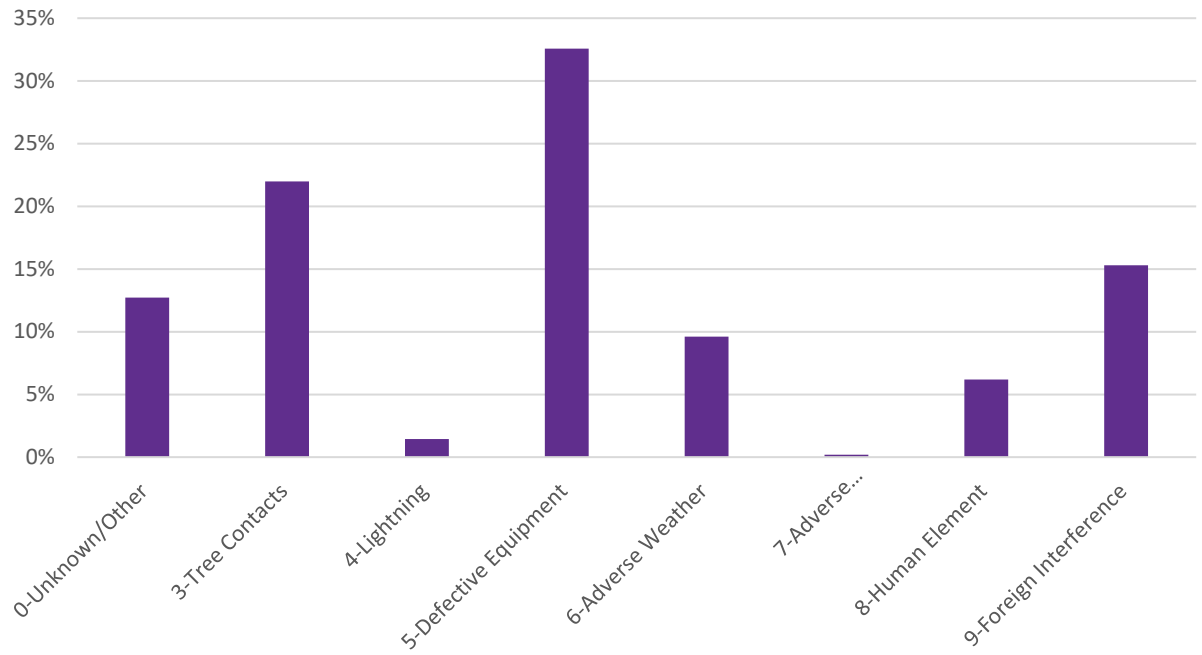
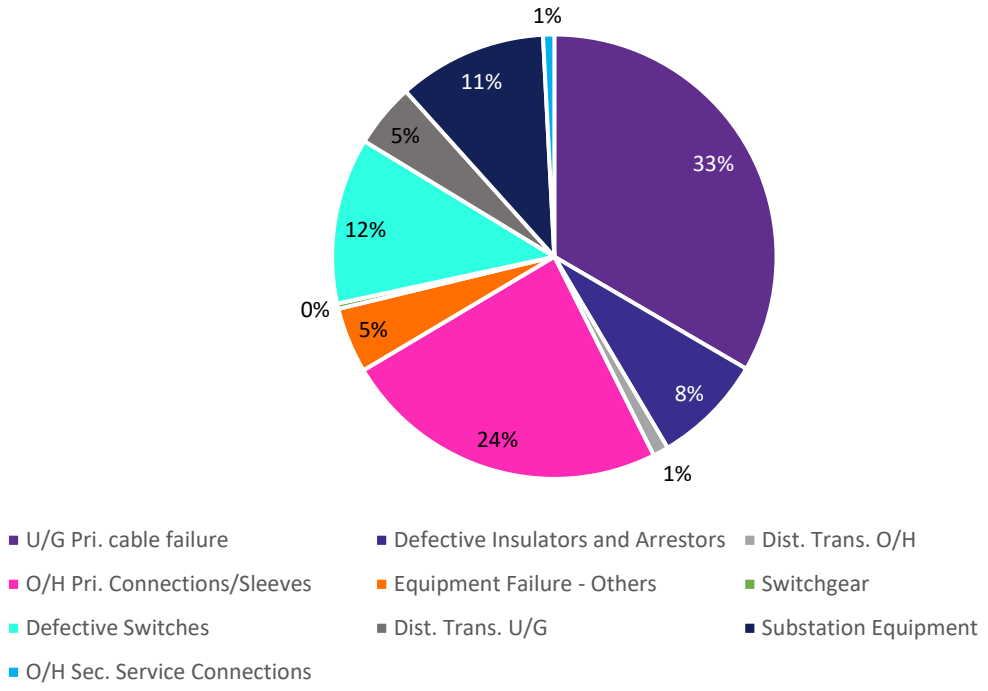



Figure 8 below further illustrates the total customer hours interrupted (CHI) across categories of Defective Equipment identified as the root cause of outages between 2020 and 2024. Overhead primary connections and sleeves, underground primary cable failures, and defective switches are the largest contributors to the Defective Equipment customer hours interrupted. While Elexicon addresses these high-risk assets through its Overhead, Underground, and Substation System Renewal programs, it is not feasible to replace all such assets proactively due to practical constraints such as cost, resource availability, and prioritization. This reinforces the need for maintaining a Reactive Capital program to respond to emergent failures that pose a risk to customer service, system reliability and resiliency, and worker and public safety.

**Figure 8: Defective Equipment - Customer Hours Interrupted 2020-2024 (Excluding MED/LOS Outages)**




In addition to Defective Equipment, Tree Contacts and Foreign Interference are significant contributors to CHI and frequently cause damage to overheard and underground equipment including poles, switches, transformers, cables, conductors and accessories resulting in unplanned outages. These events often result in the need for emergency response, equipment repair or replacement, and contribute to the broader system reliability and resiliency challenges that the Reactive Capital program is designed to address.

Adverse weather events have had a substantial impact on system reliability and continue to present significant challenges. These events are unpredictable and are beyond Elexicon's control, often causing widespread customer interruptions and damage to the distribution system. Table 6 below illustrates the number of major events experienced by Elexicon between 2020 and 2024, along with the associated Customer Interruption (CI) and Customer Hours Interruption (CHI), including LOS. These events have

resulted in increased expenditure over the historical period to repair and replace major distribution assets and accessories to ensure service continuity to the customers. The reactive capital funding ensures Elexicon can continue to address growing risks posed by climate change and the increasing severity of these events to repair/replace damaged equipment during extreme weather events.

**Table 6: Major Event Days (MEDs) (2020 to 2024)**

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| Number of Major Event Days (MEDs) | 4 | 2 | 4 | 1 | 1 |
| Customer Hours Interruption | 230,668 | 127,860 | 3,505,525 | 40,207 | 301,759 |
| Customer Interruption | 53,447 | 69,903 | 211,066 | 13,330 | 8,880 |

## 3.4 Safety

Another key driver of the Reactive Capital Program is ensuring the safety of both the public and Elexicon employees. Although the distribution system typically operates reliably, unexpected equipment failures can create immediate hazards. Figure 9 below illustrates a tree that has fallen onto an overhead conductor during a winter storm event, blocking the roadway. Such incidents pose significant risk to public safety, especially if someone attempts to move the tree, without realizing it may be in contact with energized lines. These types of events frequently require immediate intervention through the Reactive Capital program to de-energize and secure the site, restore power, and replace any damaged infrastructure.

**Figure 9: Tree Fallen on Overhead Conductor During Winter Storm**



Figure 10 shows a leaning distribution pole that has already experienced structural failure posing a significant safety hazard with a high risk of further system impact. Situations like this require immediate intervention through the Reactive Capital program, as the structural instability of the pole poses significant safety concerns. If left unaddressed, the pole could bring down live electrical conductors and potentially cause serious harm to the members of public or utility workers. The risk is especially severe when such poles are located near roadways, sidewalks, or other areas with regular pedestrian or vehicular traffic, where a falling pole could strike a moving vehicle or an individual. Reactive Capital funding enables Elexicon to act quickly in these scenarios replacing compromised infrastructure before further failure occurs and restoring the safety and integrity of the electrical distribution system.

**Figure 10: Leaning Pole Posing a Safety and Reliability Risk**



Figure 11 illustrate the condition of failed padmount transformer during an outage investigation. The failure was traced to a cable termination, indicating a serious internal fault likely caused by insulation breakdown or arcing. Situations like this require immediate intervention, as the risk of fire, arc flash, or equipment explosion is high. The Reactive Capital program ensures that the faulty equipment, such as this padmount transformer, can be isolated and replaced before more severe consequences occur, ensuring public safety and service continuity.

**Figure 11: Padmount Transformer Requiring Reactive Repairs**




## 3.5 Environment

Equipment failures can have serious environmental consequences, particularly when they involve oil leaks or other hazardous substances released into the surrounding environment. When compromised, transformers and other oil-filled electrical equipment may leak or rupture, contaminating soil, nearby bodies of water, and pose risks to both public and workers' health. The Reactive Capital Program plays a critical role in minimizing the environmental impact of such incidents by enabling Elexicon to respond rapidly, contain the hazard, and replace compromised equipment with infrastructure that meets current safety and containment standards.

Table 7 summarizes recent environmental incidents at Elexicon between 2023-2024, including transformer spills resulting from containment failures, motor vehicle accidents that caused environmental leaks, and other equipment-related events. These figures reinforce the importance of maintaining a well-funded and responsive capital program to address environmental risks as they emerge.

**Table 7: Elexicon's Environmental Incidents (2023 to 2024)**

| Incident Type | 2023 | 2024 |
|---|---|---|
| Transformer Spill | 16 | 23 |
| Motor Vehicle Accident Spill | 1 | 3 |
| Other | 0 | 2 |
| Total | 17 | 28 |

Figure 12 shows an underground transformer in a residential neighborhood showing visible signs of oil leakage and damage to the surrounding grass and soil. Once identified, the transformer was replaced and the site remediated to eliminate environmental and safety risks. Incidents like this can pose significant hazards if not addressed promptly, particularly in high-traffic public areas such as sidewalks and front yards in residential neighbourhoods. The Reactive Capital Program enables prompt response and site restoration, minimizing environmental impact while safeguarding community safety.

**Figure 12: Leaking Transformer Replacement**




These incidents highlight that equipment failure can lead to far-reaching consequences beyond the cost of asset replacement. Environmental clean-up and site rehabilitation efforts can be complex, resource-intensive, and costly. As such the Reactive Capital Program is essential to ensure that Elexicon can respond promptly to contain environmental damage and uphold its commitment to environmental safety.

# 4. INVESTMENT TIMING & PACING

## 4.1 Summary of Expenditures

**Table 8: Summary of Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Gross | 2.60 | 1.92 | 8.25 | 6.51 | 10.79 | 9.71 | 7.56 | 8.43 | 7.10 | 5.13 | 5.10 | 4.47 |
| Contributions | 0 | 0 | 0 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net | 2.60 | 1.92 | 8.25 | 6.51 | 10.49 | 9.71 | 7.56 | 8.43 | 7.10 | 5.13 | 5.10 | 4.47 |

Table 8 summarizes the total investment associated with the Reactive Capital program, including actual historical expenditures from 2020 to 2024, the bridge years of 2025 and 2026, and the forecast period from 2027 to 2031. The figures include both distribution and station-related expenditures.

Investment levels within the Reactive Capital program have varied from year to year, reflecting the unpredictable and event-driven nature of the work. Notable spikes occurred in 2022 and 2024, where expenditures reached $8.25M and $10.49M, respectively. In 2022, Elexicon experienced approximately $4.6M in costs associated with storm response activities, driven largely by the Derecho storm on May 21, 2022. This severe weather event caused extensive damage to Elexicon's infrastructure and led to prolonged power outages affecting 126,456 customers, with restoration efforts extending up to 70 hours to restore 90% of the affected customers. In 2023 and 2024, Elexicon experienced a significant increase in customer hours interrupted (CHI) due to outages caused by defective equipment primarily due to overhead primary connections and sleeves, overhead switches, and underground cable failures. The costs tied to address underground asset failures were considerably higher, driven by material needs and the inclusion of civil work, resulting in increased expenditures.

Elexicon plans to invest $9.71 million in 2025 and $7.56 million in 2026 within the Reactive Capital program, but as noted this program consists of event-driven work and is unpredictable in nature. The analysis of asset Typical Useful Life (TUL) and Asset Condition Assessment (ACA) data indicates that there are continued reactive capital investments needs as the Overhead System Renewal, Underground System Renewal and Substation Renewal Investment programs do not address all assets at risk of failure in the system during the 2027-2031 DSP period.

The forecast for the 2027 to 2031 period was developed based on a review of historical reactive capital expenditures and the anticipated benefits of the forecasted capital and maintenance investments, such as the System Renewal programs (Overhead, Underground, and Substation). Elexicon used the historical spend from recent years, excluding extraordinary storm-related costs, as the baseline for 2027. From 2029 onwards, annual expenditures are forecasted to remain relatively flat, reflecting the anticipated benefits of increased proactive capital and maintenance investment programs that target high-risk assets currently contributing to reactive work. As these proactive investment programs progress and asset renewal efforts continue to address known condition and reliability issues, there will still be an element of unpredictability given the unplanned nature of Reactive Capital work.

Reactive Capital remains a critical element of Elexicon's investment plan. When severe weather causes widespread damage to the distribution system, such as broken poles, failed transformers, or damaged switchgear, Reactive Capital funding enables Elexicon to respond immediately. It allows crews to replace critical infrastructure, restore service to customers, and ensure safety. As Elexicon expands its proactive replacement of high-risk assets and increases the use of automation and remote monitoring technologies, the volume of reactive work is expected to gradually decline. However, a baseline level of reactive investment will remain necessary to address unforeseen failures and maintain overall system performance and reliability.

## 4.2 Investment Pacing and Prioritization

Elexicon's Reactive Capital program is designed to ensure that emergent asset failures or assets at risk of imminent failure assets are addressed in a timely and cost-effective manner. Due to its urgent and unpredictable nature, the program is non-discretionary and demand-based, requiring immediate intervention to mitigate safety and reliability risks.

Elexicon undertakes projects under this program in response to storms, major asset failures, high-risk deficiencies identified through inspections or routine operations, and feeders exhibiting poor reliability performance. Work prioritization is guided by risk-based principles aligned with Elexicon's broader asset management framework. Assets are assessed based on factors such as public and worker safety, outage

severity, system reliability, and potential for collateral damage. This ensures that capital resources are directed to the most critical and high-impact needs across the distribution system.

## 4.3 Execution Approach

Given the unplanned nature of the Reactive Capital Program, several risks can impact the timely and cost-effective execution of work. These risks can affect Elexicon's ability to quickly respond to failures and may increase outage durations, jeopardize safety, or escalate costs. To maintain reliability and minimize customer impacts, Elexicon has identified key risks and implemented mitigation strategies to manage them effectively. Table 9 below outlines the primary risks associated with reactive capital work and the steps taken to address them:

**Table 9: Risks and Mitigation Strategies**

| Risk | Risk Description | Risk Mitigation |
|---|---|---|
| Weather Related Delays | Severe or unpredictable weather such as storms, flooding, or extreme temperatures often leads to sudden equipment failures and can make it unsafe or impractical for crews to respond immediately. In these circumstances, outage durations may increase until conditions improve enough for work to resume. | • Continuously monitor weather forecasts and severe weather alerts to anticipate conditions that may impact asset performance or field response.<br>• Adjust crew deployment plans in advance of forecasted weather events to ensure adequate coverage and rapid mobilization.<br>• Mobilize emergency response teams as soon as it is safe to do so, minimizing downtime and restoring service quickly.<br>• Maintain inventory of storm-critical materials and equipment, such as poles, transformers, and conductors that are more prone to damage during extreme weather.<br>• Conduct post-event reviews and readiness drills, particularly ahead of high-risk seasons, to improve storm response protocols. |

| Risk | Risk Description | Risk Mitigation |
|---|---|---|
| Resource Constraints | Resources play a critical role in completing reactive replacements quickly. When multiple failures happen at once or during peak activity, resource availability can become constrained. Unpredictable events such as severe storms or other emergencies further strain Elexicon's ability to deploy crews promptly. | • Balance high-priority reactive capital needs with planned work to manage internal resource allocations.<br>• Maintain a pool of standby resources to provide additional crew capacity during periods of elevated reactive work.<br>• Engage with pre-qualified external contractors to supplement internal crews when additional support is required.<br>• Implements flexible scheduling strategies, including staggered shifts and overtime arrangements, to enhance responsiveness.<br>• Cross-train internal resources to ensure versatility in workforce deployment across various asset types and voltage levels.<br>• Monitor field conditions and failure trends in real time to inform dynamic resource reallocation.<br>• Utilize centralized dispatch and workforce management systems to optimize crew deployment and minimize response times.<br>• Conduct seasonal readiness reviews to ensure adequate crew coverage heading into higher-risk periods, such as storm seasons. |
| Material Constraints | The Reactive Capital Program relies on major equipment like poles, cables, conductors, transformers, and switches, with varying lead times. Expediting replacements is challenging due to potential supplier shortages and logistical bottlenecks. Additionally, ongoing material cost escalation, driven by global supply chain pressures, inflation, and increased demand, strains program budgets and may reduce purchasing power. | • Maintain proactive inventory levels of frequently used components to minimize delays in responding to unplanned failures.<br>• Work with a diversified supplier network to reduce reliance on any single vendor and improve supply chain resiliency.<br>• Strategically stock high-risk and long-lead-time materials to ensure availability during periods of elevated reactive work.<br>• Use historical data and forecasting tools to anticipate material needs and align procurement activities accordingly.<br>• Leverage established framework agreements with key vendors to enable faster procurement and cost stability under volatile market conditions.<br>• Monitor global supply chain trends on an ongoing basis to proactively adjust sourcing strategies as needed. |

## 5. OPTIONS ANALYSIS

Not applicable - The Reactive Capital program represents demand-driven, non-discretionary investment that is required to respond to emergent asset failures or conditions identified through inspections, maintenance, or operational events. As such, investment decisions are reactive in nature and not subject to alternative options analysis or prioritization frameworks.

# S1 SUBSTATION GROWTH

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $41.58M | 2025-2026 Plan: $25.58M | 2027-2031 Forecast: $147.33M |
| Primary Driver: Capacity Constraints | | |
| Secondary Drivers: Reliability | | |
| Outcomes: Efficiency, Customer Value, Reliability, Safety, Environment | | |
| Segments: N/A | | |

Elexicon's Substation Growth program increases capacity in the system with targeted investment to address current capacity constraints and forecast load demand. Load from population growth, community growth and densification, commercial and industrial development and electrification has created supply capacity constraints across the Elexicon system. The Substation Growth program addresses near- to medium-term system needs.

While the primary driver of the Substation Growth program is to relieve capacity constraints, enabling Elexicon to connect new customers and support the energy transition, reliability is an important secondary driver for the program. Adding new stations to the system and increasing capacity at existing stations creates new pathways to route power when needed. This increases the resiliency of the electrical system. In the event of an outage, a resilient system can restore power to customers faster and minimize outage duration. Minimizing outage duration is becoming increasingly important as the number of customers using the system grows and the dependency on the electrical system increases for customers. A resilient system is a reliable system.

Elexicon identifies the station investments required to address constraints and prepare for future growth through capacity planning. Capacity planning is the evaluation of the System Peak Load Forecast against the existing capacity in the system, to determine capacity constraints and develop solutions to resolve these constraints.

Elexicon's overall system capacity is separated into two segments:

- Station Supply Capacity: defined as the available upstream supply to a municipal station, or
- Distribution System Capacity: defined as the downstream capacity available from a municipal station to serve customer demand.

The potential impacts of insufficient system capacity include:

- Longer service connection times and higher service connection costs: Customers—particularly large customers—may face delays in obtaining new service connections and higher connections costs due to the additional infrastructure needed to be constructed to provide the capacity needed for the service requested.
- Reduced reliability and system resiliency: In a constrained system, limited available capacity can result in longer restoration times during outages, as the system lacks the flexibility to reroute power or shift load effectively, especially during peak load periods.
- Accelerated asset deterioration: Operating in a constrained environment increases the likelihood that assets will periodically exceed their rated capacity. Even short durations of overloading accelerate asset wear and significantly increase the risk of failure.

Elexicon performed a comprehensive review of both the Station Supply Capacity and Distribution System Capacity to determine the overall capacity of the system, i.e., determine all constraints within the system. Table 1 below provides an overview of the number and state of capacity at Elexicon's Municipal Stations ("MSs") categorized with either limited, moderate, or acceptable overall system capacity in 2025 and 2031. There are 58 MSs included in the assessment, consisting of the 62 total MSs within Elexicon's service territory less four (4) stations, which are excluded since they are dedicated customer substations.

**Table 1: Elexicon Overall System Capacity by Municipal Station 2025 vs. 2031**

| Capacity | Number of MSs | | |
|---|---|---|---|
| | 2025 State | 2031 State (without Investments) | 2031 State (with Investments) |
| Limited Capacity (0 – 1,000 kVA) | 44 | 47 | 21 |
| Moderate Capacity (1,001 – 2,000 kVA) | 2 | 2 | 3 |
| Acceptable Capacity (2,001+ kVA) | 12 | 9 | 36 |

Of the 58 MSs analyzed, 44 have limited (0 – 1,000 kVA) capacity today, with an additional three (3) being added for a total of 47 MSs with limited capacity in 2031 without investments. Most of these stations are distributed across the Ajax-Pickering, Whitby, Belleville, and Brock regions.

These observations directly inform the forecast capital expenditures presented in the Substation Growth program, with investment decisions made to provide significant improvements in the overall system capacity by 2031. The plan is driven by upstream investments at TSs and targeted downstream upgrades, including full MS rebuilds and the decommissioning of aging infrastructure.

Approximately two-thirds of the forecast spending in the program will be invested into a new transformer station (TS), GTA East TS, in the North Pickering/Whitby area. The northern borders of Pickering and Whitby currently have limited electrical infrastructure that cannot service new development. Based on information from the City of Pickering, the Town of Whitby and the major developers (including Northeast Pickering Landowners Group and Brooklin Landowners Group) significant development will be occurring in the area. The load demand for the developments has been forecast, and analysis indicates there is insufficient Station Supply Capacity to meet the electrical demand need to support the development of the area. A new transformer station in the area is needed. The loading in the area has been reviewed in the GTA East Regional Planning Process, and the conclusion[1] of the working group was that a new transformer station is needed in the North Pickering/Whitby area.

The remaining forecasted spending in the program will be invested in four new municipal stations and one capacity upgrade at an existing municipal station to resolve capacity constraints in the regions of Whitby, Belleville, Port Hope, Uxbridge and Bowmanville. The program will procure a mobile station that will facilitate the execution of capital projects in a capacity constrained system.

With the proposed investments, the number of MSs with limited capacity is forecasted to decrease to 21 by the end of 2031, significantly reducing the capacity impacts. Investment in this program will add approximately 97 MVA of Distribution System Capacity and 180 MVA of Station Supply Capacity.

[1] Hydro One, “Needs Assessment Report – Greater Toronto Area East”, (December 11, 2024)

The new capacity is expected to the produce the following benefits:

- Minimizes outage durations by enabling more pathways to reroute power,
- Enables new customers to be connected in a timely and cost-effective manner,
- Allows the system to operate within safer loading thresholds, thereby reducing equipment failure risk, and
- Removes planned outage limitation during peak load periods allowing maintenance and capital activities to proceed efficiently.

Elexicon has identified project work for six new stations and one station upgrade project that is necessary to resolve the capacity constraints in the system during 2027-2031 rate period. Total investment within the Substation Growth program is forecast at $147.33M for the 2027-2031 rate period.

## 2. INVESTMENT DESCRIPTION

Elexicon's Substation Growth program addresses near- to medium-term system capacity needs by investing in new stations or capacity upgrades at existing stations. This program is driven by capacity constraints at the municipal station and regional level. System capacity constraints occur when there is insufficient Station Supply Capacity or Distribution System Capacity to meet the peak load. These are described as follows:

- **Station Supply Capacity**: This indicates the rated capacity of Transformer Stations ("TS" owned by Hydro One), Municipal Transformer Stations ("MTS" owned by Elexicon) or feeders supplied by Hydro One[2]. Constraints in Station Supply Capacity indicate a high likelihood that transmission line or transformer station upgrades will be required to accommodate future demand and maintain system reliability.
- **Distribution System Capacity**: This refers to the planning capacity of municipal stations and their associated distribution feeders. It encompasses all infrastructure within and downstream of the municipal station, including transformers, breakers, and feeders. The capacity assessment incorporates N-1 contingency planning[3]. Resolving these constraints will require targeted investments to upgrade the specific limiting assets.

Elexicon serves a non-contiguous service area where certain regions may experience load demand that exceeds the available capacity in the region, and do not have the ability to simply secure additional capacity from adjacent areas to meet the load demand. Not resolving capacity constraints proactively will impact Elexicon's ability to connect customers to the electrical system and expose assets to overload and a higher risk of failure during peak load demand periods.

[2] Capacity is calculated based on either the 10-day Limited Time Rating (LTR) or the planning capacity of the feeder, as allocated by Hydro One.

[3] N-1 contingency is a standard planning criterion used in power system engineering to ensure system reliability and resilience. N-1 contingency means that the power system must be able to continue operating without interruption even if one major component (such as a transformer, transmission line, or feeder) fails or is taken out of service unexpectedly.

Through its load forecast and system analysis, Elexicon has identified several projects in the Substation Growth program that are needed to resolve both types of capacity constraints. Total program net expenditure is forecast at $147.33M for the 2027-2031 rate period. Over the 2027 to 2031 rate period, the program plans to deliver one new TS, four new MS and a capacity upgrade at one existing MS. This will add 97 MVA of Distribution System Capacity and 180 MVA of Station Supply Capacity. These projects are:

- **Uxbridge North MS**: New station with single 10 MVA transformer. The forecast net expenditure is $7.69M for the 2027-2031 rate period. The project starts in 2026 with energization targeted for 2028.
- **Foster MS**: New station with a single 25 MVA transformer. The forecast net expenditure is $7.99M for the 2027-2031 rate period. The project starts in 2025 with energization targeted for 2028.
- **Mobile MS**: Mobile station with a 25 MVA transformer having primary voltage at 44kV and dual secondary voltages of 13.8kV and 4.16kV. The forecast net expenditure is $3.36M for the 2027-2031 rate period. The project starts in 2027 with energization targeted for 2029.
- **Port Hope 27.6kV MS**: New station with a single 25 MVA transformer. The forecast net expenditures are $11.12M for the 2027-2031 rate period. The project starts in 2027 with energization target for 2029.
- **Bradshaw MS**: Increasing capacity at existing station to 25 MVA. The forecast net expenditures is $8.47M for the 2027-2031 rate period. The project starts in 2029 with energization targeted for 2031.
- **Winchester West MS**: New station with two 25 MVA transformers. The forecast net expenditure is $6.47M for the 2027-2031 rate period. The project starts in 2025 with completion targeted for 2031. This project will be executed in two phases.
- **GTA East Transformer Station**: New station with two 125 MVA transformers. The forecast net expenditure is $102.22M for the 2027-2031 rate period. The project starts in 2025 with completion targeted for 2031. This project will be executed in two phases.

## 2.1 Summary of Investment Outcomes and Benefits

Table 2 provides a summary of outcomes and benefits achieved by the Substation Growth program.

**Table 2: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Focus | • Additional system capacity will reduce the number of municipal stations with limited capacity from 44 in 2025 to 21 in 2031. This will enable new customers to be connected in a timely and cost-effective manner.<br>• It enhances the grid's ability to meet growing load demand for electric vehicle (EV) charging infrastructure and building electrification.<br>• By resolving capacity constraints proactively, Elexicon can minimize the duration of unplanned service interruptions and provide flexibility on performing planned interruptions, supporting a more reliable and resilient electrical system. |
| Operational Effectiveness - Reliability | • By relieving capacity constraints, the system operates within safer loading thresholds, reducing the risk of asset overload and failure.<br>• Additional capacity also enhances operational flexibility by increasing the number of available pathways for load transfer and isolation, which helps minimize outage durations during planned work or emergency events. |
| Operational Effectiveness - Safety | • By relieving capacity constraints, the system operates within safer loading thresholds, reducing the risk of failures associated with asset overload, which can create safety hazards to both the public and utility personnel. |
| Operational Effectiveness - Environment | • By relieving capacity constraints, the system operates within safer loading thresholds, reducing the risk of asset overload and failures that could result in environmental incidents, such as transformer oil spills.<br>• Adding capacity to the system also supports the public's goal to lessen its environmental impact through the electrification of transportation and buildings. |
| Financial Performance | • Additional system capacity enhances operational flexibility by creating more available pathways for load transfer and isolation. This reduces the amount |

| Outcome | Investment Benefits and Objectives |
|---|---|
| | of electrical switching required to perform planned work, lowering project execution costs and freeing up key resources for other priority activities.<br>• By relieving capacity constraints, the system operates within safer loading thresholds, decreasing the likelihood of asset overload and failure. This helps avoid unplanned outages and the associated costs of emergency repairs, equipment replacement, and customer service disruptions. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

The Substation Growth program is designed to address near to medium-term system capacity needs by investing in new capacity within the utility's service territory. The program is driven by capacity constraints that exist at both the station supply and distribution system supply levels. New capacity is added through the addition of new stations or capacity upgrades at existing stations. Population growth, community growth and densification, commercial and industrial development and electrification is adding load and creating supply capacity constraints across the Elexicon system.

If not proactively resolved, these capacity constraints will limit the utility's ability to connect new customers and increase the risk of reliability issues during peak loading periods. Investing in additional capacity will reduce the load on existing feeders, enhance the utility's ability to respond to sudden increases in load demand, and ensure sufficient capacity is available to maintain current levels of reliability. These improvements will also provide greater operational flexibility, enabling more efficient scheduling of planned outages for maintenance and construction activities at the affected stations.

**Table 3: Summary of Primary & Secondary Program Drivers**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| Primary Driver: Capacity Constraints | • This program is primarily driven by the need to resolve capacity constraints and plan for future load growth on the distribution system. To keep pace with the growing system, sustain customer connection timelines and ensure adequate distribution capacity—especially to support electrification—investing in capacity is necessary. |
| Secondary Driver: Reliability | • Sufficient system capacity allows for timely customer service restoration in the event of an outage. Additionally, the new capacity provides greater flexibility in scheduling planned outages for maintenance and the delivery of capital plans in general.<br>• New stations incorporate standardized, modern designs and equipment that enhance system protection, enable the retirement of unreliable legacy infrastructure, and support remote operation. These improvements contribute to reduced outage frequency and duration, while strengthening overall system reliability and operational efficiency. |

## 3.2 Capacity Constraints

Elexicon Energy's capacity planning process analyzes the distribution system in detail to ensure that there is sufficient capacity to supply efficient, reliable, and safe electricity to its customers. Elexicon serves a non-contiguous service area where certain regions may experience demand that exceeds the available capacity, without the ability to simply secure additional capacity from adjacent areas to meet that demand.

The capacity assessment methodology defines how both the current and forecasted system demand is evaluated against available capacity. Using the historical peak load and consolidated System Peak Load Forecast (see Exhibit 2B - Tab 3 - Schedule 1) as the primary inputs, current and forecasted peak loads are compared against the capacity. The available capacity is analyzed at each supply point, to determine where the constraint is present to be able to strategically plan capital investments for additional capacity.

The system's ability to meet the existing and projected peak load has been evaluated and areas in the system with insufficient capacity or capacity constraints have been identified.

Elexicon separates capacity constraints into two segments:

- **Insufficient Station Supply Capacity**: when the upstream supply available to a station is inadequate to meet projected demand.
- **Insufficient Distribution System Capacity**: when the downstream capacity from a station is insufficient to serve forecasted load.

Addressing capacity constraints by adding capacity into the system during the 2027-2031 rate period is the purpose and driver for the Substation Growth program. As shown in Table 3, Elexicon has significant existing capacity constraints in 2025. Of the 58 MSs analyzed, 44 MSs have limited capacity today.

Forecasted load growth will exacerbate the already constrained capacity, with an additional three (3) MSs constrained if no investments are made until 2031, leading to a total of 47 MSs with limited capacity in 2031. Most of these stations are distributed across Ajax-Pickering, Whitby, Belleville, and Brock regions, with further details to follow.

The investments targeted in the 2027-2031 rate period are designed to significantly reduce the capacity constraints within Elexicon service territory by targeting priority investments that will drive the most reduction in constraints. As shown previously in Table 1 Elexicon Overall System Capacity by Municipal Station 2025 vs. 2031, with the investments proposed in the 2027-2031 rate period, the number of constrained MSs will be reduced from 44 to 21. Future investments will be required post-2031 to continue reducing the capacity constraints in Elexicon's service territory.

### 3.2.1 Customer and Load Growth

Elexicon operates in one of Ontario's most dynamic and rapidly expanding regions. The utility's service territory is experiencing sustained growth in population, employment, and infrastructure investment, all of which have a direct impact on electricity demand and system planning.

Durham Region remains a cornerstone of growth within Elexicon's territory. According to the Region's 2025 Monitoring of Growth Trends Report,[4] the estimated population reached 780,065 residents as of December 2024, up from 732,210 in 2021, representing a 2.2% average annual growth rate. Long-term forecasts project Durham's population to grow to 1.3 million by 2051, with employment nearly doubling from 241,660 in 2021 to 460,000 jobs in 2051.[5] This growth is supported by completed infrastructure such as Highways 401, 407, 412, and 418, and ongoing transit enhancements including GO Transit expansions and rapid bus corridors. These investments are catalyzing residential and commercial development, particularly in Pickering, Ajax, and Whitby, where Elexicon is seeing strong demand for new customer connections and capacity upgrades.

Belleville continues to experience steady and planned growth, with its population projected to rise from nearly 55,000 in 2021 to between 70,000 and 81,000 by 2051.[6] This expansion is being driven by strategic initiatives such as the Loyalist West Secondary Plan, which is designed to accommodate up to 28,000 residents, and the Northeast Industrial Park, which supports industrial development and employment growth. Employment opportunities will be provided through a balance of manufacturing, research and development, education, agriculture, tourism, and commercial and industrial uses in areas designated and determined to be best suited for each economic sector. Due in part to the fact that the City of Belleville includes the largest urban area in the Quinte region, the City of Belleville will continue to be the centre of economic activity and employment opportunities. Across Hastings County, the broader population is

[4] Regional Municipality of Durham, "Monitoring of Growth Trends", (May 23, 2025)
[5] Regional Municipality of Durham, "Envision Durham – Regional Official Plan", (December 13, 2024)
[6] Watson & Associates Economists Ltd., "Population, Housing, and Employment Growth Forecast Update – City of Belleville", (December 21, 2022)

expected to grow from 173,200 in 2021 to 223,000 by 2051, with employment increasing by over 17,000 jobs between 2023 and 2051.

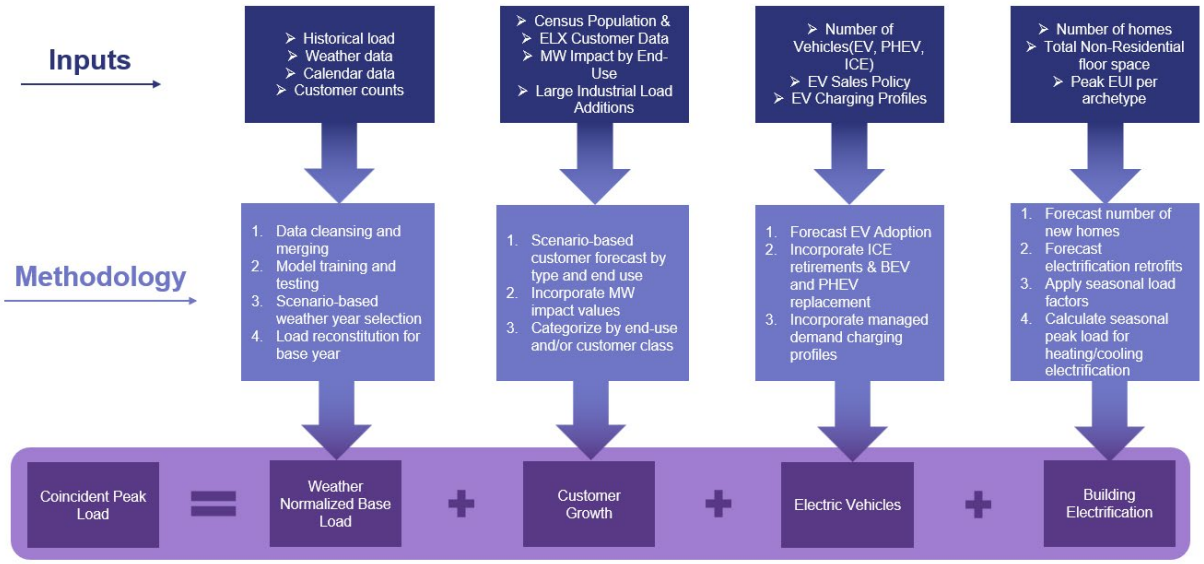
Northumberland County, the upper tier municipality for the Municipality of Port Hope, is forecasted to reach 122,000 residents by 2051, compared to 89,365 in 2021.[7] Growth is concentrated in municipalities like Cobourg and Port Hope, which are benefiting from improved transportation links, regional migration, and a shift toward mixed-use development. These trends are contributing to increased electricity demand, particularly in residential subdivisions and commercial corridors.

The Muskoka District anticipates a permanent population increase from 66,674 in 2021 to 99,100 by 2051.[8] Growth in this area is driven by both seasonal and permanent housing development, with rising demand in resort communities and recreational zones. Electrification of heating and transportation is also expected to play a growing role in shaping future load profiles.

Elexicon's forecasted customer growth as a result of development in its service territory is provided in Exhibit 2B - Tab 4 - Schedule 3 - Appendix B. Using the various economic development inputs, specific developments within the region, and electrification scenarios, Elexicon's System Peak Load Forecast forms the analytical foundation of determining the capacity constraints in the future. Historical demand data and system performance are combined with demographic, economic, and policy-based projections to develop a forward-looking view of system loading under a range of scenarios. Weather normalization techniques are applied to remove short-term anomalies, ensuring the forecast reflects sustainable trends in customer, community growth and commercial and industrial development. Figure 1 below outlines Elexicon's Load & Capacity Forecasting process. More details are provided in Exhibit 2B - Tab 2 - Schedule 1 of the Asset Management Process.

[7] Northumberland County, "2024 Annual Report", (August 2025)
[8] District of Muskoka, "Office Consolidation of the Official Plan of the Muskoka Planning Area", (June 2025)

**Figure 1: Elexicon's Peak Load & Capacity Forecasting process**




These forecasts are then applied in the Capacity Planning stage to evaluate the system's ability to meet projected demand at the station supply level and distribution system level.

### 3.2.2 Insufficient Station Supply Capacity

When evaluating the ability of Station Supply Capacity to meet the forecasted load demand at an individual TS level or at the regional level the following TS capacity types are considered.

- **TS Limited Time Rating (LTR):** The TS total capacity is provided by Hydro One and is defined based on the 10-day Limited Time Rating (LTR), which is a temporary capacity rating that station transformers can sustain for up to 10 consecutive days under specific seasonal conditions (either summer or winter), without exceeding thermal limits or compromising equipment integrity.
- **TS Feeder Capacity**: The capacity is based on the planning capacity of the specific feeder utilized. This is based on either the thermal capacity of the feeder assuming N-1 contingency, or the allocated capacity from Hydro One if Elexicon is embedded on the feeder.

When utilization of TS LTR or TS Feeder Capacity exceeds 100%, there is insufficient Station Supply Capacity. Within the Elexicon service territory, the Ajax-Pickering and Whitby regions are the most impacted by insufficient Station Supply Capacity. Fourteen (14) municipal stations in these regions, more than half of all stations, have limited capacity due to Station Supply Capacity.

The municipal stations in the Ajax-Pickering and Whitby regions have a station supply voltage of 44 kV. To understand the station supply constraints in these regions, Elexicon examined the four transmission stations that provide station supply at 44kV to the municipal stations in the region. Table 4 below shows all the transmission stations providing station supply to the region, with their forecasted peak load demand, existing capacity and the utilization percentage of the capacity.

**Table 4: 44 kV Transmission Station Utilization in the Ajax-Pickering and Whitby Regions Summer**

| Transformer Station | Metric (MW) | **2027** | **2028** | **2029** | **2030** | **2031** |
|---|---|---|---|---|---|---|
| Cherrywood TS @ 44kV | Load | 171 | 172 | 174 | 176 | 177 |
| | Capacity | 167 | 167 | 167 | 167 | 167 |
| | Utilization | 102% | 103% | 104% | 105% | 106% |
| Thornton TS @ 44kV | Load | 80 | 80 | 80 | 80 | 80 |
| | Capacity | 80 | 80 | 80 | 80 | 80 |
| | Utilization | 100% | 100% | 100% | 100% | 100% |
| Whitby DESN 1 TS @ 44kV | Load | 59 | 65 | 71 | 78 | 85 |
| | Capacity | 101 | 101 | 101 | 101 | 101 |
| | Utilization | 58% | 64% | 70% | 77% | 84% |
| Whitby DESN 2 TS @ 44kV | Load | 194 | 198 | 202 | 206 | 210 |
| | Capacity | 182 | 182 | 182 | 182 | 182 |
| | Utilization | 106% | 108% | 111% | 113% | 115% |
| Total @ 44kV | Load | 504 | 515 | 527 | 540 | 552 |
| | Capacity | 530 | 530 | 530 | 530 | 530 |
| | Utilization | 95% | 97% | 99% | 102% | 104% |

Peak load will exceed station capacity during the entire 2027-2031 rate period for three of the four stations. Total peak load will exceed total capacity starting in 2030, eliminating load transfers between stations as a viable alternative to resolve the insufficient capacity. Additional Station Supply Capacity is needed to meet the forecasted load in the Ajax-Pickering and Whitby areas. The planned investment for the new GTA East TS will address these constraints, with further details available in Appendix I-1 of this Material Narrative.

### 3.2.3 Insufficient Distribution System Capacity

When evaluating the ability of Distribution System Capacity to meet the forecasted load demand at an individual MS level, or at the regional level, the following MS capacity types are considered.

- **MS Maximum Planning Capacity**: At any MS, its maximum planning capacity is the minimum of either 80% of the maximum transformer rating of all MS transformers or the aggregate planning capacity of all the MS feeders connected to the MS transformers.
- **N-1 MS Planning Capacity**: For a group of MSs that provide backup distribution supply to each other, the N-1 MS Planning Capacity is the total MS Maximum Planning Capacities in the group assuming the single largest transformer in the group of MS is out of service.

The MS Maximum Planning Capacity is considered Elexicon's planning limit. If the utilization of the MS Maximum Planning Capacity exceeds 100%, then there is insufficient Distribution System Capacity, and the capacity is fully constrained. In this case, there is an urgent need for additional distribution system supply, and the MS may not be able to supply its load demand under normal operating conditions. When utilization of the Maximum Planning Capacity is forecasted to exceed 100% in an area, the area is capacity constrained, operating above 100% is not acceptable, and additional Distribution System Capacity needs to be added prior to exceeding 100%.

The N-1 MS Planning Capacity is the planning target for an area to ensure proper contingency and reliability are maintained. When utilization of N-1 MS Planning Capacity exceeds 100% in an area, the system is considered capacity constrained and there are load security and load restoration concerns for the area. When this occurs, there will be operational restrictions enacted to minimize the risk of sustained outages for customers in the area. Restricting planned MS outages to low load demand periods and limiting the duration of planned outages are some examples of how Elexicon operationally manages capacity constraints. Elexicon can manage the system when N-1 MS Planning Capacity is exceeded on a short-term basis, however, operational restrictions may result in accelerated asset deterioration because maintenance and inspections get deferred. Additional costs would be incurred because when and how maintenance and capital work is performed is restricted. When utilization of the N-1 MS Planning Capacity is forecasted to exceed 100% in an area, the area is capacity constrained. Additional Distribution System Capacity needs to be added, as operating above 100% should only be sustained for a short period.

If a region has two or less municipal stations providing Distribution System Capacity at a specific voltage level, it is considered a high reliability risk. For example, when one of the two MSs is out of service, the remaining MS may not have sufficient capacity to supply the load for the region and supplying an entire region with a single MS significantly increases the risk of a sustained outage for customers in that region. As a result, these regions will generally have significantly exceeded the N-1 MS Planning Capacity. If, in these regions, the N-1 MS Capacity is significantly exceeded, the region is capacity constrained and adding additional Distribution System Capacity is a priority.

Population growth, community growth and densification, commercial and industrial development and electrification is driving the need for additional feeder capacity and more efficient use of existing infrastructure across Elexicon's service territory. Some regions within the system still operate at legacy voltages of 4.16 kV, which limit feeder loading capability and reduce operational flexibility. The Voltage & System Conversion program resolves these constraints by converting selected areas to standardized 13.8 kV and 27.6 kV systems. Please refer to the Voltage & System Conversion Program narrative for further discussions on the drivers and benefits of voltage conversion. Voltage conversion will transfer existing 4.16kV load on to the higher voltage system. When combined with the forecasted load on the higher voltage system, existing MS capacity may not be sufficient to meet forecasted load demand. In such cases, where alternative solutions are not viable, Elexicon proposes the construction of a new municipal station.

The regions with capacity constraints due to insufficient distribution system supply as determined by system planning evaluation is detailed in Table 5. Investments in the Substation Growth program will resolve the capacity constraints through capacity additions to the system.

**Table 5: Distribution System Capacity Constraints**

| Region or Area | Identified Primary Capacity Constraint | Investment Details |
|---|---|---|
| North Whitby | Maximum Planning Capacity projected to be exceeded in 2027. | Section 6.1.1<br>Winchester West MS<br>(In service by 2027 for phase 1 and by 2031 for phase 2) |
| Belleville | Maximum Planning Capacity projected to be exceeded in 2030. | Section 6.1.2<br>Foster MS<br>(In service 2029) |
| Port Hope | The 27.6kV system in the region is supplied by only two (2) MS and is forecasted to significantly exceed N-1 MS Planning Capacity during the 2027-2031 rate period. | Section 6.1.3<br>Port Hope 27.6kV MS<br>(In service 2029) |
| Uxbridge | The region is supplied by only two (2) MS and is forecasted to significantly exceed N-1 MS Planning Capacity during the 2027-2031 rate period. | Section 6.1.4<br>Uxbridge North MS<br>(In service 2028) |

| Region or Area | Identified Primary Capacity Constraint | Investment Details |
|---|---|---|
| | | |
| Bowmanville | The region is forecasted to significantly exceed the N-1 MS Planning Capacity during the 2027-2031 rate period. | Section 6.1.5 Bradshaw MS (In service 2031) |

### 3.3 Reliability

Resolving capacity constraints by adding new stations to the system and increasing capacity at existing stations creates new pathways to route power when needed. This increases the resiliency of the electrical system. A resilient system is a reliable system. When an outage occurs at a station, a large number of customers and their associated electrical load must be transferred to other parts of the system. In areas with limited capacity, additional time and coordination are required to perform these transfers safely and prevent causing overloads or risking further outages. In some cases, loading shedding and brown outs (rotating outages) may occur. In extreme cases, capacity constraints prevent transfers altogether, leaving customers without power until the issue is resolved.

Insufficient system capacity will create operational constraints. Restrictions on the timing and duration of planned outages may defer needed maintenance and capital work resulting in accelerated deterioration of asset which leads to a higher risk of asset failure. In some instances, insufficient system capacity may require the system assets to operate above their capacity ratings; these situations will also cause asset to deteriorate faster and increase the risk of asset failure.

## 4. INVESTMENT TIMING & PACING

### 4.1 Summary of Expenditures

Spending in the Substation Growth program over the 2027-2031 rate period is forecasted to be $147.33M. Table 6 details the total investments associated with the Substation Growth program, including the historical period from 2020 to 2024, the bridge period from 2025 to 2026, and the forecast period from 2027 to 2031.

**Table 6: Summary of Net Expenditures ($M)**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025**[9] | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Gross | 4.37 | 8.19 | 17.46 | 0.78 | 10.77 | 1.68 | 29.53 | 35.81 | 20.99 | 30.64 | 21.56 | 38.33 |
| Contributions[10] | - | - | - | - | - | (0.61) | (4.66) | - | - | - | - | - |
| Net | **4.37** | **8.19** | **17.46** | **0.78** | **10.77** | **1.08** | **24.50** | **35.81** | **20.99** | **30.64** | **21.56** | **38.33** |

In identifying critical projects within this program, Elexicon seeks to align the timing of its investments as closely as possible with the point at which the underlying need materializes. Year-over-year variances in expenditures reflect differences in project scope, timing, and complexity. Projects in the Substation Growth program are complex and entail extensive coordination with Hydro One and other stakeholders, long lead times for ordering equipment, and potential delays in acquiring land. Due to these considerations, this program is susceptible to fluctuations in year-over-year spending. Table 7 outlines the planned expenditure timing for the individual projects within this program.

[9] Capital expenditures include ICM forecast for Sandy Beach MS Rebuild
[10] The customer contributions are subject to change based upon the final Offer to Connect agreement

**Table 7: Project Net Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Uxbridge North MS | 2.74 | 4.96 | - | - | - |
| Foster MS | 1.57 | 1.65 | 4.77 | - | - |
| Mobile Station | 1.68 | 0.67 | 1.01 | - | - |
| Port Hope 27.6kV MS | 2.43 | 2.48 | 6.21 | - | - |
| Bradshaw MS | - | - | 2.19 | 2.29 | 3.99 |
| Winchester West MS | 2.73 | - | 0.79 | 1.26 | 1.68 |
| GTA East TS | 24.66 | 11.23 | 15.67 | 18.00 | 32.65 |
| Total | **35.81** | **20.99** | **30.64** | **21.56** | **38.33** |

Expenditures during the 2027–2031 rate period exceeds those in the bridge and historical periods due to the materializing of urgent capacity constraints and refinement of load-forecasting over the historic period. The projects included in this program for the forecast period are the results of Elexicon's planning and prioritization process in Exhibit 2B - Tab 3 - Schedule 1 above, and section 4.2, below. The costs to complete station projects have significantly increased since the last rate period, resulting in higher forecast expenditures primarily attributed to increasing materials costs. In 2019, Elexicon completed a new single transformer MS for ~$2.5M, and in 2024 a similar MS was completed for ~$4.5M. Based on material quotations, the current estimate for a new single transformer MS that will be completed in 2027 is ~$9.9M. Please refer to Exhibit 1 - Tab 5 - Schedule 2 for further details on the increased cost to perform work.

Planned capital expenditures compared to actuals explanations for 2020 to 2024 can be found in Exhibit 2B - Tab 4 - Schedule 1 of the 2027-2031 Distribution System Plan application.

## 4.2 Investment Pacing and Prioritization

Elexicon seeks to align the timing of its investments as closely as possible with the point at which the underlying need materializes.

- **GTA East Transformer Station:** This project's execution timeline spans 7 years, from 2025 to 2031. The station will be in service prior to capacity utilization in the Whitby region reaching 100% in 2032.

- **Winchester West MS:** This project will be executed in two stages over the 2025 to 2031 period. The station will be in service prior to utilization of Maximum Planning Capacity rate exceeding 100% in 2031 in the North Whitby area.
- **Uxbridge North MS:** This project will begin in 2026 and be completed in 2028. The region is only supplied by two MS and load is forecasted to significantly exceed its N-1 MS Planning Capacity during the 2027-2031 rate period. Given the age and condition of the existing stations, the likelihood of a station being out of service is high. This station will be executed at the start of the 2027-2031 rate period.
- **Foster MS:** This project will begin in 2027 and be completed in 2029. The station will be in service prior to utilization of the Maximum Planning Capacity on the 13.8kV system exceeding 100% in 2030 in the Belleville region.
- **Mobile Station:** The mobile station will be ordered in 2027 and will arrive in 2029. The mobile station's ability to facilitate capital construction and prevent unplanned outages during construction is valuable, especially when the execution of substation projects ramps up, i.e., in the Substation Renewal program. This project will begin at the start of the 2027-2031 rate period.
- **Port Hope 27.6kV MS:** This project will begin in 2027 and be completed in 2029. The 27.6kV system is only supplied by two MSs and load is forecasted to significantly exceed its N-1 MS Planning Capacity during the 2027-2031 rate period. For these reasons, this project has a higher priority and will begin at the start of 2027-2031 rate period.
- **Bradshaw MS:** This project will begin in 2029 and be completed in 2031. The load of the region is forecasted to significantly exceed its N-1 MS Planning Capacity during the 2027-2031 rate period. Given that the region is supplied by three MSs and the amount of over-utilization of the N-1 MS Planning Capacity is lower than other projects in this program, the reliability risk is lower and therefore, the project will be executed at the end of the 2027-2031 rate period.

## 4.3 Execution Approach

Elexicon's execution framework ensures that all approved projects and programs are delivered safely, efficiently, and in accordance with regulatory, technical, and financial requirements. It integrates cross-

departmental coordination between Planning, Engineering, Operations, and Supply Chain to ensure that resources, materials, and schedules are aligned with Elexicon's annual investment targets. Elexicon's capital execution process is described in Exhibit 2B - Tab3 - Schedule 1 of Asset Management Process.

As part of program execution, Elexicon anticipates and proactively manages potential risks from an implementation perspective to ensure that program delivery is optimized. Among the key risk categories that the utility manages are listed in Table 8.

**Table 8: Summary of Program Risks & Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| **Procurement Lead Times:** Procurement of key infrastructure components such as transformers and switchgear can take 24–36 months, impacting timely project execution. | • Advance Procurement: The timely execution of the project is heavily reliant on the availability of these critical assets. To proactively manage this risk and ensure alignment with the planned in-service date, Elexicon initiates procurement activities in advance of the anticipated project commissioning. |
| **Land Securement:** Securing suitable land for new substations can be challenging due to limited availability, zoning constraints, and negotiations with landowners. | • Flexibility: Delays in land securement can significantly impact project timelines. Elexicon mitigates this risk by exploring multiple site options to ensure flexibility and continuity in project planning.<br>• Early Engagement: Elexicon mitigates this risk by engaging with municipal planning departments early to discuss land ownership options, zoning requirements, integration into proposed secondary plans. |
| **Transmission Line Construction:** As noted in Appendix I-1 of this Material Narrative, the GTA East TS will require approximately 5 km of Hydro One-owned transmission line along new Right-of-Way (ROW). Given that Elexicon will not design and construct the transmission line, this adds coordination, cost and schedule risk with Hydro-One. | • Improved Coordination: To mitigate this risk, Elexicon has been working closely with Hydro One to perform a feasibility study, which includes preliminary real estate, design, and environmental work. This will identify any concerns early in the process and allow Elexicon to work closely with Hydro One to proactively manage the timing and cost of the transmission line build. |
| **Environmental Assessments:** New transformer station developments may trigger Class Environmental Assessment requirements, which can introduce delays if not managed proactively. These assessments may involve studies related to species at | • Stakeholder Engagement: To address this risk, Elexicon engages with environmental consultants early in the planning process, conducts preliminary environmental screenings where applicable, and |

| Risk | Mitigation Methods |
|---|---|
| risk, water courses, and other ecological considerations. | works closely with stakeholders to ensure timely completion of required assessments and approvals. |
| **Unexpected Priority Calls:** Reactive work may require reallocating crews from planned projects to address urgent failures or emergency restorations. | • Contractor Support: Engage external contractors when needed to maintain planned work levels and avoid delays to Substation Growth program efforts. |
| **Execution & Resource Availability:** Specialized labor, civil construction, and contractor coordination are critical; resource constraints during peak seasons may impact timelines and costs. | • Strategic Planning: Through strategic planning, advanced ordering of materials and maintaining strong relationships with the contractor community, Elexicon will endeavor to optimize the delivery of their investment program, while also managing the risks of cost overruns and increases due to the impacts of inflation. |

# 5. OPTIONS ANALYSIS

## 5.1 Options Substation Growth

An integral component as part of Elexicon' s AM Planning Process (Exhibit 2B - Tab3 - Schedule 1) is to assess the prudency of each investment program through the consideration of various investment options. An options analysis is conducted for each project proposed within this program to ensure that the selected solution represents the most prudent and cost-effective investment. The following options are systematically evaluated as part of this analysis to demonstrate due diligence and alignment with regulatory expectations for need, efficiency, and long-term value:

- **Option 1 – Status Quo:** Assess whether the investment is required within the 2027-2031 rate period or if the project can be deferred without compromising system reliability, safety, or service quality.
- **Option 2 – Load Transfers:** Evaluate the feasibility of redistributing load across existing municipal stations to address forecasted demand in the target area, thereby deferring or avoiding new infrastructure investment.

**Option 3 – Non-Wires Solutions (NWS):** Evaluate the investments through the NWS pre-screening framework.

If a project passes the pre-screening framework, Elexicon then evaluates what NWS could be deployed. Once an NWS is evaluated and selected, Elexicon conducts a benefit-cost analysis (BCA). The results of the NWS pre-screening framework for each proposed project in this program can be found in Section 6 of this Material Narrative, below.

- **Option 4 – Station Upgrades:** Determine whether upgrading capacity at existing stations can resolve the identified constraint and deliver the required system performance and operational flexibility.
- **Option 5 – New Station Construction:** Assess whether construction of a new municipal station is warranted to resolve system constraints and provide long-term operational and capacity benefits.

Detailed, project-specific option analyses are provided in Section 6 of this Program.

# 6. INVESTMENT PROJECTS

## 6.1 Investment Projects for Substation Growth

### 6.1.1 Winchester West MS

**Project Drivers**

New developments in the North Brooklin community within Whitby will add significant load demand to the region. The new developments are being led by the Brooklin Landowners Group (BLG). Elexicon is working actively with BLG to establish the necessary electrical infrastructure to provide electrical services to the new developments. Details of the developments and their impact are outlined below.

The BLG development in North Whitby is planned to be developed in two stages:

- Stage 1: ~5,000 residential units
- Stage 2: ~9,000 residential units
- Total: ~14,000 residential units

Estimated electrical load demand is:

- Stage 1: 15MW
- Stage 2: 27MW
- Total: 42MW

The BLG development is in the North Brooklin area, which is considered a part of North Whitby, and for system planning evaluation, North Whitby is comprised of the following stations: W. Lawler MS, Baldwin MS, Conlin MS, and Taunton East MS. These stations have been defined based on the reasonable distances from the BLG development load centre and the back-up that they provide to one another. Figure 1 shows all MS located in the Whitby Region. Table 9 shows the forecasted load and current capacity for the evaluation area.

**Figure 2: Municipal Stations in Whitby**

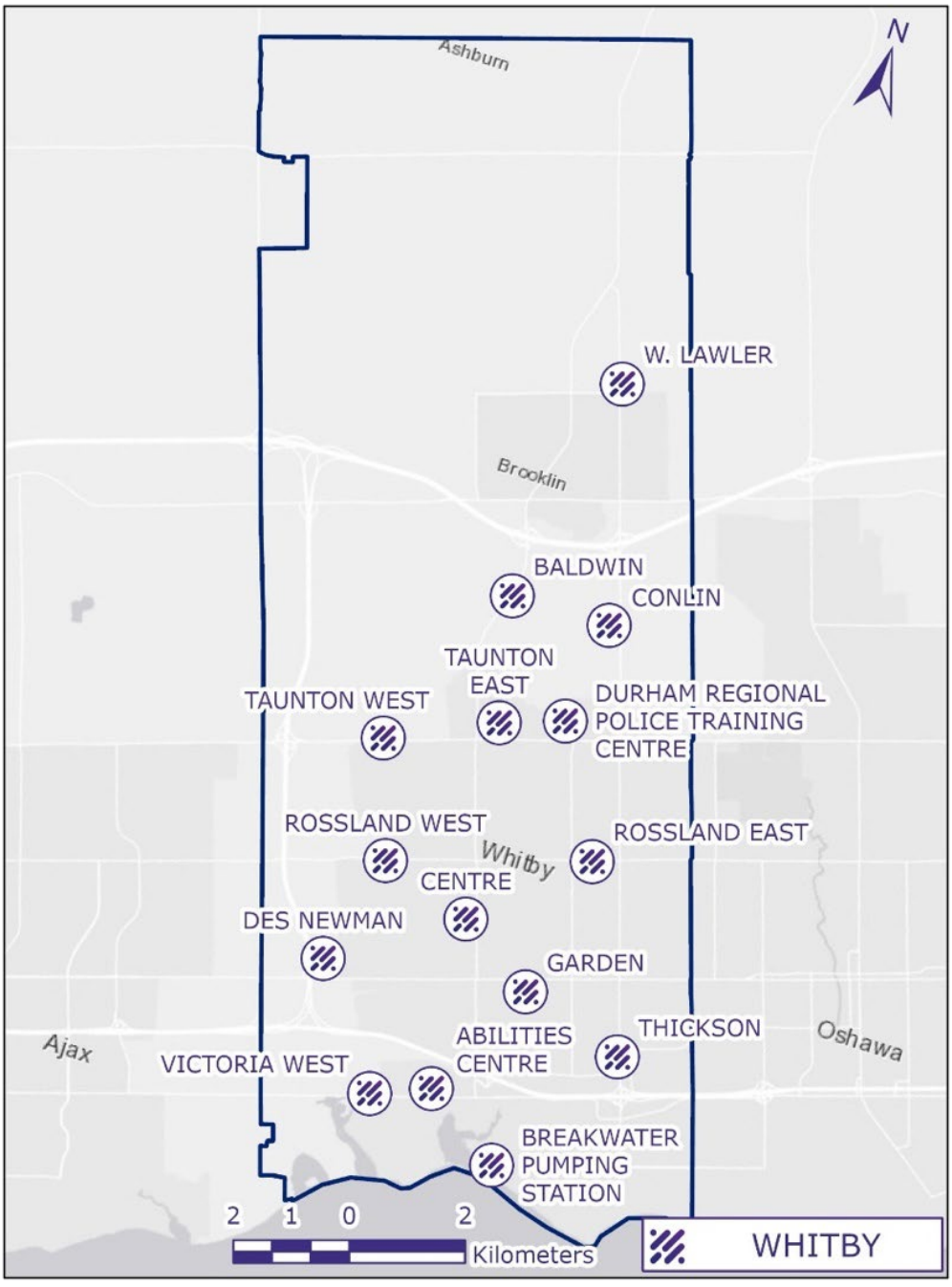


**Table 9: Forecasted Load and 13.8kV MS Capacity in North Whitby (without Winchester West MS)**

| North Whitby 13.8kV System | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 73 | 75 | 93 | 93 | 94 | 96 | 127 |
| Maximum Planning Capacity (MVA) | 93 | 93 | 93 | 93 | 93 | 93 | 93 |
| & Utilization | 78% | 81% | 100% | 101% | 102% | 103% | 137% |
| N-1 MS Planning Capacity (MVA) & | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| Utilization | 85% | 88% | 109% | 110% | 111% | 113% | 149% |

Load demand on the 13.8kV system in the North Whitby evaluation area is growing significantly as shown Table 9. The load demand is driven by the BLG developments and in addition to that, load growth on the 13.8kV system is included from the System Peak Load Forecast.

Insufficient Distribution System Capacity and a resulting capacity constrained system is forecasted for the North Whitby evaluation area. Load on the 13.8kV system is forecasted to reach total Maximum Planning Capacity and N-1 MS Planning Capacity for the area starting in 2027. Additional Distribution System Capacity by 2027 is needed to reliably provide electrical services to customers.

**Project Scope and Benefits**

Elexicon is planning to resolve the capacity constraint by constructing a new MS, referred to as Winchester West MS. The Winchester West MS will operate at 13.8 kV and will be equipped with two 25 MVA transformers. This project is split into two phases, Phase 1 will involve building Winchester West MS with a single 25MVA transformer to support the initial planned developments, and Phase 2 will involve adding a second 25MVA transformer to supply the final stages of development.

Stage 1 (2024–2027)

- A new Winchester West MS designed for two transformers and six feeders. (Only one transformer will be installed in Stage 1).
- Energization targeted for Q3 2027.

Stage 2 (2029–2031):

- The addition of a second transformer at Winchester West MS.
- Energization target for Q4 2031.

Table 10 shows the benefits of a new Winchester West MS on the 13.8kV system. After the energization of Winchester West MS, load on the 13.8kV system does not exceed its Maximum Planning Capacity. N-1 MS Planning Capacity is exceeded starting in 2031. With this investment, Elexicon will still face operating constraints starting in 2031 and will need to manage planned MS outages in the area to prevent sustained customer service outages. Additional capacity solutions may be proposed for the area post 2031 to resolve the N-1 MS Planning Capacity constraint, remove all operating constraints, and avoid exceeding the Maximum Planning Capacity.

**Table 10: Forecasted Load and 13.8kV MS Capacity in North Whitby (with Winchester West MS)**

| North Whitby 13.8kV System | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 73 | 75 | 93 | 93 | 94 | 96 | 127 |
| Maximum Planning Capacity (MVA) & Utilization | 93 | 93 | 113 | 113 | 113 | 113 | 133 |
| | 78% | 81% | 82% | 83% | 84% | 85% | 96% |
| N-1 MS Planning Capacity (MVA) & Utilization | 85 | 85 | 105 | 105 | 105 | 105 | 125 |
| | 85% | 88% | 88% | 89% | 90% | 91% | 102% |

**Project Cost**

Table 11 below shows the forecasted expenditure of the project for the 2025 to 2031 period, this includes both Stage 1 and 2, as well as customer contributions.

**Table 11: Winchester West MS Net Expenditure Forecast**

| | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **Total** |
|---|---|---|---|---|---|---|---|---|
| Stage 1 Cost ($M) | 1.40 | 5.77 | 2.73 | - | - | - | - | 9.91 |
| Stage 2 Cost ($M) | | | | - | 0.79 | 1.26 | 1.68 | 3.74 |
| Contributions ($M) | (0.61) | (4.66) | | - | - | - | - | (5.27) |
| **Net Cost ($M)** | **0.79** | **1.11** | **2.73** | **-** | **0.79** | **1.26** | **1.68** | **8.38** |

**Options Analysis**

The following options were evaluated to determine the recommended solution.

- **Option 1 – Status Quo:** This option was evaluated and ultimately rejected. Maintaining the status quo is not considered a viable or recommended approach when capacity constraints have been identified. Failure to resolve these constraints would prevent timely customer connections, reduce system reliability, compromise system resiliency, and increase safety risks. While short-term measures are sometimes used to bridge the gap while longer-term solutions are implemented, no prudent short-term options have been identified in this case.
- **Option 2 – Load Transfers:** This option was evaluated and ultimately rejected. Transferring load to existing municipal stations in the North Whitby area is not feasible, as the total Maximum Planning Capacity of the 13.8kV system is insufficient to accommodate the forecasted load demand without further compromising system reliability and operational flexibility. Total Maximum Planning Capacity on the 13.8kV system in the North Whitby area is 93MVA while peak load demand for the region is forecasted to reach 127MVA.
- **Option 3 – NWS:** This option was rejected as the project failed the NWS pre-screening framework. Phase 1 of the project was screened out due to failing the Need Velocity Fit Test. Phase 2 of the project was screened out due to failing the Event Frequency Fit Test.
- **Option 4 – Municipal Station Upgrades:** This option was evaluated and ultimately rejected. The projected load demand warrants the construction of a new municipal station. The magnitude of capacity required cannot be sufficiently addressed by upgrading the existing stations in the area.
- **Option 5 – New TS or DESN:** The new TS and DESN option was rejected. A new TS for the area has been proposed separately, see Appendix I-1 of this Material Narrative.
- **Option 6 – New Municipal Station:** The recommended option is to construct a new MS. A MS will meet all forecast load demand for the area. This option also aligns with standard capacity planning and system design practices.

### 6.1.2 Foster MS

**Project Drivers**

Load demand on the 13.8kV system in the Belleville region is growing significantly as shown in Table 12. The load demand is driven by growth on the 13.8kV system included from the System Peak Load Forecast. The load demand forecasted is based on the steady and planned growth in the Belleville region. Population in the region is projected to rise from nearly 55,000 in 2021 to between 70,000 and 81,000 by 2051. The population growth is driven by strategic initiatives such as the Loyalist West Secondary Plan, which is designed to accommodate up to 28,000 residents, and the Northeast Industrial Park, which supports industrial development and employment growth. In addition, load demand will be added from load transfers from the 4.16kV system to the 13.8kV system as part of the Voltage Conversion activity in Belleville.

**Table 12: Forecasted Load and 13.8kV MS Planning Capacity in Belleville (without Foster MS)**

| Belleville 13.8kV System | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 52 | 55 | 57 | 58 | 61 | 64 | 67 |
| Maximum Planning Capacity (MVA) & Utilization | 64 | 64 | 64 | 64 | 64 | 64 | 64 |
| | 81% | 86% | 88% | 91% | 95% | 101% | 105% |
| N-1 MS Planning Capacity (MVA) & Utilization | 48 | 48 | 48 | 48 | 48 | 48 | 48 |
| | 108% | 115% | 118% | 122% | 127% | 134% | 141% |

Insufficient Distribution System Capacity and a resulting capacity constrained system is forecasted for the Belleville region. Load on the 13.8kV system is forecasted to exceed its total Maximum Planning Capacity starting in 2030. Additional Distribution System Capacity prior to 2030 is needed to reliably provide electrical services to customers. Load on the 13.8kV system has already exceeded the N-1 MS Planning Capacity for the area starting in 2025. Operational constraints have been initiated to minimize the risk of sustained outages for customers in the area.

**Project Scope and Benefits**

Elexicon is planning to resolve the capacity constraint by constructing a new MS, referred to as Foster MS. The Foster MS will operate at 13.8 kV and will be equipped with a single 25 MVA transformer. It is scheduled to be energized in 2029. Figure 3 illustrates the existing MSs in the region.

**Figure 3: Municipal Stations in Belleville**

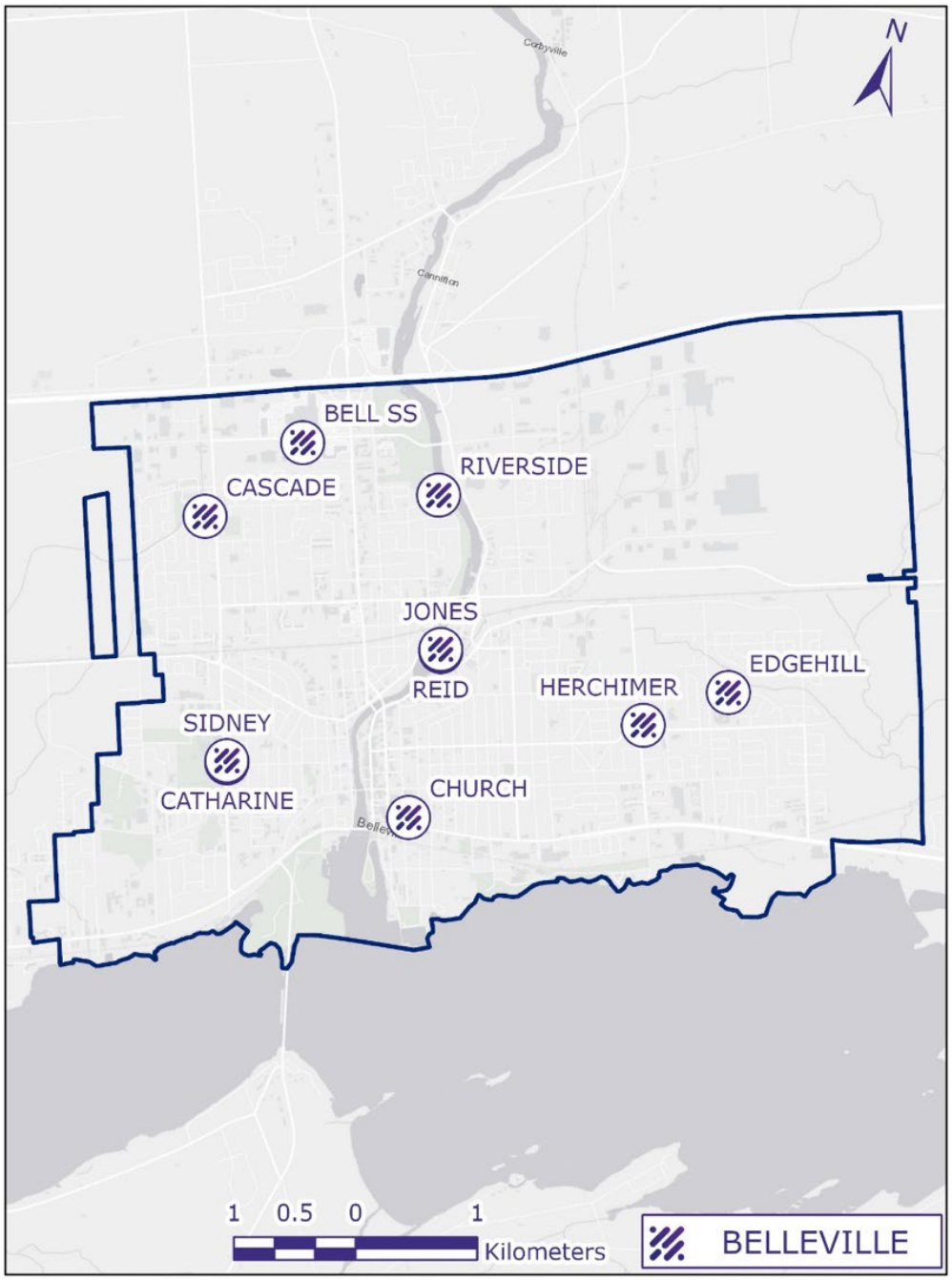


Table 13 shows the benefits of the new Foster MS on the 13.8kV system. After the energization of Foster MS, load on the 13.8kV system does not exceed its Maximum Planning Capacity. N-1 MS Planning Capacity is exceeded starting in 2025 and then again starting in 2030, shortly after Foster MS comes in service. Elexicon will face operating constraints and will need to carefully manage planned MS outages in the region to prevent sustained customer service outages. With voltage conversion planned until 2043, 4.16kV load will continue being transferred to the 13.8kV system, this, along with general forecasted load growth, will lead to the MS Maximum Planning Capacity being exceeded. As a result, additional capacity solutions may be proposed for the region post 2031 to resolve the N-1 MS Planning Capacity constraint, remove all operating constraints, and avoid exceeding the Maximum Planning Capacity.

**Table 13: Forecasted Load and 13.8kV MS Planning Capacity in Belleville (with Foster MS)**

| Belleville 13.8kV System | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 52 | 55 | 57 | 58 | 61 | 64 | 67 |
| Maximum Planning Capacity (MVA) & Utilization | 64 | 64 | 64 | 64 | 84 | 84 | 84 |
| | 81% | 86% | 88% | 91% | 73% | 77% | 80% |
| N-1 MS Planning Capacity (MVA) & Utilization | 48 | 48 | 48 | 48 | 64 | 64 | 64 |
| | 108% | 115% | 118% | 122% | 95% | 101% | 105% |

**Project Cost**

Table 14 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 14: Foster MS Project Net Expenditures ($M)**

| Project | **2027** | **2028** | **2029** | **2030** | **2031** |
|---|---|---|---|---|---|
| Foster MS | 1.57 | 1.65 | 4.77 | - | - |

**Options Analysis**

The following options were evaluated to determine the most appropriate solution.

- **Option 1 – Status Quo:** This option was evaluated and ultimately rejected. Maintaining the status quo is not considered a viable or recommended approach when capacity constraints have been identified. Failure to resolve these constraints would prevent timely customer connections, reduce system reliability, compromise system resiliency, and increase safety risks. While short-term measures are sometimes used to bridge the gap while longer-term solutions are implemented, no prudent short-term options have been identified in this case.
- **Option 2 – Load Transfers**: This option was evaluated and ultimately rejected. Transferring load to existing municipal stations in the Belleville region is not feasible, as the total Maximum Planning Capacity of the 13.8 kV system is insufficient to accommodate the forecasted load demand without further compromising system reliability and operational flexibility. Total Maximum Planning Capacity on the 13.8kV system in the Belleville region is 64MVA while peak load demand for the region is forecasted to reach 66MVA in 2030 exceeding capacity by 3%. Peaked demand for the region is forecasted to continue to grow afterwards.
- **Option 3 – NWS:** This option was rejected as the project failed the NWS pre-screening framework. This project was screened out due to failing the Need Primacy Fit Test.
- **Option 4 – Municipal Station Upgrades:** This option was evaluated and ultimately rejected. The projected load demand warrants the construction of a new municipal station. Upgrading existing stations would introduce non-standard equipment into the system, reducing efficiency and increasing long-term maintenance complexity.

  **Option 5 – New Municipal Station:** The recommended option is to construct a new MS. A MS will meet forecast load demand for the region. This option also aligns with standard capacity planning and system design practices.

### 6.1.3 Port Hope 27.6kV MS

**Project Drivers**

Load demand on the 27.6kV system in the Port Hope region is growing significantly as shown in Table 15. The load demand is driven by load growth on the 27.6kV system included from the System Peak Load Forecast. The load demand forecasted is based on the steady and planned growth in the Port Hope region. Population in the region is projected to reach 25,900 residents by 2051, compared to 17,500 in 2021. The region is benefiting from improved transportation links, regional migration, and a shift toward mixed-use development. These trends are contributing to increased electricity demand, particularly in residential subdivisions and commercial corridors. In addition, load demand is also driven by load transfers from the 4.16kV system to the 27.6kV system as part of the Voltage & System Conversion happening in Port Hope.

**Table 15: Forecasted Load and 27.6kV MS Planning Capacity in Port Hope (without Port Hope 27.6kV MS)**

| Port Hope 27.6kV System | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 11 | 12 | 12 | 14 | 16 | 17 | 19 |
| Maximum Planning Capacity (MVA) & Utilization | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| | 51% | 54% | 58% | 68% | 74% | 82% | 88% |
| N-1 MS Planning Capacity (MVA) & Utilization | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| | 102% | 109% | 116% | 136% | 149% | 163% | 175% |

Insufficient Distribution System Capacity and a resulting capacity constrained system is forecasted for the Port Hope region. The Maximum Planning Capacity of 27.6kV system will not be exceeded during the 2027-2031 rate period but is forecasted to be exceeded starting in 2033. The Port Hope region is capacity constrained because the 27.6kV system is only supplied by two (2) MS, Shuter and James D Collins, making it a high reliability risk. This, combined with the fact that the 27.6kV system is forecasted to significantly exceed its N-1 MS Planning Capacity, means the region is capacity constrained. These existing capacity constraints and the resulting load security and load restoration concerns are driving the need for additional Distribution System Capacity in Port Hope.

**Project Scope and Benefits**

Elexicon is planning to resolve the capacity constraint with a new MS, referred to as Port Hope 27.6kV MS. Capital investment in Port Hope 27.6 kV MS shall include land securement and the construction of the new MS. This new MS will operate at 27.6kV with a single 25MVA transformer and will be energized in 2029. Figure 4 shows existing MS in the region.

**Figure 4: Municipal Stations in Port Hope**

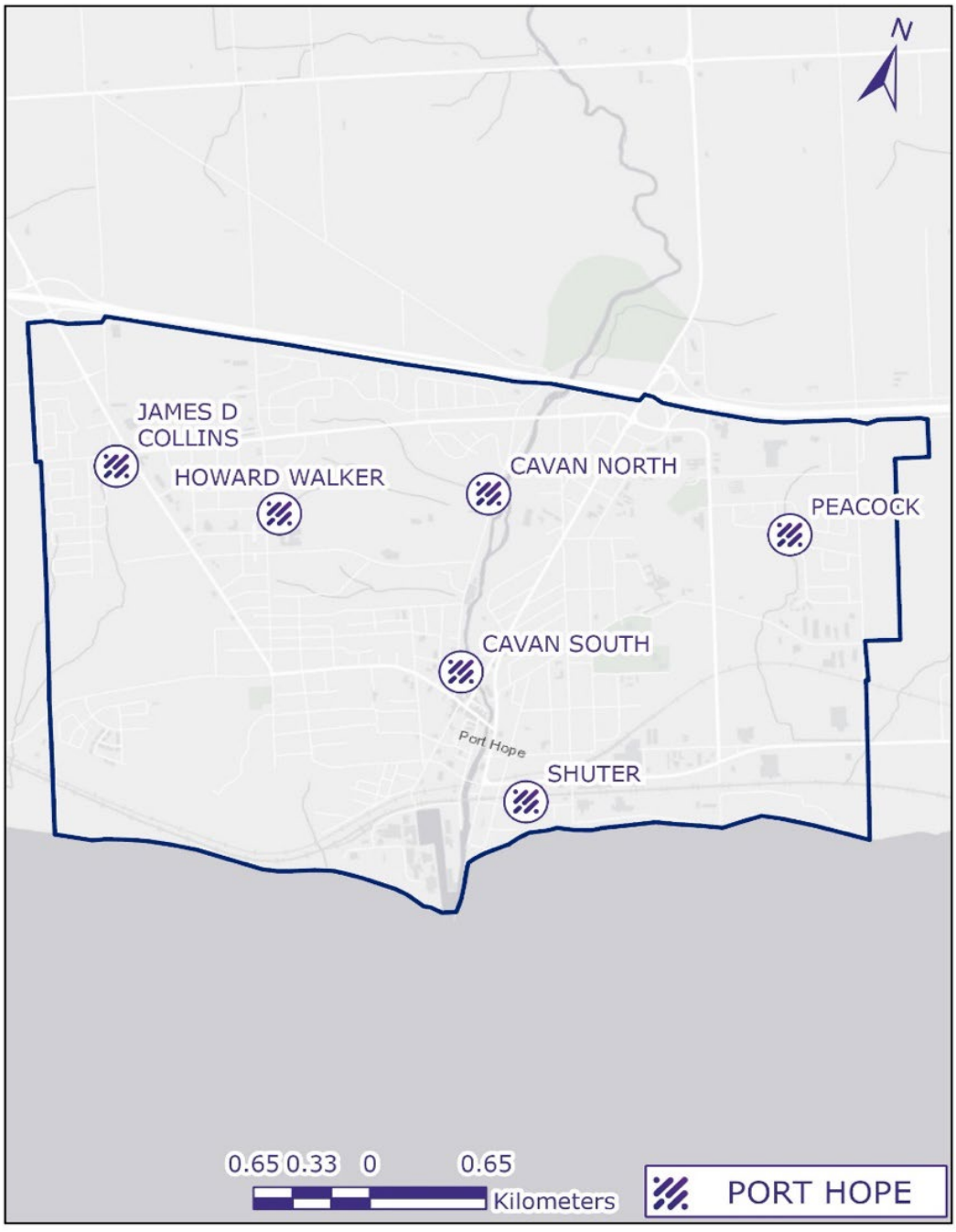


Table 16 shows the benefits of a new Port Hope 27.6kV MS on the 27.6kV system. After the energization of Port Hope 27.6kV MS, load on the 27.6kV system will no longer exceed its N-1 MS Planning Capacity.

**Table 16: Forecasted Load and 27.6kV MS Planning Capacity in Port Hope (with Port Hope 27.6kV MS)**

| Port Hope 27.6kV System | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 11 | 12 | 12 | 14 | 16 | 17 | 19 |
| Maximum Planning Capacity (MVA) & Utilization | 21 | 21 | 21 | 21 | 41 | 41 | 41 |
| | 51% | 54% | 58% | 68% | 38% | 42% | 45% |
| N-1 MS Planning Capacity (MVA) & Utilization | 11 | 11 | 11 | 11 | 21 | 21 | 21 |
| | 102% | 109% | 116% | 136% | 74% | 82% | 88% |

**Project Cost**

Table 17 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 17: Port Hope 27.6kV MS Project Net Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Port Hope 27.6kV MS | 2.43 | 2.48 | 6.21 | - | - |

**Option Analysis**

The following options were evaluated to determine the most appropriate solution.

- **Option 1 – Status Quo:** This option was evaluated and ultimately rejected. Maintaining the status quo is not considered a viable or recommended approach when capacity constraints have been identified. Failure to resolve these constraints would prevent timely customer connections, reduce system reliability, compromise system resiliency, and increase safety risks. While short-term measures are sometimes used to bridge the gap while longer-term solutions are implemented, no prudent short-term options have been identified in this case.
- **Option 2 – Load Transfers:** This option was evaluated and ultimately rejected. Load transfer will not resolve the capacity constraint of the 27.6kV system in the region being only supplied by 2 MSs and the load exceeding the N-1 MS Planning Capacity of the region.
- **Option 3 – NWS:** This option was rejected as the project failed the NWS pre-screening framework. This project was screened out due to failing the Need Primacy Fit Test.

- **Option 4 – Municipal Station Upgrades:** Upgrading existing stations would not provide the operational flexibility gained through a new station, such as increasing the number of available pathways for load transfer and system isolation.

  **Option 5 – New Municipal Station:** The recommended option is to construct a new MS. A MS will meet all forecast load demand for the region. This option also aligns with standard capacity planning and system design practices.

### 6.1.4 Uxbridge North MS

**Project Driver**

The only stations supplying the Uxbridge region are Uxbridge East MS and Uxbridge West MS as shown in Figure 5. Uxbridge East MS and Uxbridge West MS provide mutual backup.

**Figure 5: Municipal Stations in Uxbridge**

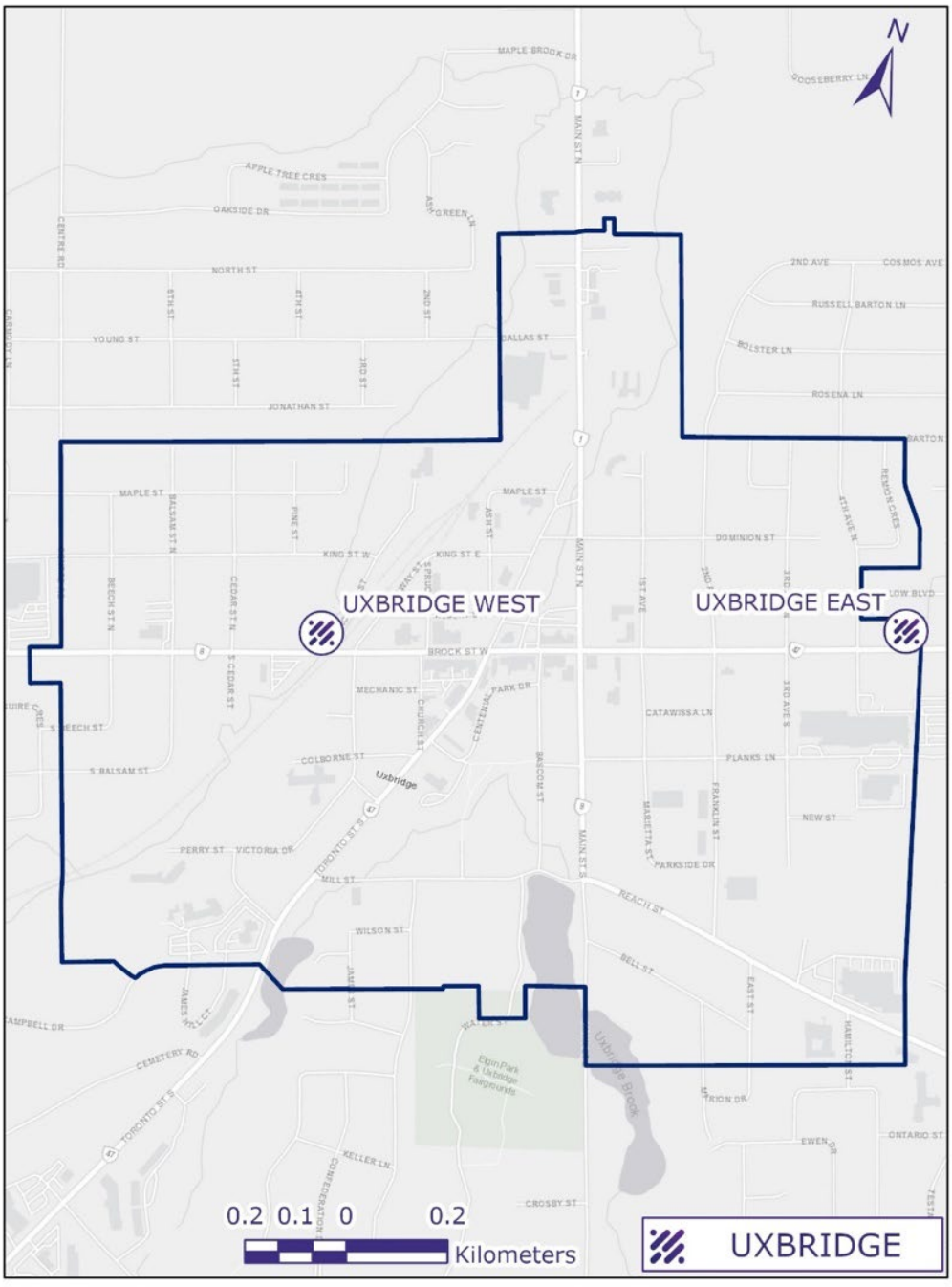


Table 18 shows the forecasted load in the region and its current Distribution System Capacity.

**Table 18: Forecasted Load and MS Planning Capacity in Uxbridge Region (without Uxbridge North MS)**

| Uxbridge 4.16kV System | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 7.3 | 7.4 | 7.5 | 7.8 | 8.1 | 8.4 | 8.7 |
| Maximum Planning Capacity (MVA) & Utilization | 9.1 | 9.1 | 9.1 | 9.1 | 9.1 | 9.1 | 9.1 |
| | 79% | 81% | 82% | 85% | 88% | 92% | 95% |
| N-1 MS Planning Capacity (MVA) & Utilization | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| | 181% | 184% | 187% | 194% | 202% | 210% | 217% |

Insufficient Distribution System Capacity and a resulting capacity constrained system is forecasted for Uxbridge region. The Maximum Planning Capacity of 4.16kV system is forecasted to reach 95% utilization by 2031. The Uxbridge region is capacity constrained because the 4.16kV system is only supplied by two (2) MS, Uxbridge West MS and Uxbridge East MS, making it a high reliability risk. This, combined with the fact that the 4.16kV system is forecasted to significantly exceed its N-1 MS Planning Capacity, means the region is capacity constrained. Between 2020 and 2024 the load in the Uxbridge region exceeded the N-1 capacity in the region for 3,445 hours or 8% of the time. These existing capacity constraints and the resulting load security and load restoration concerns are driving the need for prioritizing additional Distribution System Capacity in Uxbridge.

**Project Scope and Benefits**

Elexicon is planning to resolve the capacity constraint with a new MS referred to as Uxbridge North. Capital investment in Uxbridge North MS shall include land securement and the construction of the new MS. This new MS will operate at 4.16kV with a single 10MVA transformer and will be energized in 2028.

Table 19 shows the added benefits of a new Uxbridge North MS on the 4.16kV system. After the energization of Uxbridge North MS, load on the 4.16kV system will no longer exceed its N-1 MS Planning Capacity.

**Table 19: Forecasted Load and MS Planning Capacity in Uxbridge Region (with Uxbridge North MS)**

| Uxbridge 4.16kV System | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 7.3 | 7.4 | 7.5 | 7.8 | 8.1 | 8.4 | 8.7 |
| Maximum Planning Capacity (MVA) & Utilization | 9.1 | 9.1 | 9.1 | 17.1 | 17.1 | 17.1 | 17.1 |
| | 79% | 81% | 82% | 45% | 47% | 49% | 51% |
| N-1 MS Planning Capacity (MVA) & Utilization | 4.0 | 4.0 | 4.0 | 9.1 | 9.1 | 9.1 | 9.1 |
| | 181% | 184% | 187% | 85% | 88% | 92% | 95% |

**Project Cost**

Table 20 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 20: Uxbridge North MS Project Net Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Uxbridge North MS | 2.74 | 4.96 | - | - | - |

**Option Analysis**

The following options were evaluated to determine the most appropriate solution.

- **Option 1 – Status Quo:** The status quo option was rejected. Maintaining the status quo is not considered a viable or recommended approach when capacity constraints have been identified. Failure to resolve these constraints would prevent timely customer connections, reduce system reliability, compromise system resiliency, and increase safety risks. While short-term measures are sometimes used to bridge the gap while longer-term solutions are implemented, no prudent short-term options have been identified in this case.
- **Option 2 – Load Transfers:** This option was evaluated and ultimately rejected. Load transfer will not resolve the capacity constraint of the region being only supplied by 2 MS and the load exceeding the N-1 MS Planning Capacity of the region.
- **Option 3 – NWS:** This option was rejected as the project failed the NWS pre-screening framework. This project was screened out due to failing the Need Velocity Fit Test.
- **Option 4 – Municipal Station Upgrades:** This option was evaluated and ultimately rejected. Any upgrade would require planned outages at one station; however, the remaining station lacks the

capacity to serve the full system load during such outages. This would expose customers to frequent planned outages and unacceptable reliability risks.

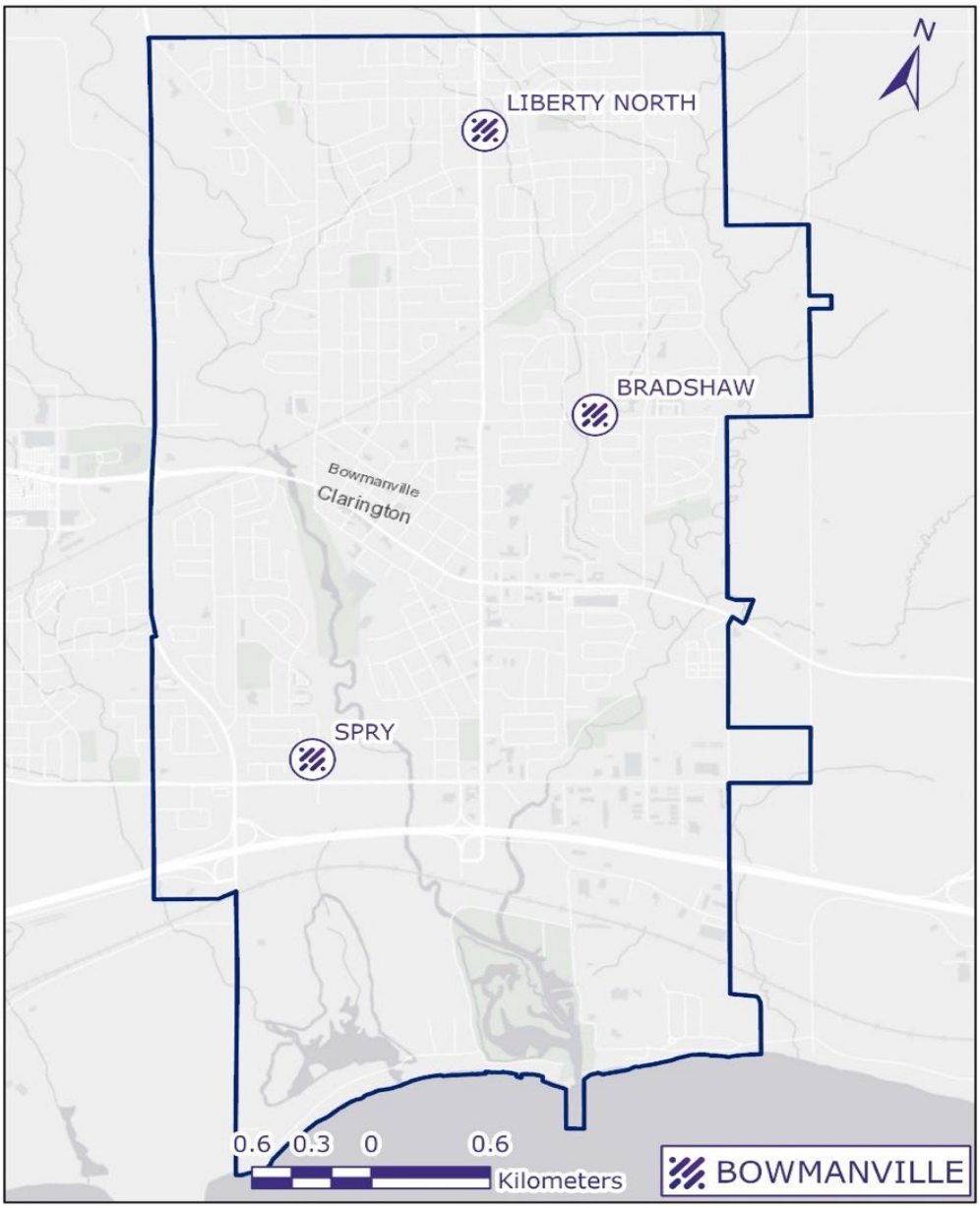
**Option 5 – New Municipal Station:** The recommended option is the construction of a new municipal station. This new facility will address all forecasted load demand, alleviate existing capacity constraints, and provide sufficient capacity to support anticipated growth. In addition, it will enable the safe and staged rebuilding of Uxbridge East and Uxbridge West stations, ensuring continued reliability and resilience in the region.

### 6.1.5 Bradshaw MS

**Project Driver**

The Bowmanville region is supplied by three MSs; Bradshaw MS, Spry MS and Liberty North MS as shown in Figure 6.

**Figure 6: Municipal Stations in Bowmanville**




Load demand on the 13.8kV system in the Bowmanville region is growing significantly as shown in Table 21. The load demand is driven by load growth on the 13.8kV system included from the System Peak Load Forecast. The load demand forecasted is based on the steady and planned growth in the Bowmanville

region. Bowmanville is part of the Municipality of Clarington, which is projected to have its population grow to 221,000 in 2051, compared to 105,000 in 2021. The Municipality of Clarington anticipates increased growth driven by enhanced connectivity to the Greater Golden Horseshoe through transportation infrastructure such as Highways 407 and 418, as well as the ongoing expansion of GO Transit's Lakeshore East line. In addition, Clarington's strategic role in Ontario's energy sector, particularly as the site of Ontario Power Generation's Darlington New Nuclear Site, continues to attract investment and stimulate economic activity. These combined factors are contributing to rising electricity demand.

**Table 21: Forecasted Load and Station Capacity in Bowmanville (without Bradshaw MS Capacity Increase)**

| Bowmanville 13.8kV System | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 37 | 39 | 40 | 42 | 44 | 46 | 48 |
| Maximum Planning Capacity (MVA) & Utilization | 57 | 57 | 57 | 57 | 57 | 57 | 57 |
| | 66% | 68% | 71% | 74% | 78% | 81% | 85% |
| N-1 MS Planning Capacity (MVA) & Utilization | 37 | 37 | 37 | 37 | 37 | 37 | 37 |
| | 100% | 104% | 109% | 113% | 119% | 124% | 130% |

Insufficient Distribution System Capacity and a resulting capacity constrained system is forecasted for the Bowmanville region. While the Maximum Planning Capacity is not being exceeded during the 2027-2031 rate period, the Bowmanville region is capacity constrained because load in the region is forecasted to significantly exceed the N-1 MS Planning Capacity. These existing capacity constraints and the resulting load security and load restoration concerns are driving the need for additional Distribution System Capacity in Bowmanville.

**Project Scope and Benefits**

Elexicon has a multi-stage strategy to resolve the capacity constraint in the Bowmanville region. Stage 1 plan, which is captured in this DSP period, is to increase the existing capacity at Bradshaw MS to 25 MVA by 2031.

Table 22 shows the added benefit of increasing the supply capacity at Bradshaw MS. Once the capacity upgrade at Bradshaw MS is completed, N-1 MS Planning Capacity will only be exceeded by 4% starting 2031, lessening the reliability risk. The capacity constraint in the region is not fully resolved as additional

investments post-2031 will be required to increase the capacity at other MS in the region, e.g., by adding mechanical cooling to the existing transformers, adding additional transformers, upgrading the size of existing transformers, or building a new MS.

**Table 22: Forecasted Load and Station Capacity in Bowmanville (after Bradshaw MS Capacity Increase )**

| Bowmanville 13.8 kV System | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|
| Load (MVA) | 37 | 39 | 40 | 42 | 44 | 46 | 48 |
| Maximum Planning Capacity (MVA) & Utilization | 57 | 57 | 57 | 57 | 57 | 57 | 66 |
| | 66% | 68% | 71% | 74% | 78% | 81% | 73% |
| N-1 MS Planning Capacity (MVA) & Utilization | 37 | 37 | 37 | 37 | 37 | 37 | 46 |
| | 100% | 104% | 109% | 113% | 119% | 124% | 104% |

**Project Cost**

Table 23 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 23: Bradshaw MS Project Net Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Bradshaw MS | - | - | 2.19 | 2.29 | 3.99 |

**Option Analysis**

The following options were evaluated to determine the most appropriate solution.

- **Option 1 – Status Quo:** The status quo option was rejected. Maintaining the status quo is not considered a viable or recommended approach when capacity constraints have been identified. Failure to resolve these constraints would prevent timely customer connections, reduce system reliability, compromise system resiliency, and increase safety risks. While short-term measures are sometimes used to bridge the gap while longer-term solutions are implemented, no prudent short-term options have been identified in this case.
- **Option 2 – Load Transfers:** This option was evaluated and ultimately rejected. Load transfers will not resolve the load exceeding the N-1 MS Planning Capacity of the region.

- **Option 3 – NWS:** This option passed the NWS pre-screening framework. Elexicon is advancing this investment to detailed BCA to determine whether an NWS may offer a viable and cost effective alternative to the corresponding conventional solution.
- **Option 4 – New Municipal Station:** This option was evaluated and ultimately rejected. While it would resolve the identified issue, the construction of a new station is not sufficiently justified based on forecasted system demand and anticipated operational improvements.
- **Option 5 – Municipal Station Upgrades:** This is the recommended option. Rebuilding Bradshaw MS to a 25 MVA capacity is the most cost-effective solution to meet the load requirements of the Bowmanville region, while also supporting long-term system operational needs.

### 6.1.6 Mobile Station

**Project Driver**

To address limitations due to system capacity constraints, Elexicon is planning to acquire a mobile station. This mobile station would provide temporary capacity in locations where there are capacity constraints and would be used to support planned construction outages. A mobile station unit is a common utility asset and is owned by other LDCs in Ontario.

In many station projects within the Substation Renewal program and Substation Growth program, a planned outage of a station is necessary to perform the work safely and efficiently. However, a station outage reduces system capacity and requires the system to operate under contingency. During high demand periods, to maintain reliability and resiliency on the system, planned outage requests may be operationally infeasible because there is not enough capacity from adjacent stations to supply the load in the area if there was a loss of supply from a station.

This scenario occurred during partial rebuild of Liberty North MS in Bowmanville in 2025. The project required a construction window of four to five months, during which the station would be taken out of service. The Bowmanville region is supplied by only three municipal stations: Liberty North MS, Bradshaw MS, and Spry MS. If Liberty North MS was out of service during the summer peak load period, utilization of the N-1 MS Planning Capacity would have been at 100%. In this configuration, a subsequent outage at either Spry MS or Bradshaw MS would result in extended outages for a large portion of Bowmanville

because of insufficient capacity in the region. As station assets get older, the likelihood of a second station failing when the system is operating under contingency increases. This particular reliability risk made it necessary for Elexicon to restrict construction activities for the rebuild Liberty North MS to the fall and winter months when system loading is lower. This restriction increased project complexity, cost, that could lead to project delays. These factors ultimately increased the overall cost of the project. If a mobile station had been available, it could have been deployed to add capacity to the Bowmanville area during construction and the restriction could have been removed.

**Project Scope and Benefits**

A mobile station will enable shorter and more flexible construction timelines, reduce reliance on seasonal scheduling, improve contingency support during the rebuild, and lower reliability risk for customers. Aging substation assets are reducing the reliability and resiliency of the system and driving more station rebuilds. A mobile station would be an essential asset that mitigates the impact of capacity constraint. A secondary benefit of a mobile station is that it can be used for emergency power restoration. A mobile station is intended to provide short-term capacity support, and its value lies in its mobility to be used wherever it is needed in the system. The mobile station should not be used to address long-term capacity needs as it would require the mobile station to remain in one location and eliminate the value of its mobility.

A mobile station supports system reliability, project delivery efficiency, and overall customer service outcomes. The mobile station is expected to contain a 25MVA transformer with primary voltage at 44kV and dual secondary voltages of 13.8kV and 4.16kV.

**Project Cost**

Table 24 provides the forecast expenditures for the project for the 2027-2031 rate period.

**Table 24: Mobile Station Project Net Expenditures ($M)**

| Project | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Mobile Station | 1.68 | 0.67 | 1.01 | - | - |

**Option Analysis**

The following options were evaluated to determine the need for a mobile station solution:

- **Option 1 – Status Quo:** The status quo option was rejected. As the quantity of station construction projects increases to address capacity constraints and aging assets, the only mitigation strategy available to Elexicon would be to limit construction to the fall and winter months, when system loading is lower. This approach becomes untenable as project costs would increase, projects would be delayed, and system reliability would be further jeopardized. Therefore, this would not be a cost-effective strategy.
- **Option 2 – Load Transfers:** This option was evaluated and ultimately rejected. Elexicon's non-contiguous service area is experiencing, or is forecast to experience, demand in excess of available station capacity. In such areas, there is insufficient capacity to transfer load to stations within the region, and Elexicon cannot rely on transferring load from adjacent regions due to electrical separation and the absence of nearby surplus capacity.
- **Option 3 – NWS:** This option was rejected as the project failed the NWS pre-screening framework. This project was screened out due to failing the Need Primacy Fit Test.
- **Option 4 – New Municipal Station:** Not applicable because the driver of the investment is to create the capability to deploy a station to different locations as needed.
- **Option 5 – Mobile Station:** This is the recommended option. A mobile station provides the most benefit by offering temporary capacity relief where needed, supporting construction schedules, and reducing reliability risks. It represents the most flexible, cost-effective, and immediate solution to address system constraints.

#### 6.1.7 GTA East TS

Details for GTA East TS can be found in Appendix I-1 of this material narrative.

# EXHIBIT 2B - TAB 4 - SCHEDULE 3: APPENDIX I-1
# "BUSINESS CASE – GTA EAST TS"

# 1. GTA EAST TS BUSINESS CASE

## 1.1 Executive Summary

This project will address forecasted capacity constraints in the Ajax-Pickering and Whitby regions due to confirmed customer requests, the Northeast Pickering Secondary Plan, the Brooklin Secondary Plan and electrification.

The proposed solution is to install a new TS, GTA East TS, in the North Pickering/Whitby area. The loading in the area has been reviewed in the GTA East Regional Planning Process, and the conclusion of the working group was that this new transformer station is needed in the area. GTA East TS will add approximately 180 MVA of Station Supply Capacity to the system once energized in 2031 and will support resolving the capacity constraints in the region.

The scope of work for the substation includes land securement, a new station building, high voltage circuit breakers, bus work, two new 125 MVA transformers, medium voltage switchgear and other ancillary stations assets. The scope of work for the transmission line connection includes tapping into two 230 kV transmission circuits in the region, T28C and P15C. The proposed tap lengths are approximately 4.5 km for T28C and less than 1 km for P15C. The project is expected to start in 2025 with a target in-service date in 2031.

For the 2027-2031 rate period, the substation component of the project has a forecast expenditure of $80.11M while the transmission line component is $22.11M. The resulting forecast total expenditure for this project is $102.11M for the 2027-2031 rate period.

## 1.2 Background on Regional Growth

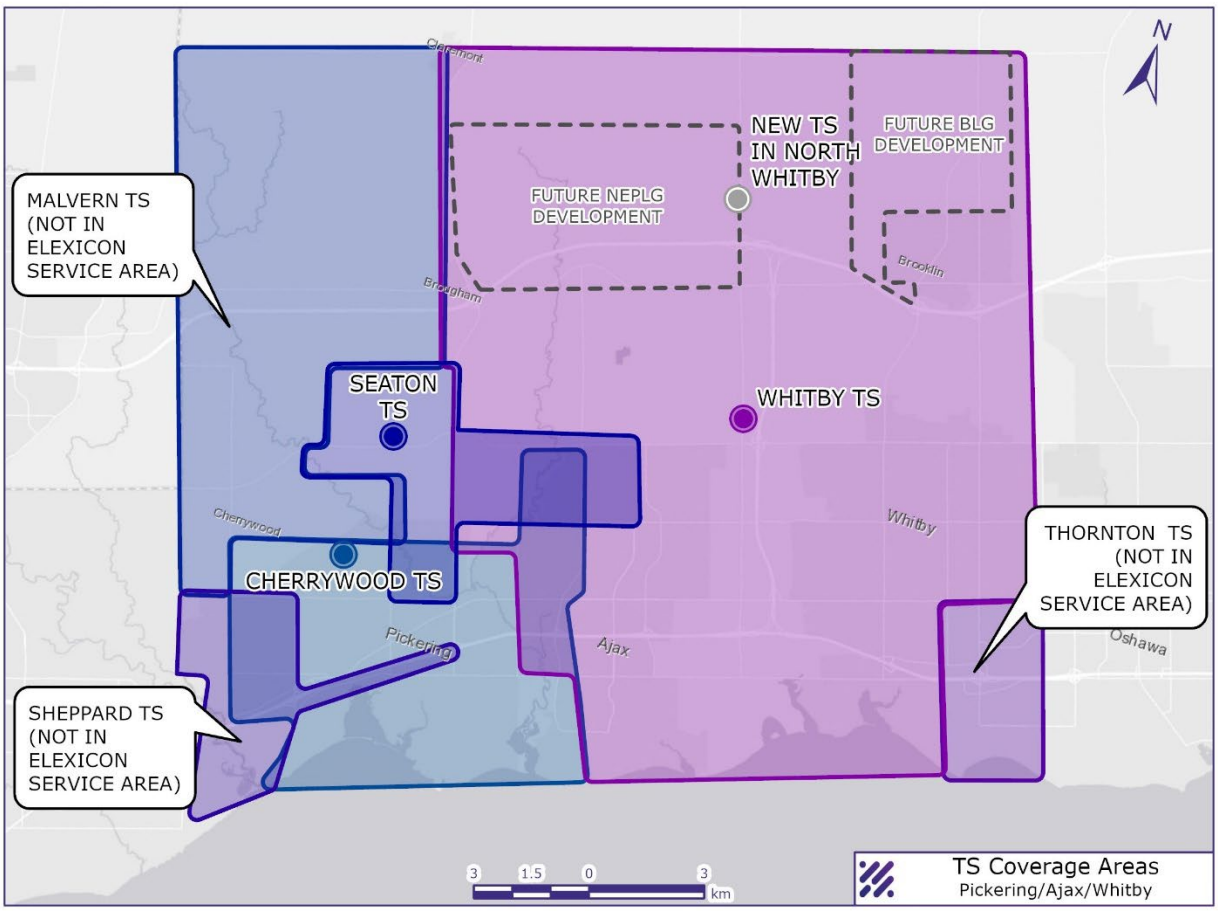
The service area under consideration for this new transformer station encompasses the Ajax-Pickering and Whitby regions, and more specifically the northern borders of Pickering and Whitby. Currently, these regions are supplied by Whitby TS DESN 1 and 2, Cherrywood TS, Thornton TS, Seaton TS, and three (3) 27.6 kV feeders from Sheppard TS and Malvern TS. Figure 1 below shows a map of this area, outlining the TS coverage.

The northern regions of Pickering and Whitby have limited electrical infrastructure. Based on consultations with the City of Pickering and Town of Whitby, Elexicon is considering the longer-term impacts of growth in these areas resulting from the Northeast Pickering Secondary Plan[1] and Brooklin Secondary Plan[2].

[1] City of Pickering, "Northeast Pickering Secondary Plan Update Report, Report Number PLN 13-25", (June 9, 2025). https://pub-pickering.escribemeetings.com/FileStream.ashx?DocumentId=3143

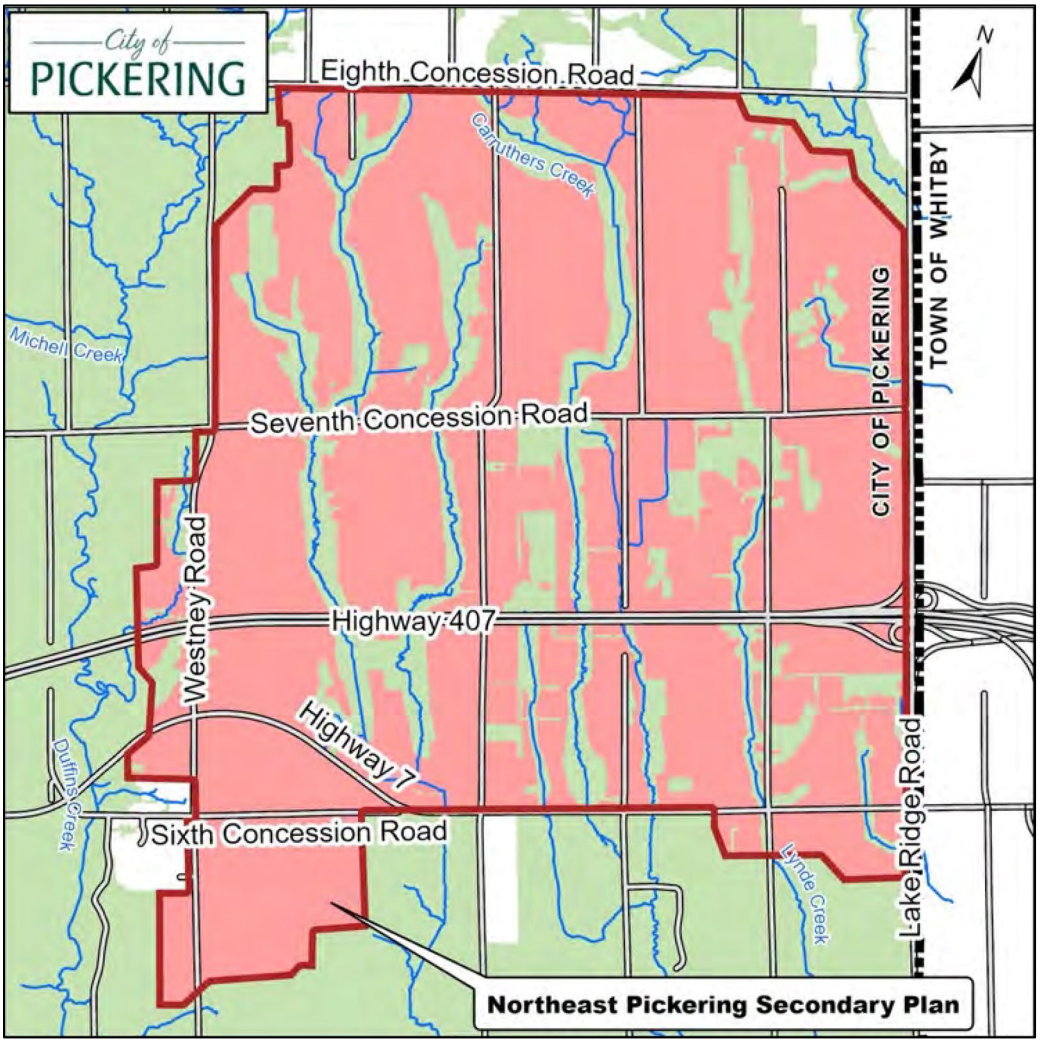
[2] Town of Whitby, "Town of Whitby Official Plan", (December 2024). https://www.whitby.ca/media/w0dgwk1e/whitby-official-plan-text-2024-dec.pdf

**Figure 1: Map of New Transformer Station Service Area**




The Northeast Pickering Secondary Plan area covers 1,600 hectares of land bound by Highway 7/Sixth Concession Road to the South, Lake Ridge Road to the East bordering the Town of Whitby, Eighth Concession Road to the North and Westney Road to the West, as shown in Figure 2 below. Based on the Northeast Pickering Secondary Plan Land Use Concepts, the land area is expected to have various density residential, commercial centres, industrial business areas, and schools.

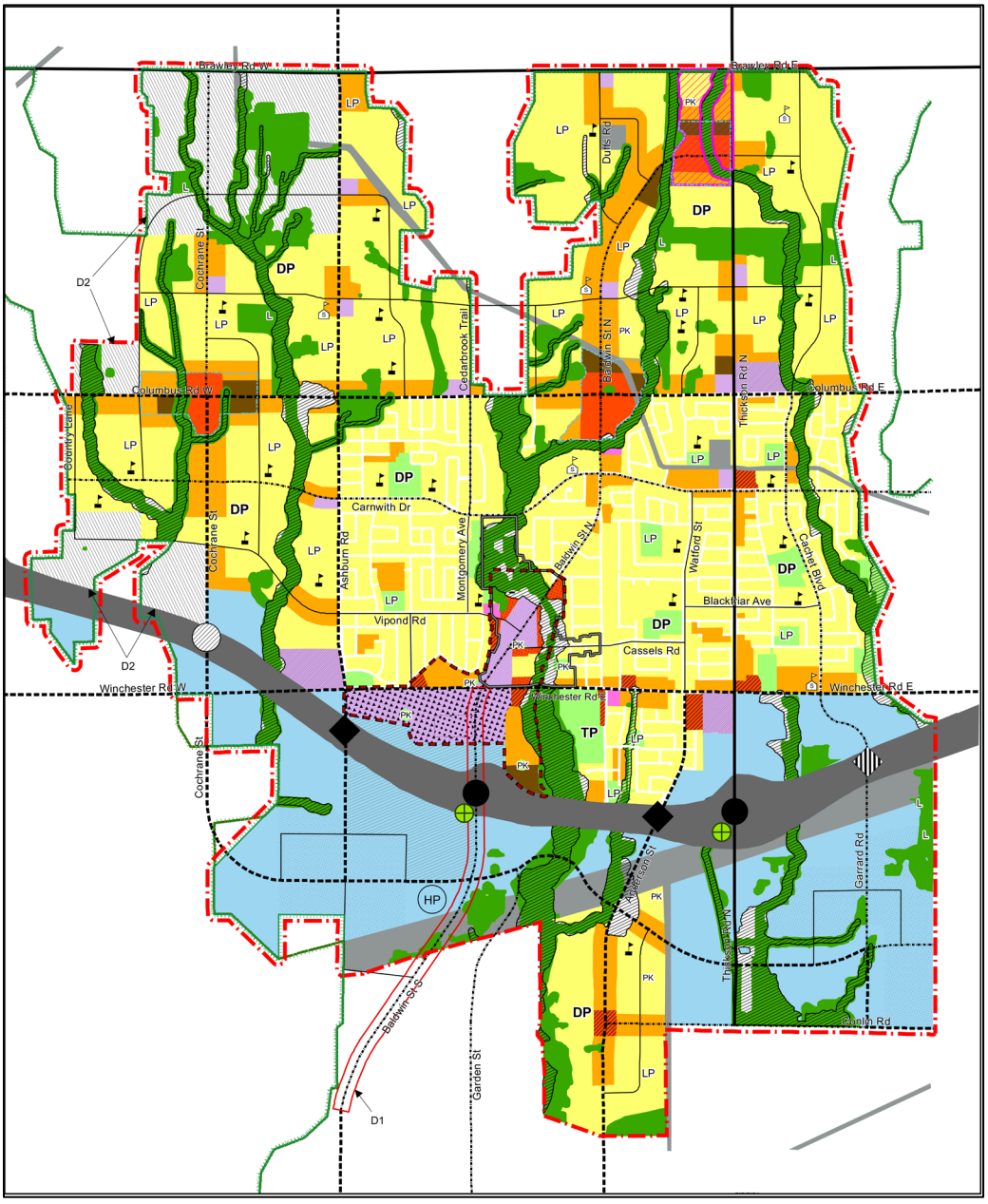
**Figure 2: Map of Northeast Pickering Secondary Plan Area**




This plan details the growth of community and employment areas that will add approximately 68,790 people, 20,325 residential units, 3,825 commercial units, 23 schools, and bringing in around 11,725 new jobs across commercial and industrial sectors. In addition to the secondary plan details, Elexicon has been involved in discussions with the Northeast Pickering Landowners Group (NEPLG), which controls approximately 40% of the land in the area. In these meetings, the community development plans have been discussed, and the growth numbers were confirmed by the NEPLG, with the next steps to determine loading and capacity reservation requirements.

The Brooklin Secondary Plan area is bounded approximately by Brawley Rd to the North, Cochrane St to the West, Thickson Rd to the East, and Conlin Rd to the South, as shown in Figure 3 below. Similar to Northeast Pickering, the land area is planned to have various density residential, commercial centres, industrial business areas, and schools.

**Figure 3: Map of the Brooklin Secondary Plan Area**




The Brooklin Secondary Plan targets achieving 52.5 persons per hectare, through 672 hectares and 13,676 units of residential, commercial, and industrial development, as outlined in the Whitby Energy Plan maps created as part of the secondary plan.

In addition to the secondary plan targets, Elexicon is actively working with the Brooklin Landowners Group (BLG) to enable development in the Brooklin North Community area. The commitments include 14,000 residential units over 15-20 years set in 2 stages, and reservation of capacity of 15MW for stage 1 and approximately 27MW for stage 2. These have been further detailed in the Winchester West MS project Section 6.1 of Exhibit 2B – Tab 4 – Schedule 3 – Appendix I. This development has triggered the proposed new Winchester West MS to increase the Distribution System Capacity. Additional Station Supply Capacity will be needed to connect stage 2 of Winchester West MS.

After including the BLG development, Northeast Pickering secondary plan loads, and other residential, commercial, and industrial developments within the load forecast, Elexicon determined there will be insufficient Station Supply Capacity to meet the forecasted load demand.

### 1.3 Project Drivers

The peak load demand load forecast developed by Elexicon, and outlined in Exhibit 2B – Tab 4 – Schedule 3 – Appendix I, incorporates the regional and municipal forecasts for customer growth at the residential, commercial, and industrial level. With respect to the Ajax-Pickering and Whitby service areas, the Region of Durham has provided customer growth forecasts out to 2051, incorporating inputs from the respective Northeast Pickering and Brooklin secondary plans. Narrowing the focus to the 44kV voltage level, given this is where the constraints lie, Table 1 below outlines the loading utilization at the TS within these areas. This showcases significant overload at three of the four TS in 2025 onwards, and all the TS in the region exceed 100% utilization by 2030.

**Table 1: Ajax-Pickering and Whitby 44kV Transformer Station Capacity Utilization Forecast (Summer)**

| Transformer Station | Metric (MW) | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
|---|---|---|---|---|---|---|---|---|
| Cherrywood TS @ 44kV | Load | 167 | 169 | 171 | 172 | 174 | 176 | 177 |
| | Capacity | 167 | 167 | 167 | 167 | 167 | 167 | 167 |
| | Utilization | 100% | 101% | 102% | 103% | 104% | 105% | 106% |
| Thornton TS @ 44kV | Load | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| | Capacity | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| | Utilization | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Whitby DESN 1 TS @ 44kV | Load | 47 | 53 | 59 | 65 | 71 | 78 | 85 |
| | Capacity | 101 | 101 | 101 | 101 | 101 | 101 | 101 |
| | Utilization | 47% | 52% | 58% | 64% | 70% | 77% | 84% |
| Whitby DESN 2 TS @ 44kV | Load | 186 | 190 | 194 | 198 | 202 | 206 | 210 |
| | Capacity | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| | Utilization | 102% | 104% | 107% | 109% | 111% | 113% | 115% |
| Total @ 44kV | Load | 480 | 492 | 504 | 515 | 527 | 540 | 552 |
| | Capacity | 530 | 530 | 530 | 530 | 530 | 530 | 530 |
| | Utilization | 91% | 93% | 95% | 97% | 99% | 102% | 104% |

The system peak load in the Ajax-Pickering and Whitby regions exceeds the Station Supply Capacity within the 2027-2031 rate period. The GTA East TS will be the main investment to address these constraints and will provide an additional 180MVA[3] of Station Supply Capacity to the 44kV system in Ajax-Pickering and Whitby in 2031. Given that there is available capacity on the 27.6kV system in Ajax-Pickering (see Table 2), additional large connection requests during the period prior to capacity relief will be addressed by feeder expansions and connecting new loads to the 27.6kV system. Once the GTA East TS is energized in 2031, subsequent load transfers and feeder expansions are expected to relieve the capacity constraints on the 44 kV transformer stations in Ajax-Pickering and Whitby.

[3] The approximate Summer LTR for the station, pending the actual specifications once the transformers are ordered.

**Table 2: Ajax-Pickering and Whitby 27.6kV Transformer Station Capacity Utilization Forecast (Summer)**

| Transformer Station | Metric (MW) | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
|---|---|---|---|---|---|---|---|---|
| Whitby DESN 1 TS @ 27.6kV | Load | 51 | 52 | 53 | 54 | 55 | 57 | 58 |
| | Capacity | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | Utilization | 51% | 52% | 53% | 54% | 55% | 57% | 58% |
| Malvern TS @ 27.6kV | Load | 13 | 15 | 15 | 15 | 15 | 15 | 15 |
| | Capacity | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | Utilization | 88% | 100% | 100% | 100% | 100% | 100% | 100% |
| Sheppard TS @ 27.6kV | Load | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| | Capacity | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| | Utilization | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Seaton MTS @ 27.6kV | Load | 20 | 24 | 34 | 43 | 52 | 62 | 72 |
| | Capacity | 153 | 153 | 153 | 153 | 153 | 153 | 153 |
| | Utilization | 13% | 16% | 22% | 28% | 34% | 41% | 47% |
| Total @ 27.6kV | Load | 110 | 117 | 127 | 138 | 148 | 159 | 170 |
| | Capacity | 293 | 293 | 293 | 293 | 293 | 293 | 293 |
| | Utilization | 38% | 40% | 43% | 47% | 51% | 54% | 58% |

This TS load forecast was developed in conjunction with the regional growth drivers provided through consultation with the respective municipalities and regions, further details can be found in Exhibit 2B - Tab 3 - Schedule 1 of the Asset Management Process. The TS-level load forecast results have been integrated into the Hydro One regional planning process. Elexicon's load forecast is prepared at the gross loading level, without accounting for the impacts of Distributed Energy Resources (DERs) or Conservation and Demand Management (CDM) initiatives. These adjustments are incorporated by Hydro One and the IESO during the regional planning process.

## 1.4 Regional Infrastructure Planning

Elexicon's involvement in the Regional Infrastructure Planning process is described in Exhibit 2B - Tab 2 - Schedule 1 of the Distribution System Plan Overview. Hydro One issued a Needs Assessment Report[4] in December 2024 for the GTA East. This Needs Assessment Report utilized a net load forecast for the region, incorporating the LDC gross forecasts with the forecasted Distributed Generation ("DG") and Conservation and Demand Management ("CDM") in place. The report aligned with Elexicon's load forecast findings and identified a need for a new TS in the Whitby region between 2030 and 2032 due to overloading on the TS and 44kV system within the region, see Figure 4. In addition to overloading in the near term, the report acknowledged large load growth from the North Whitby and Northeast Pickering development areas post-2033 and identified supply limitations of Whitby TS due to long distance from the load centres.

**Figure 4: Hydro One GTA East Needs Assessment Report - Impact of Sensitivity Analysis on Capacity Needs in the Region**

| No. | Need Identified | Need Date | | |
|---|---|---|---|---|
| | | Normal Growth Scenario | High Growth Scenario | Low Growth Scenario |
| **Needs update under high and low load growth scenarios** | | | | |
| 1 | Whitby TS T1/T2 (44kV) LTR | 2032 | 2030 | Beyond 2033 |
| 2 | Thornton TS T3/T4 LTR | 2031 | 2027 | Beyond 2033 |
| 3 | Wilson TS T7/T8 LTR | 2032 | 2029 | Beyond 2033 |
| 4 | Wilson TS T3/T4 LTR | 2024 (2025*) | 2024 (2025*) | 2024 ( Beyond 2033*) |
| **Additional capacity needs under high growth scenario** | | | | |
| 5 | Cherrywood T7/T8 LTR | Beyond 2033 | 2031 | Beyond 2033 |
| 6 | Seaton MTS LTR** | Beyond 2033 | 2032 | Beyond 2033 |
| 7 | Whitby TS T3/T4 LTR | Beyond 2033 | 2031 | Beyond 2033 |
| * If the transformers are replaced with higher LTR rating units as planned.<br>** Based on the LDC provided LTRs of 153MW (Summer) and 180MW (Winter) for Seaton MTS | | | | |

[4] Hydro One, "Needs Assessment Report – Greater Toronto Area East", (December 11, 2024)

## 1.5 Project Cost and Benefits

This new GTA East TS will add approximately 180 MVA[5] of Station Supply Capacity to the system once energized in 2031 and will support resolving the capacity constraints in the region. Capital investment in the GTA East TS shall include land securement, a new station building, high voltage circuit breakers, bus work, two new 125 MVA transformers, medium voltage switchgear and other ancillary stations assets. This portion of the project is estimated to cost $80.11 million as detailed in Table 3.

[5] The approximate Summer LTR for the station, pending the actual specifications once the transformers are ordered.

**Table 3: GTA East TS Station Only Net Expenditure Forecast**

| | 2027 | 2028 | 2029 | 2030 | 2031 | Total |
|---|---|---|---|---|---|---|
| Project Cost ($M) | 24.66 | 11.23 | 11.19 | 11.25 | 21.77 | 80.11 |

There is also a transmission component associated with this project. The expected transmission connection with Hydro One is outlined in Figure 5 below, which involves tapping into two 230 kV transmission circuits in the region—T28C and P15C. The proposed tap lengths are approximately 4.5 km for T28C and less than 1 km for P15C. A Cost Contribution Recovery Agreement has not yet been signed but based on the forecasted demand for the station, Elexicon's contribution to the transmission component is estimated at $22.11M as shown in Table 4.

**Table 4: GTA East TS Transmission Line Only Net Expenditure Forecast**

| | 2027 | 2028 | 2029 | 2030 | 2031 | Total |
|---|---|---|---|---|---|---|
| Project Cost ($M) | - | - | 4.48 | 6.75 | 10.88 | 22.11 |

**Figure 5: Transmission Supply Points for GTA East TS**

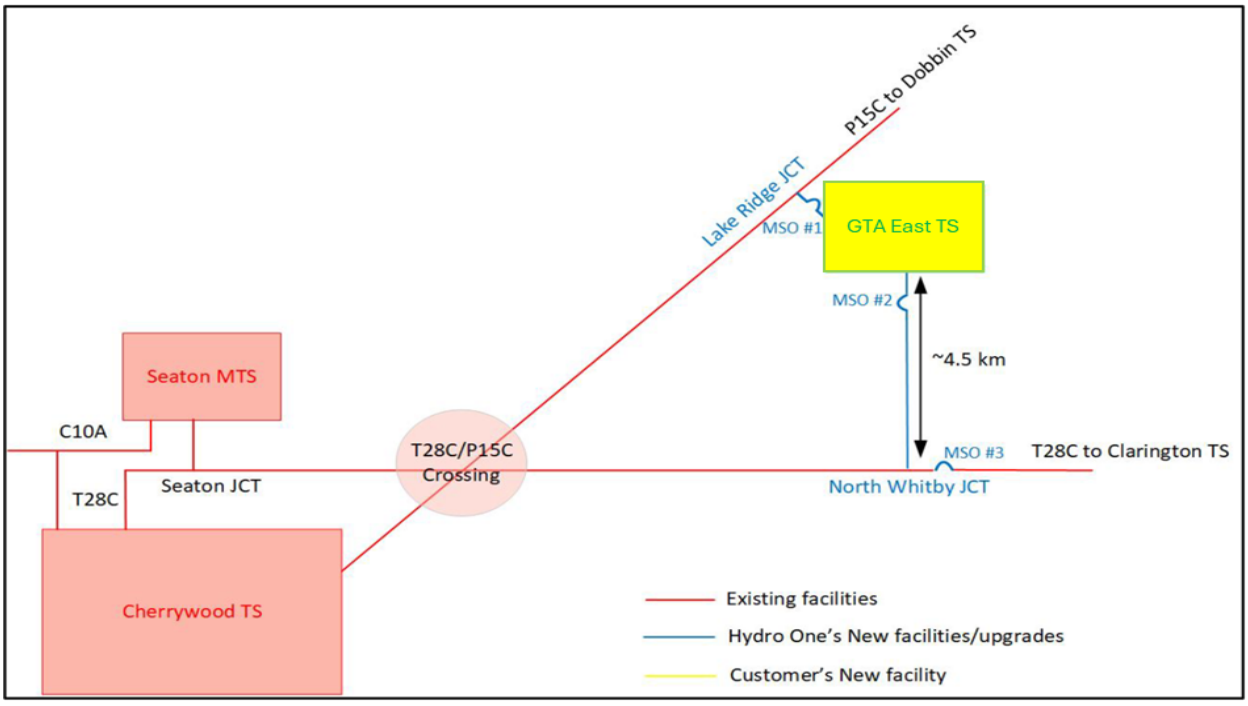


Table 5 below shows the forecasted expenditure of the project for the 2027-2031 rate period.

**Table 5: GTA East TS Expenditure Forecast**

| | 2027 | 2028 | 2029 | 2030 | 2031 | Total |
|---|---|---|---|---|---|---|
| Station Cost ($M) | 24.66 | 11.23 | 11.19 | 11.25 | 21.77 | 80.11 |
| Transmission Cost ($M) | - | - | 4.48 | 6.75 | 10.88 | 22.11 |
| Total Project Cost | 24.66 | 11.23 | 15.67 | 18.00 | 32.65 | 102.11 |

As previously outlined in Exhibit 2B - Tab 3 - Schedule 1, investment in the GTA East TS in the North Whitby area is essential for both the Ajax-Pickering and Whitby regions as it will reduce the number of municipal stations with limited overall system capacity from 23 to 4 as shown in Table 6 below.

**Table 6: Ajax-Pickering and Whitby Overall System Capacity by Station 2025 compared to 2031**

| Capacity | Number of MSs | | |
|---|---|---|---|
| | 2025 State | 2031 State without Investments | 2031 State with Investments |
| Limited Capacity (0 – 1,000 kVA) | 23 | 23 | 4 |
| Moderate Capacity (1,001 – 2,000 kVA) | 0 | 0 | 1 |
| Acceptable Capacity (2,001+ kVA) | 0 | 0 | 19 |

## 1.6 Options Analysis

To resolve the capacity constraints in the Northeast Pickering and Whitby (GTA-East) area Elexicon considered the following options:

**Option 1 – Status Quo:** This option was evaluated and ultimately rejected. Maintaining the status quo is not considered a viable or recommended approach when capacity constraints have been identified. Failure to resolve these constraints would prevent timely customer connections, reduce system reliability, compromise system resiliency, and increase safety risks. While short-term measures are sometimes used to bridge the gap while longer-term solutions are implemented, no prudent short-term options have been identified in this case.

**Option 2 – Load Transfers:** This option was evaluated and ultimately rejected. Whitby TS is the closest transformer station in the area, making load transfers to another TS infeasible. Furthermore, the projected

new load in Northeast Pickering cannot be served by the existing Whitby TS due to the significant distance between the new load center and the station.

**Option 3 – NWS:** This option was rejected as the project failed the NWS pre-screening framework. This project was screened out due to failing the Event Frequency Fit Test.

**Option 4 – Municipal Station Upgrades:** This option was evaluated and ultimately rejected. There are a minimal number of MS in the Northeast Pickering and North Whitby area. Upgrading the existing MS to the current MS capacity standards would not be sufficient to resolve the capacity need.

**Option 5 – New TS:** The recommended option is to construct a new transformer station. This new GTA East TS will meet forecasted load demand in the area and provide the necessary capacity to support future growth. It will also enable future load transfers with Whitby TS, if needed. Additionally, new municipal stations connected to the GTA East TS can be strategically located closer to the new load centers, enhancing system reliability and resiliency.

# S2 GRID ENHANCEMENTS

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $20.53M | 2025-2026 Plan: $10.79M | 2027-2031 Forecast: $67.81M |
| Primary Driver: Reliability, Capacity Constraints | | |
| Secondary Drivers: System Efficiency, Safety | | |
| Outcomes: Customer Focus, Operational Effectiveness - Reliability, Operational Effectiveness - Safety, Financial Performance | | |
| Segments: Distribution Modernization, Station Modernization, Distribution Capacity and Reliability Enhancements | | |

Elexicon's Grid Enhancements Program is comprised of strategic investments in distribution and station modernization, system capacity and reliability improvements. This program includes the deployment of SCADA enabled switches, reclosers, fault detection technologies such as communicating fault circuit indicators (CFCIs), self-resetting fuses, station modernization, and distribution capacity and reliability enhancements. These investments will contribute to a more adaptive and resilient distribution system that will have increased capability of self-healing, enhanced remote monitoring and operation capabilities, and proactive fault detection to improve outage restoration duration and fault isolation capabilities.

Currently, Elexicon's distribution system has limited automation, with 184 out of 256 feeders lacking any SCADA-enabled switching capability. Of the remaining 72 feeders, only 26 are equipped with three or more SCADA-enabled switches or reclosers, and 46 feeders have only one or two such devices. Between the 2027-2031 period, Elexicon will deploy SCADA-enabled devices on 8 additional feeders and reinforce automation on 8 existing feeders by installing additional SCADA-enabled devices. Reliance on manual interventions in the event of outages results in prolonged fault isolation and longer restoration times. These strategic grid enhancement investments in this program are anticipated to enhance fault location capabilities and provide opportunities for real-time network configuration, with the objective of minimizing the impact on customers during outage events.

From a safety perspective, reducing manual switching and line patrols to locate faults is expected to lower risks for field crews by decreasing their exposure to roadside traffic, adverse weather, and potential electrical or fall hazards. The integration of reclosers and self-resetting fuses is anticipated to support system safety and reliability by automatically interrupting faults and attempting restoration during transient faults. If the fault self-clears, service is restored without a sustained interruption; if the fault persists, only the affected section is isolated, limiting customer impact.

Elexicon is forecasting a total investment of $67.81M over the 2027-2031 period in the Grid Enhancements program. The investments included in this program form an important component of Elexicon's long-term grid modernization strategy (Refer to Exhibit 2B - Tab 3 - Schedule 2 - Appendix A for Elexicon's Grid Modernization Plan) and are expected to enhance system reliability, improve operational efficiency, and strengthen system resiliency. Elexicon will prioritize deployments on feeders that serve a large customer base and deliver the highest reliability benefit, focusing on worst-performing feeders (WPFs) and areas with elevated reliability (i.e. SAIDI, SAIFI). By incorporating automation, fault detection, and real-time monitoring, the Grid Enhancements Program supports resilience and efficiency of Elexicon's distribution system and enables the infrastructure to accommodate system load growth.

This program also includes investments in enhancements to the distribution system as defined by section 3.3 of the Distribution System Code. The purpose of these investments is to address capacity constraints across Elexicon's distribution network while also improving reliability. Enhancements are critical capacity-driven initiatives that both support load growth as well as enhance system redundancy and contingency capability.

## 2. INVESTMENT DESCRIPTION

Elexicon's Grid Enhancements Program is a strategic investment in distribution modernization, distribution capacity and reliability enhancements, and station modernization to support reliability, outage response, and ensure efficient operations. Each of these segments are discussed in detail in this section.

## 2.1 Distribution Modernization

The distribution modernization segment focuses on deploying advanced automation, monitoring, and isolation devices to strengthen the resiliency of Elexicon's distribution network. Investments in this segment include SCADA Enabled Switches, reclosers, fault location isolation and service restoration (FLISR), communicating fault current indicators (CFCIs), self-resetting fuses, each of which is described in the sections below.

### 2.1.1 SCADA-Enabled Switches & Reclosers

Elexicon plans to invest $3.98M (21 units) on SCADA-enabled switches and $4.73M (22 units) on reclosers between 2027-2031. These devices play a pivotal role in the distribution networks by facilitating remote fault isolation, load switching, and system reconfiguration. The device integration with the SCADA systems allows for remote monitoring and control, supporting efficiency and resilience of the grid.

**Figure 1: Recloser & SCADA-Enabled Switches**



Within Elexicon's service territory, SCADA-enabled switches and reclosers are in the early stages of deployment at various voltage levels with plans to ultimately enhance the Fault Location, Isolation, and Service Restoration (FLISR) capabilities of the grid. Key devices that will be utilized are shown below:

- **SCADA-Enabled Fault and Load Interrupting Switches (13.8 kV and 27.6 kV):** These medium-voltage devices are integrated with the SCADA system to provide remote sectionalizing and fault-clearing capability when commanded by operators or automated schemes such as FLISR. While not self-healing as standalone devices, when integrated into FLISR or other automation schemes, these devices support automatic fault isolation and service restoration. Their ability to interrupt both load and fault current, combined with SCADA integration, reduces reliance on manual field switching and supports system reliability.

- **SCADA Load Break Switches (27.6 kV and 44 kV):** Designed for higher-voltage applications, these switches provide remote load switching and sectionalizing while relying on upstream breakers to interrupt the fault current. Their SCADA integration enables dispatchers to reconfigure the network and restore healthy sections of the feeder during an outage, contributing to system reliability improvements.

- **Reclosers (13.8 kV and 27.6 kV):** These devices automatically detect faults on the distribution system and momentarily open and close to test if the fault has cleared. If the fault is temporary, the device restores power automatically; if the fault persists, it remains open to isolate downstream affected section of the feeder. This function reduces the number of customers impacted by outages and supports faster, more targeted isolation without impacting the upstream customers.

Elexicon operates 256 feeders across its distribution system. Currently, 10% (26 feeders) are equipped with three or more SCADA Enabled devices. An additional 46 feeders have at least one SCADA Enabled device and require additional devices to enhance automation. The remaining 184 feeders lack automation and require manual switching for fault isolation and restoration during contingency resulting in long outage durations. Figure 2 to Figure 7 below illustrate the distribution of SCADA devices across Elexicon all service areas on all voltage levels.

**Figure 2: Feeder Map – Density of SCADA Enabled Switches and Reclosers in Ajax/Pickering**

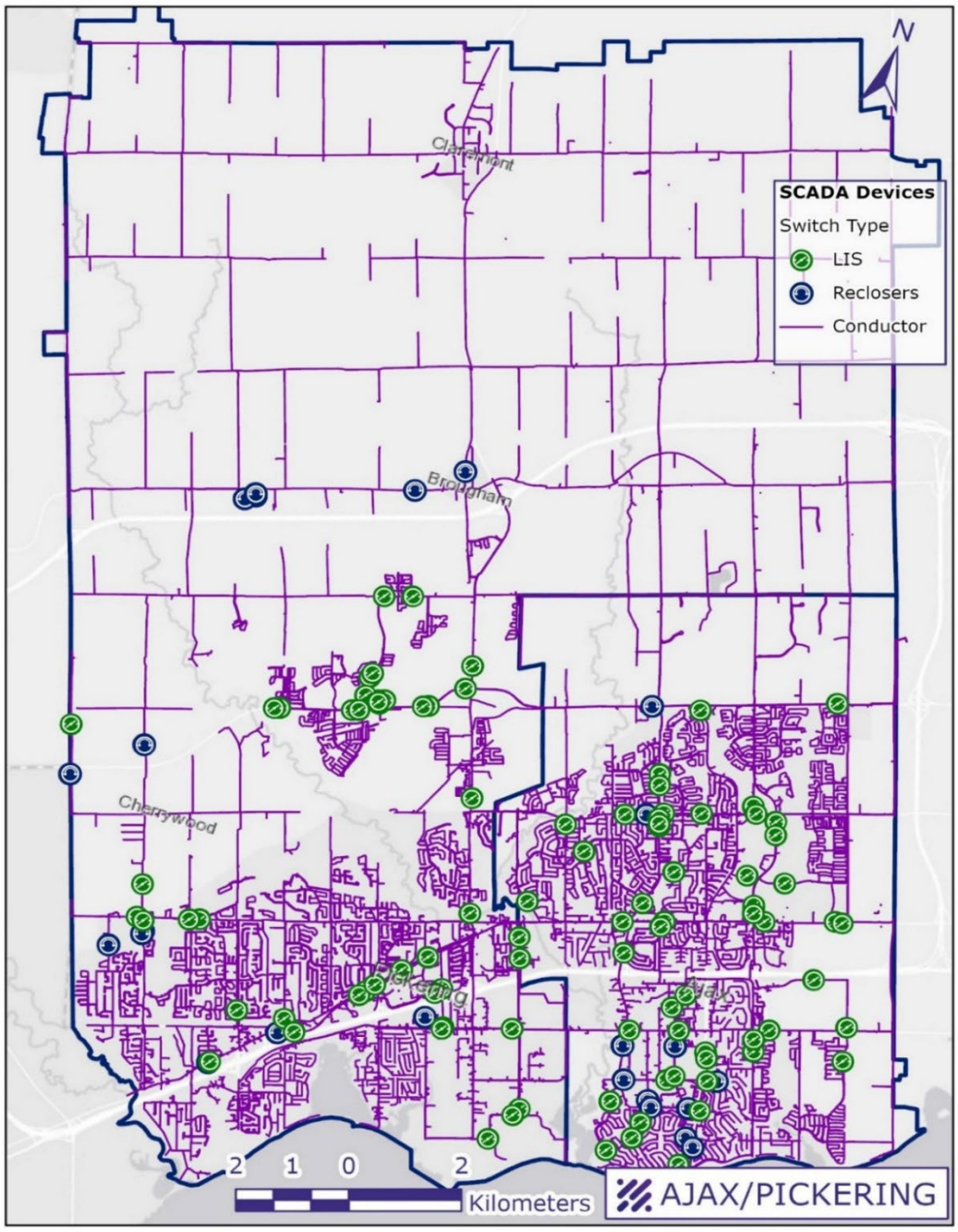


**Figure 3: Feeder Map – Density of SCADA Enabled Switches and Reclosers in Whitby**

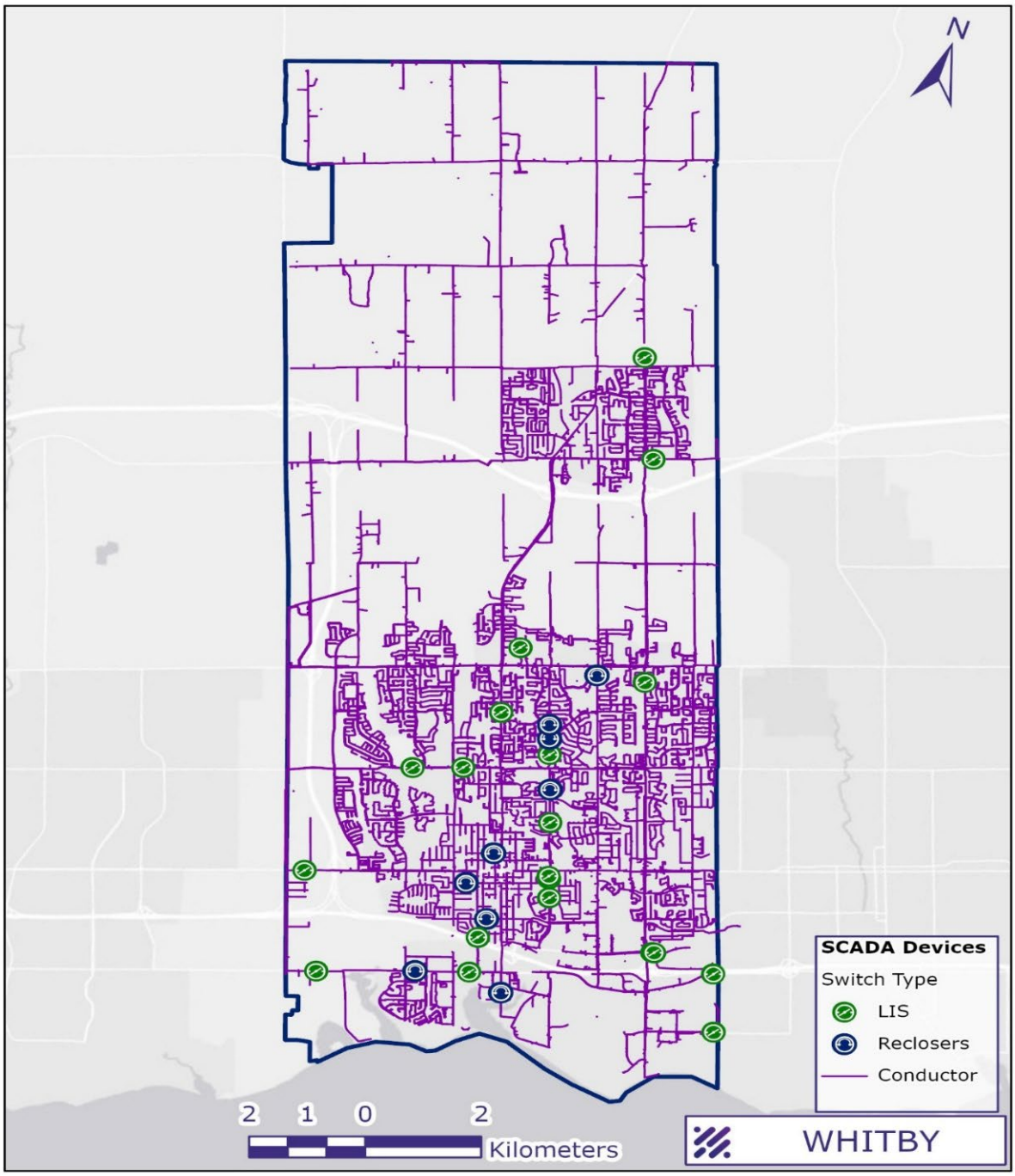


**Figure 4: Feeder Map – Density of SCADA Enabled Switches and Reclosers in Belleville**

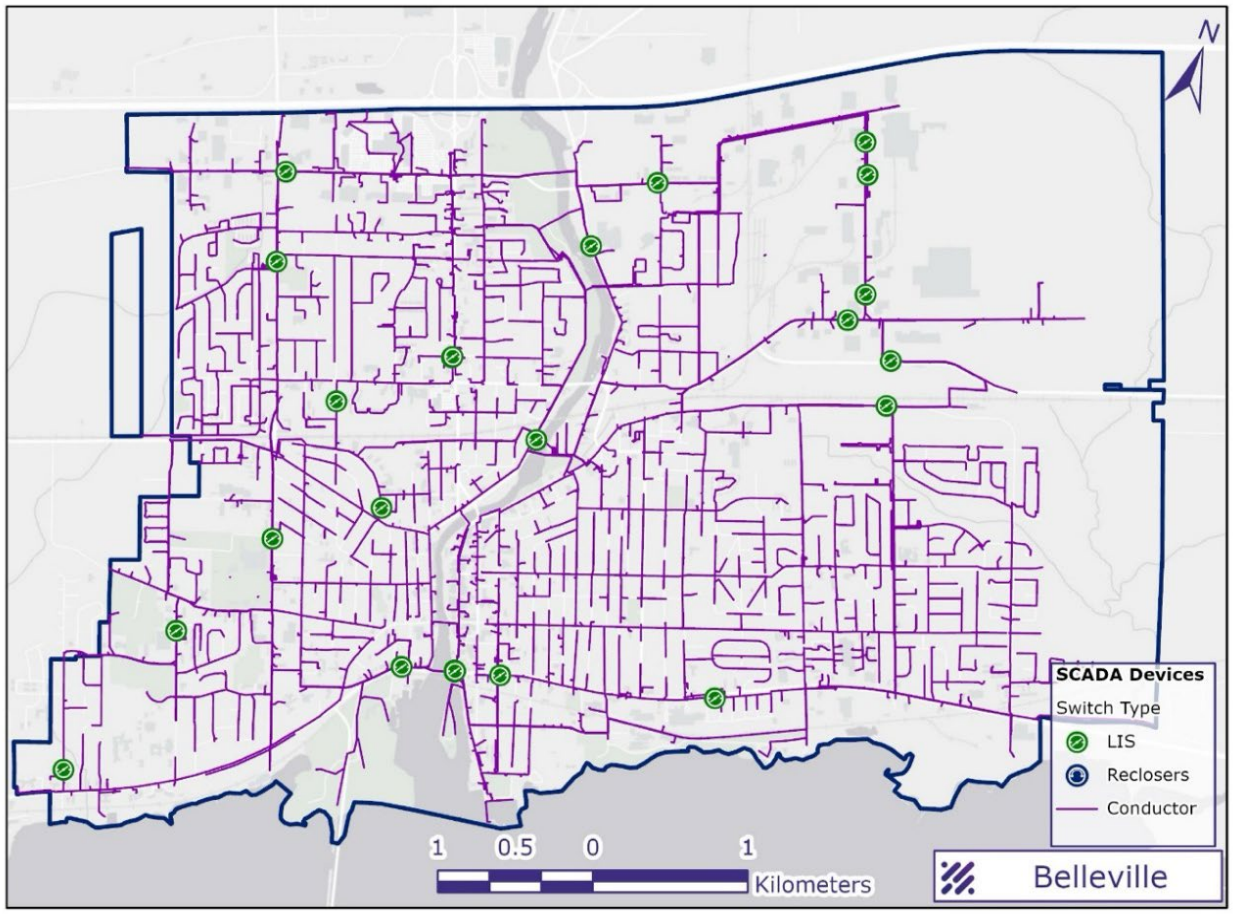


**Figure 5: Feeder Map – Density of SCADA Enabled Switches and Reclosers in Clarington**

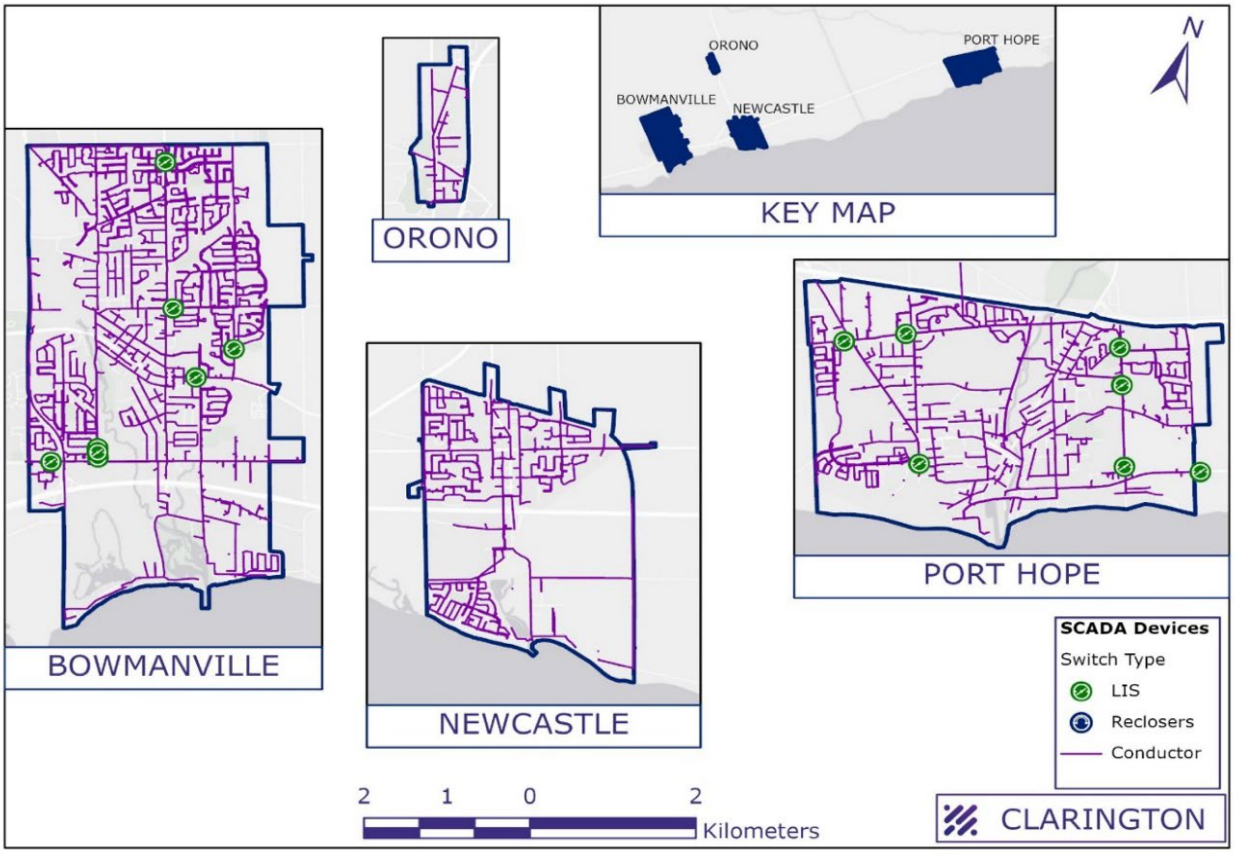


**Figure 6: Feeder Map – Density of SCADA Enabled Switches and Reclosers in Brock**

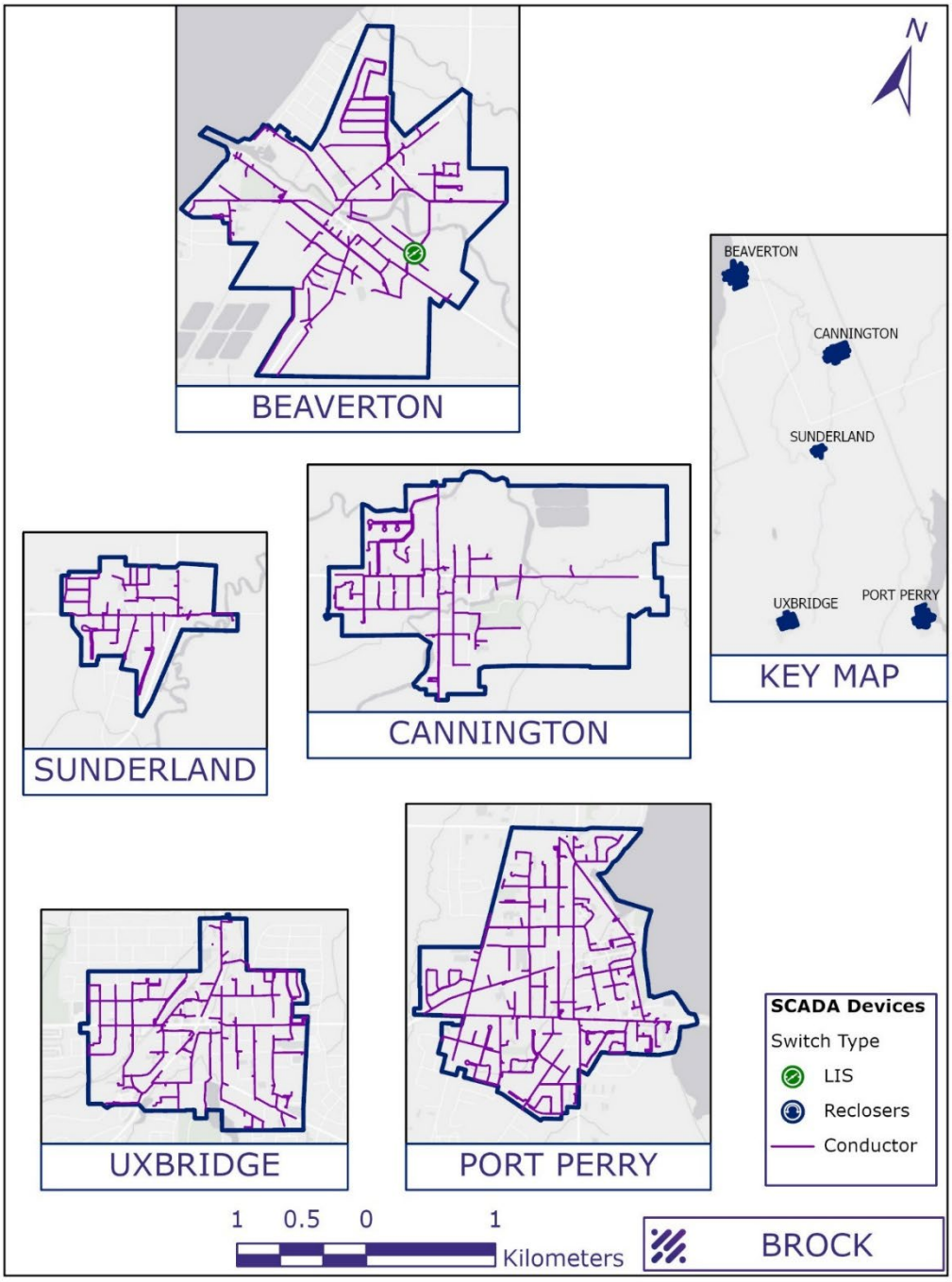
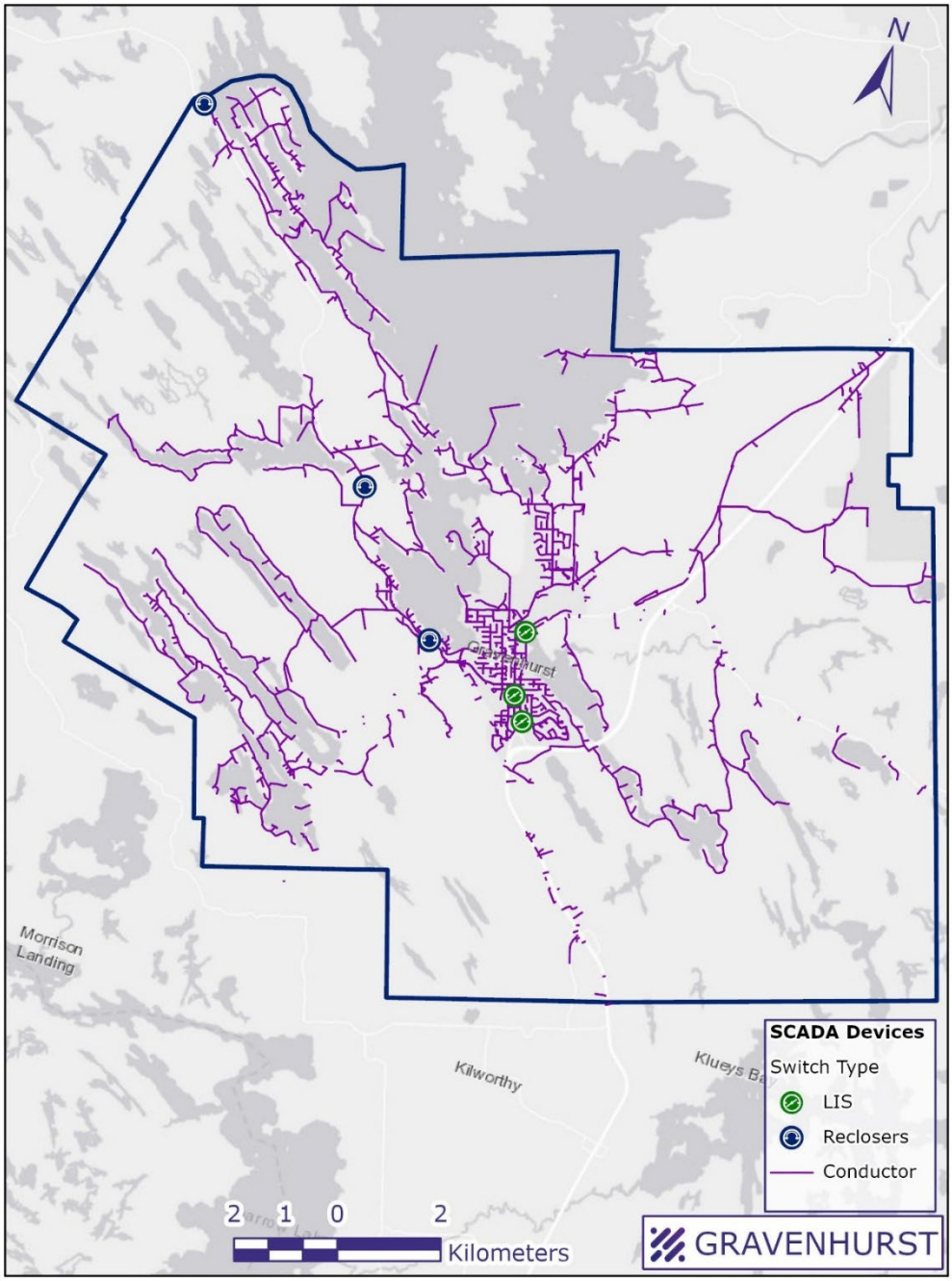


**Figure 7: Feeder Map – Density of SCADA Enabled Switches and Reclosers in Gravenhurst**



As part of the long-term strategy, Elexicon intends to deploy SCADA-enabled switches at critical feeder tie points, supplemented by two to three additional switches per feeder, depending on feeder length and customer density. These devices will typically include a combination of reclosers and SCADA-controlled load break switches, strategically deployed to enable fault interruption, feeder sectionalizing, and service restoration. Reclosers are particularly effective in managing transient faults due to their reclosing capability, allowing for automatic fault clearance and isolation of faulted sections from healthy portions of the feeder, without affecting upstream customers. Elexicon plans to install reclosers on feeders operating at the 27.6 kV and 13.8 kV voltage classes, while SCADA-enabled switches will be deployed across feeders at the 44 kV, 27.6 kV, and 13.8 kV levels to support enhanced automation and improved sectionalizing capability across the distribution system.

At the end 2031, with the balanced investment option, Elexicon's distribution system will include 34 feeders equipped with three or more SCADA-enabled switches or reclosers, representing an increase of eight feeders compared to the current state. The number of feeders with limited automation, defined as one or two SCADA-enabled devices, is expected to decrease from 46 to 38. Consequently, the number of feeders without any automation will decline from 184 to 176.

The current state lack of automation requires a heavy reliance on manual switching operations, which is less conducive to prompt outage restoration times and grid optimization capabilities. Compared to modern distribution systems that have more widespread capability for remote operation, real-time monitoring, and automated fault restoration, Elexicon's current infrastructure is not as well positioned to achieve operational efficiency and reliability. Expanding SCADA devices integration across the network is expected to enhance Elexicon's ability to more dynamically reconfigure the grid, support faster service restoration, and contribute to overall reliability improvement.

The low penetration of SCADA-enabled switches underscores the urgent need for investment in SCADA-enabled switching and recloser technologies to support grid reliability and performance. The addition of these devices across Elexicon's distribution system would support outage restoration and enhance service quality for customers. As the industry moves towards greater grid automation and smart infrastructure,

Elexicon must accelerate its investment in SCADA-integrated solutions to modernize its network and ensure a more resilient and adaptive grid.

### 2.1.2 Communicating Fault Current Indicators

Elexicon plans to invest $2.15M on communicating fault current indicators (CFCIs) between 2027-2031 to install CFCIs at approximately 156 locations (3 devices per location on average) across the system. The deployment of CFCIs are a critical investment in Elexicon's strategy to enhance fault detection, isolation, and response across its distribution network. These devices provide real-time monitoring and remote fault indication, which improves the efficiency of outage management and supports service restoration. By enabling more accurate fault location, CFCIs allow operators to identify the faulted sections of the feeder and perform targeted isolations and switching, thereby restoring service to healthy portions of the network, and directing field crews to precise fault locations for a timely repair.

**Figure 8: Typical Clamp-On on CFCI**



The adoption of CFCIs within Elexicon's distribution network introduces significant advantages in fault detection, operational efficiency, and grid resilience. One of the primary benefits is the faster detection and isolation of faults, which supports system reliability. By providing real-time fault data, CFCIs integration with ADMS will support self-healing grid capabilities, enabling SCADA-enabled switches and SCADA systems to take immediate action when a fault occurs, minimizing downtime and enhancing service continuity.

Where system conditions permit, Elexicon's preference is to deploy CFCIs to maximize the benefits of real-time monitoring and integration with SCADA systems. When conditions do not permit, Elexicon will continue to deploy traditional fault current indicators (FCIs) as an alternative to manage fault indication.

CFCIs will also be deployed right outside stations on feeder egress where telemetry is not available within the station. In these locations, CFCIs provide real-time load monitoring and fault detection at critical points on the network, helping operators to quickly respond to emerging operational issues such as feeder faults as they exit the station. Additionally, CFCIs will enhance the accuracy of outage cause classification, supporting more complete and reliable outage data by reducing the number of events recorded as "Unknown".

Beyond supporting reliability, CFCIs also contribute to greater operational efficiency by reducing the need for manual fault-finding patrols. Their deployment offers valuable insights into fault-prone areas, allowing Elexicon to implement proactive asset management strategies and optimize maintenance schedules based on grid conditions. These benefits collectively help streamline operations while ensuring more effective allocation of resources.

The integration of these devices also enhances system resilience and reliability, particularly as Elexicon modernizes its grid infrastructure. By integrating CFCIs with existing and future SCADA enabled devices, Elexicon strengthens its ability to respond to extreme weather events and unforeseen outages, supporting a resilient distribution system.

### 2.1.3 Self-Resetting Fuses

Elexicon plans to invest $2.26M on self-resetting fuses between 2027-2031 to install 150 units across the system. This investment is a key initiative aimed at supporting fault protection, outage response, and overall grid efficiency.

Self-resetting fuses are cutout-mounted, single-phase reclosers designed to automate lateral circuit fault clearing without requiring immediate field crew intervention. These devices serve as self-powered, electronically controlled reclosers that automate fault restoration, minimizing service disruptions for

customers normally on a lateral feed. Unlike conventional fuse-saving or fuse-blowing approaches, self-resetting fuses offer a hybrid solution that minimizes sustained interruptions caused by transient faults while also avoiding disruptions to customers on the non-faulted sections of the feeder. Their ability to automatically reclose allows for rapid restoration of service following temporary faults, reducing the need for manual intervention and improving overall system reliability and responsiveness.

**Figure 9: Self-Resetting Fuse**



By deploying self-resetting fuses, Elexicon will support reliability, optimize operational costs, and enhance network resilience. Additionally, the integration of remote monitoring and communication features aligns with Elexicon's long-term objective of advancing grid automation and situational awareness through:

- **Response to Temporary Faults:**
  - When a temporary fault occurs on a lateral circuit, the self-resetting fuses isolate the faulted section by opening momentarily.
  - If the fault clears, the device automatically recloses, restoring service to customers without requiring a crew to replace a fuse.
  - The system then resets, ensuring continued operation without triggering unnecessary feeder-level reclosing.

- **Response to Permanent Faults:**
    - If the fault persists after multiple reclosing attempts, the device remains open, visibly signaling a permanent issue on the lateral.
    - This prevents unnecessary feeder-wide outages and allows field crews to locate and address the problem.

The installation of self-resetting fuses is a critical component of Elexicon's strategy to modernize fault protection. These devices will be deployed at lateral points with high fault occurrence rates, replacing existing conventional fuses in areas of the circuit that frequently experience fuse operations and extended restoration times.

As part of this program, self-resetting fuses will be integrated into Elexicon's SCADA system to provide real-time status monitoring and event tracking improving the accuracy of fault data to support system restoration. Additionally, reclosing functionality of these devices reduces the need for manual fuse replacements and system patrols, and reduces outage duration for transient faults. The deployment of self-resetting fuses enhances fault isolation, improves operational efficiency, and supports Elexicon's broader grid modernization objectives

## 2.2 Station Modernization

Elexicon plans to invest $7.65M on station modernization over the 2027-2031 period, focusing on the performance, reliability, and long-term sustainability of critical substation assets. This program helps Elexicon progress from periodic station-level asset assessments toward a data-driven Asset Performance Management (APM) approach that leverages real-time monitoring, condition assessment, and predictive analytics. As part of this initiative, Elexicon will upgrade 26 protection relays and deploy advanced monitoring technologies across 15 stations. These deployments include the installation of temperature sensing equipment, Intelligent Electronic Devices (IEDs), and other digital components that enable enhanced visibility into asset health and operational performance.

To enable this transition, Elexicon will deploy a series of assets and supporting infrastructure across selected stations. These include:

- **Fibre Optic Infrastructure:** Deployed on transformers and critical underground cables allow for asset temperature monitoring using fibre optic technology.
- **Condition Monitoring Equipment:** Temperature, moisture, and partial discharge sensors on transformers, cables, and switchgear to provide continuous health monitoring.
- **Data Aggregation Devices:** Substation concentrators to collect and normalize field data from multiple Intelligent Electronic Devices (IEDs) for integration with SCADA and central analytics platforms.
- **Intelligent Electronic Devices (IEDs):** Devices capable of capturing electrical and operational data in real time.
- **Retrofit and Support Systems:** Integration kits, secure networking, and relay/control panel upgrades to enable seamless connectivity and reliable operation of monitoring systems.
- **Relay Upgrades:** Replacement of legacy protection relays and installation of modern digital relays to enhance data collection, event recording, and remote configuration capabilities, enabling Elexicon to better leverage APM capabilities.

Elexicon plans to implement APM systems at a pace of three (3) stations per year over the 2027-2031 rate period. Each deployment will include condition monitoring equipment and IEDs to enable continuous monitoring of critical station assets including power transformer and egress cables. These installations will provide real-time temperature and loading data, identifying abnormal heating patterns that may indicate early signs of insulation deterioration or connection issues. By delivering real-time data, this investment reduces reliance on periodic station inspections and supports proactive maintenance strategies, reducing failure risk.

Elexicon plans to align the deployment of these systems and devices with planned substation rebuild projects, ensuring that modernization efforts are integrated with broader station renewal investments. The coordination of work between station modernization and station rebuilds ensures that modernization

is embedded directly into the design of new and upgraded stations, improving cost-effectiveness, minimizing rework, and creating a standardized monitoring framework across the system. By aligning these deployments with other capital investments, Elexicon can maximize the value of each rebuild, enhance asset visibility from the outset, and support a transition toward a smarter, data-driven grid that proactively manages risk.

## 2.3 Distribution Capacity and Reliability Enhancements

This investments in this segment of the Grid Enhancements program include investments which are system enhancements in accordance with section 3.3.1 of the DSC. This segment also includes minor components to improve reliability and operability of the grid (Animal Guards, Lightning Arrestors).

Elexicon plans to invest approximately $47M in distribution capacity and reliability enhancements between 2027-2031 through major feeder upgrades and targeted reliability measures. These initiatives will relieve thermal constraints, capacity constraints and address known reliability risks across the system. Collectively, the program includes large-scale investments in Belleville, Whitby, and Pickering to support industrial growth, residential development, and modernizing legacy infrastructure, alongside smaller scale initiatives to address common outage causes. Investments include:

- **Feeder Enhancements:** Elexicon will invest $35M in a series of feeder enhancements across its service territory to integrate new capacity, alleviate thermal constraints, and strengthen system redundancy to support future load growth. Several new stations are planned to be built under the Substation Growth program, including GTA East TS, Winchester West MS, Foster MS, Port Hope MS, and Uxbridge North MS to address upstream and distribution system capacity limitations. To fully realize the benefits of these new stations, Elexicon must also invest in downstream feeder enhancements to connect the new capacity to customers and ensure the system operates reliably under contingency conditions. These projects involve upgrading feeder segments and adding new circuits to accommodate future load demand and provide adequate redundancy. For additional details on the new upstream stations refer to the Substation Growth program (Exhibit 2B - Tab 4 -

Schedule 3 - Appendix I). Projects to be executed to address feeder capacity include the following. Further details on these projects are included in Section 6.1.

**Table 1: List of Feeder Enhancement Projects**

| Project Title |
|---|
| GTA East TS Feeder Enhancements |
| Baldwin (North x Columbus) Enhancements |
| Country Lane Feeder Enhancements |
| Belleville DESN 2 Feeder Enhancements |
| Foster MS Feeder Enhancements |
| Foster MS 44kV Supply Feeder Enhancement |
| Uxbridge North Feeder Enhancements |

- **Undersized Conductors:** Elexicon will invest $11M to replace approximately 36 km of undersized conductor wire on main feeder trunks in areas with capacity and contingency constraints. Upgrading conductor size reduces line losses, mitigates voltage drops, and increases the feeder's thermal capacity providing support during contingency and peak load conditions. Larger conductors also support distributed energy resource (DER) integration, ensuring the grid can handle bidirectional power flows from solar PV, battery storage, and electric vehicles.
- **Animal Guards:** Elexicon will invest $410K to install approximately 200 animal guards at high-risk locations. These guards prevent wildlife from contacting energized equipment, to prevent both momentary and sustained outages. By addressing a common and recurring cause of interruptions, animal guards provide a cost-effective reliability measure that enhances service continuity for customers.
- **Lightning Arrestors:** Elexicon will invest $273K to install approximately 57 lightning arrestors to reduce reliability risks with electrical surges. These devices protect overhead equipment by safely diverting surges caused by lightning strikes, thereby reducing equipment damage, shortening restoration times, and improving system resiliency during storm events.

These investments aim to relieve capacity constraints by enabling improved load sectionalizing and distribution transfer capabilities in heavily loaded and contingency-constrained areas. Efforts under this program will create additional capacity to support future system upgrades and optimize load distribution. By facilitating load transfers from heavily loaded buses and feeders to underutilized alternatives, Elexicon can make more effective use of existing system assets. Additionally, targeted reliability measures such as the installation of animal guards and lightning arrestors will mitigate outages caused by wildlife contacts and protect equipment from surge events due to lightning strikes. These enhancements also support full compliance with the Distribution System Code (DSC), which requires distributors to plan and build their systems to accommodate reasonable forecast load growth, and to maintain their systems in accordance with good utility practices and performance standards to ensure reliability and quality of electricity service over both the short and long term. Under the DSC, Elexicon is undertaking these enhancements to its distribution system to improve operating characteristics and address system capacity constraints.

## 2.4 Summary of Investment Outcomes and Benefits

provides a summary of outcomes and benefits achieved by the Grid Enhancements program. Key program outcomes, including Customer Focus, Operational Effectiveness – Reliability, and Operational Effectiveness – Safety, and Financial Performance are further described and detailed in Section 3.

**Table 2: Program Investment Benefits & Outcomes**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Focus | • Faster fault isolation and automated switching reduce outage durations, improving reliability and ensuring fewer service disruptions.<br>• Real-time grid visibility enables faster response and helps reduce delay in service restoration<br>• Feeder enhancement and small conductor upgrades prevent voltage drops and overloading, promoting a stable and resilient power supply. |
| Operational Effectiveness – Reliability | • Faster fault isolation and remote switching capability supports timely service restoration<br>• Reclosers and self-resetting fuses reduce the number of sustained customer interruptions due to temporary faults, enhancing reliability<br>• Modernization of distribution and station systems provides operators with improved tools to rapidly identify and address system issues.<br>• Upgrading conductors and expanding feeders supports redundancy, capacity and enhances grid stability, preventing overloads and voltage imbalances.<br>• Installing animal guards and surge arrestors reduces the likelihood of outages due to equipment faults caused by wildlife contact or overvoltage events. |
| Operational Effectiveness – Safety | • Reducing manual switching and outage patrols through automated fault response and SCADA-enabled monitoring and control lowers field crew exposure to hazardous conditions.<br>• Technologies such as reclosers and self-resetting fuses automatically isolate faults, minimizing crew exposure to high-voltage equipment by reducing the need for manual interventions and operations. |

| Outcome | Investment Benefits and Objectives |
|---|---|
| | • Station temperature fiber monitoring detects overheating in critical station assets, preventing failures that could pose safety risks. |
| Financial Performance | • Leveraging system automation, including real-time monitoring and remote switching, to reduce manual fault investigation and field dispatch.<br>• Enhancing outage response efficiency through real-time fault detection, remote switching capabilities, and improved crew deployment strategies.<br>• By supporting more efficient fault isolation and restoration, these investments can help contribute to cost-effective system operations.<br>• Supporting capital planning and asset management decisions through data-driven insights, enabling more efficient investment prioritization and lifecycle cost management. |

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# 3. INVESTMENT DRIVERS & NEED

The Grid Enhancement program is driven by a combination of reliability, capacity, efficiency and safety needs across Elexicon's distribution system. Table 3 below summarizes the underlying needs and rationale for the proposed investments, highlighting how each driver contributes to enhancing system reliability, supporting load growth, operational efficiency, and maintaining a safe and resilient electrical grid.

## 3.1 Purpose

**Table 3: Summary of Investment and Need**

| Investment Driver | Investment and Need |
|---|---|
| Reliability (Primary) | • Historical reliability performance (SAIDI and SAIFI) has been negatively affected by prolonged patrols for fault detection, manual switching requirements, and limited system automation.<br>• A significant portion of the distribution network does not have SCADA-enabled devices, self-resetting fuses, or reclosers, limiting Elexicon's ability to promptly sectionalize feeders and restore service to unaffected customers.<br>• Limited fault detection devices (e.g. CFCIs) results in reliance on manual fault patrols, prolonging restoration times and extending outages.<br>• Limited real-time visibility into substation and distribution assets constrains Elexicon's ability to quickly detect and respond to abnormal conditions. |
| Capacity Constraints (Primary) | • Load growth across Elexicon's service territory is increasing, particularly in Whitby, Pickering, Belleville, and Uxbridge. As new stations such as GTA East TS, Winchester West MS, Foster MS, Port Hope MS and Uxbridge North MS come into service over the 2027-2031 period, additional feeder enhancements and interconnections are required to distribute this new supply and provide redundancy at the feeder level.<br>• Undersized conductors limit the capacity of several distribution feeders, restricting the ability to accommodate additional load and to transfer load during contingencies. Upgrading these conductors is required to relieve bottlenecks, support system growth, and ensure redundancy is available. |

| Investment Driver | Investment and Need |
|---|---|
| System Efficiency (Secondary) | • Absence of remote and SCADA-enabled switching limits Elexicon's ability to reconfigure the system quickly, forcing feeders to remain in abnormal configurations during outages and reducing overall system reliability<br>• Reclosers automatically open and close to test for and clear temporary faults, restoring service without manual intervention. When a fault is permanent, the device isolates only the affected section.<br>• Lack of continuous monitoring of station transformers, cables, and breakers reduces Elexicon's ability to operate assets at optimal performance levels, constraining efficient system utilization and increasing the risk of over loading and asset degradation. |
| Safety (Secondary) | • Reliance on manual switching exposes crews to electrical hazards, roadside traffic risks, and adverse weather conditions, increasing the likelihood of injury.<br>• Extended fault response times create unsafe conditions for field crews, requiring the deployment of CFCIs to provide faster fault detection and targeted dispatching, reducing time spent working in hazardous locations.<br>• Underground cables are vulnerable to overheating, which can result in fire hazards and catastrophic failures. Implementing temperature fiber monitoring will allow for real-time thermal tracking, ensuring early detection of overheating risks and preventing dangerous failures. |

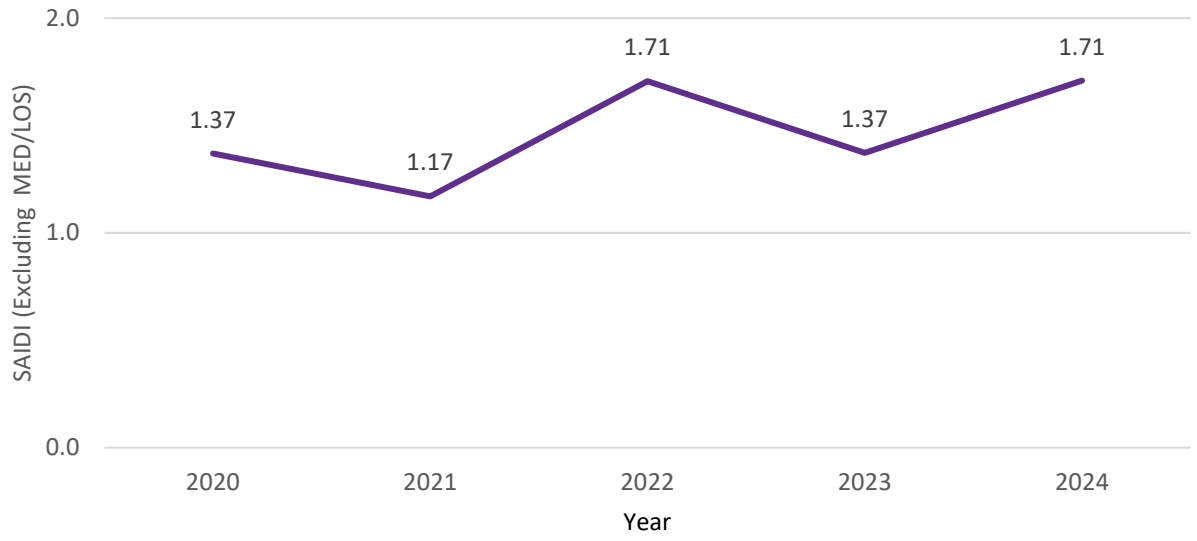
## 3.2 Reliability

This program addresses reliability challenges that Elexicon is currently experiencing on its system, including longer outage duration that is exacerbated by the lack of distribution automation and station modernization devices across Elexicon’s system. Current reliability challenges are supported by the SAIDI trends and the outage cause analysis provided below, highlighting the need for SCADA-enabled switches,

CFCIs, self-resetting fuses, reclosers, station modernization and distribution capacity and reliability enhancement investments identified in Section 2.

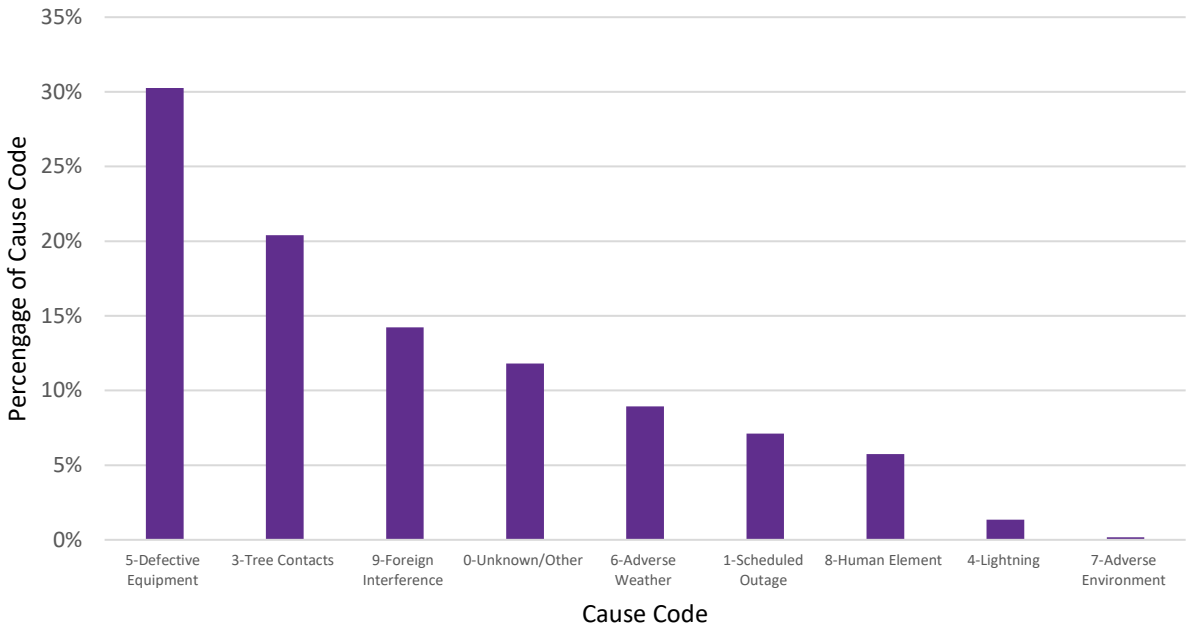
A key indicator of the declining reliability is the increase in SAIDI (excluding MEDs and LOS) which has risen from 1.37 in 2020 to 1.71 in 2024 (Refer to Exhibit 2B - Tab2 - Schedule 2 for further discussion of these metrics and trends). Figure 10 illustrates this increasing SAIDI trend, showing that customers are experiencing longer outage durations and underscoring the need for targeted modernization investments to maintain reliable service.

**Figure 10: 2020 to 2024 SAIDI (Excluding MED & LOS)**




In addition to the increasing SAIDI trends, Elexicon also tracks outage causes to identify key issues impacting the reliability of the distribution network. Figure 11 below illustrates the various outage causes from 2020 to 2024, excluding MED and LOS, allowing for a clear assessment of factors that can be addressed through the modernization of Elexicon's distribution and station systems.

**Figure 11: CHI Influenced by Outage Cause Codes Excluding LOS & MEDs (2020 to 2024)**




This demonstrates the need for targeted investments in modernizing Elexicon's grid infrastructure to improve fault detection, outage response, and system resiliency. The outage data indicates that a significant share of the CHI (Excluding LOS & MEDs) is caused by equipment condition and external contacts. Over the historical period of 2020-2024, Defective Equipment and Tree Contacts together accounted for the 50.7% of total customer interruption hours, with Foreign Interference (14.2%) and Adverse Weather (8.9%) also being significant contributors. Addressing these contributors requires a combination of field devices, system modernization, and protective equipment to improve system reliability, including:

- **SCADA-Enabled Switches and Reclosers:** By enabling remote and automated sectionalizing, these devices minimize the need for manual switching and fault isolation, thereby improving restoration times and reducing the number of sustained service interruptions. Additionally, it enables outages

to smaller segments of the distribution network, thereby minimizing the number of affected customers and improving overall system resilience.

- **CFCIs:** These devices assist in fault detection and service restoration by reducing the time required to locate and respond to outages. Their application supports improved response to outage events, including Defective Equipment and Tree Contact events, which represent a significant portion of contribution towards CHI.

- **Self-Resetting Fuses:** Tree contacts remain one of the leading causes of customer interruptions across the system. Many of these interruptions are temporary in nature, such as when a tree branch makes contact with a line. Traditionally, these types of faults result in a permanent fuse operation, requiring a truck roll to the incident and extending customer interruption. Self-resetting fuses improve this by automatically reclosing after a temporary fault, restoring service without the need for manual intervention. By reducing the impact of transient Tree Contact events, self-resetting fuses provide an effective means of limiting sustained outages while also reducing truck rolls.

- **Animal Guards and Arrestors:** Foreign interference accounts to represent a moderate share of CHI events, with a significant portion attributed to animal contacts. Installing animal guards helps prevent contact with energized equipment, while surge arrestors provide protection against voltage surges and lightning events.

- **Station Modernization:** Deploying fibre-optic monitoring, IEDs and condition sensors within stations enhances fault visibility and situational awareness. These technologies support earlier detection of abnormal operating conditions contributing to Defective Equipment events and provide operators with improved tools to manage system response during outage events.

These investments target the overall grid reliability, ensuring that capital is directed where it can most effectively address identified system needs. This approach strengthens Elexicon's capability to detect, isolate, and respond to faults, supporting the Reliability driver.

## 3.3 Capacity Constraints

Elexicon's system enhancement investments are driven by capacity constraints that limit the ability of the existing distribution system to reliably serve forecasted load growth and accommodate ongoing electrification. Population and employment growth across Elexicon's service areas are creating sustained demand increases, while continued community densification and electrification of heating and transportation are accelerating peak loading.

A comprehensive capacity assessment completed under the Substation Growth program (Exhibit 2B – Tab 4 – Schedule 3 – Appendix I) confirmed that 44 of 58 municipal stations (MS) have limited capacity (0 – 1000 kVA). Without investment, this number would increase to 47 MSs by 2031, leaving Elexicon's system further constrained. These constraints are most prevalent in Ajax-Pickering, Whitby, Belleville, and Brock regions, where loading is approaching or exceeding planning limits. At the transmission-supply level, three of four 44kV transformer stations (TS) in the Ajax-Pickering and Whitby Area are forecast to operate at or above 100% utilization by 2030, highlighting the need for both upstream and downstream capacity relief.

As discussed in the Substation Growth program (Exhibit 2B – Tab 4 – Schedule 3 – Appendix I), Elexicon will add approximately 180 MVA of new station supply capacity and approximately 101 MVA of distribution system capacity, including the construction of GTA East TS and new municipal stations in North Whitby (Winchester West MS), Belleville (Foster MS), Port Hope (Port Hope MS), and Uxbridge (Uxbridge North MS). However, realizing the full benefit of these upstream investments requires corresponding feeder-level enhancements to distribute the added capacity and maintain redundancy under N-1 conditions. The Distribution Capacity and Reliability Enhancements segment, section 2.3, addressed these concerns by investing in feeder and pole line upgrades, sectionalizing improvements, and tie-points that extend and interconnect new supply paths.

**Key Regional Initiatives include:**

- **GTA East TS (In Service - 2031):** Feeder enhancements and pole-line upgrades to integrate the new GTA East Transformer Station into the existing distribution network. These enhancements will

add capacity and establish contingency tie points between Whitby and Pickering, thereby improving system reliability and enabling more flexible load transfer capability.

- **Winchester West MS (Phase 1 In Service - 2027):** Feeder enhancements near the new Winchester West MS, including the Baldwin and Country Lane corridors, to support redundancy and relieve constraints on the existing 13.8 kV system, where utilization was forecast to exceed 137 percent by 2031 without investment.
- **Belleville DESN 2 (In Service - 2026):** 44 kV feeder enhancements (8M9, 8M15, and 8M18) from the new Belleville DESN to address the capacity, redundancy, and reliability concerns on the 44 kV system within Bellville.
- **Foster MS (In Service - 2029):** Feeder enhancements from the new Foster MS to address capacity constraints identified on the 13.8 kV system within Belleville to support future load growth and redundancy, where 13.8 kV loading is projected to exceed planning capacity by 2030.
- **Uxbridge North MS (In Service - 2028):** New 44 kV / 4.16 kV feeder builds to connect the Uxbridge North MS, eliminating the high-risk condition where the N-1 MS Planning Capacity exceeded 180 percent of available capacity.

Refer to Exhibit 2B - Tab 4 - Schedule 3 - Appendix I, Substation Growth Program for additional details on capacity constraints on the system and the need for the additional stations mentioned above. Together, these targeted feeder-level capacity enhancements ensure that the additional supply created through station investments can be integrated into the existing grid, reduce thermal and voltage constraints, and provide operational flexibility for load transfers and planned maintenance activities.

## 3.4 System Efficiency

Elexicon's grid enhancements efforts are not only aimed at supporting reliability but also at enhancing system efficiency by optimization, fault detection and isolation, resource utilization, and asset

performance. These investments will allow Elexicon to reduce manual interventions, optimize maintenance strategies, and improve overall grid performance including:

- **SCADA-Enabled Switches and Reclosers:** The implementation of SCADA-enabled switches and reclosers further enhances efficiency by eliminating the need for manual switching operations. Currently, manual switching requires dispatching crews to physically isolate faults and restore service, leading to higher labour costs, longer response times, and the less efficient use of personnel. SCADA-enabled switches and reclosers allow remote sectionalizing and system reconfiguration, enabling operators to restore power to healthy portions of the grid without requiring field crews to be deployed. This investment will significantly reduce the number of truck rolls, allowing crews to focus on more complex capital, maintenance, and repair work rather than routine switching operations.
- **CFCIs:** A significant contributor to inefficiency is fault location and response time. CFCIs streamline fault identification, allowing operators and field crews to pinpoint fault locations more accurately and reduce response times. Without these devices, manual patrols are required to locate faults, consuming valuable resources and increase outage durations. CFCIs provide real-time fault data to the control center, enabling faster dispatching of crews and reducing unnecessary truck rolls, and vehicle wear and tear. Additionally, CFCIs will enhance the accuracy of outage cause classification, supporting more complete and reliable outage data.
- **Self-Resetting Fuses:** These devices contribute to system efficiency by minimizing unnecessary use of field resources in response to transient faults. Transient faults, caused by tree branches, wildlife interference, or other momentary disturbances often result in unnecessary fuse replacements when traditional protection schemes are in place. Self-resetting fuses eliminate this issue by automatically reclosing circuits if the fault clears, preventing the need for truck rolls.
- **Station Modernization:** By deploying fibre optic infrastructure, Intelligent Electronic Devices (IEDs), and condition monitoring systems, station modernization improves operational efficiency through continuous visibility of asset health and loading conditions. These technologies reduce reliance on periodic inspections, streamline maintenance planning, and support data-driven

decision-making, allowing resources to be allocated more effectively. This shift towards proactive asset performance management minimizes unnecessary field work and optimizes the use of personnel and equipment.

- **Distribution Capacity and Reliability Enhancements:** Elexicon's grid enhancement efforts under this segment are focused on addressing thermal and voltage constraints, expanding feeder capacity, and mitigating recurring reliability risks. Elexicon's significant load growth, combined with the additional demand forecasted over the planning horizon, will push many existing feeders and conductors to reach capacity. Targeted investments in conductor upgrades and feeder reinforcements are required to enhance reliability and resiliency, ensuring the system can accommodate future demand efficiently and maintain stable operating conditions.

These strategic investments will ensure that grid operations are streamlined, maintenance efforts are more effective, and overall system performance is maximized, supporting Elexicon's long-term financial and operational sustainability.

## 3.5 Safety

Elexicon's investments in grid enhancements are not only aimed at enhancing system reliability and efficiency but also at enhancing safety for both workers and the public. Electrical distribution systems present inherent risks, including exposure to high-voltage environments, hazardous manual operations, and infrastructure failures. By implementing advanced automation, fault detection, and condition monitoring technologies, Elexicon is taking proactive steps to reduce direct worker exposure to hazards, prevent catastrophic equipment failures, and minimize risks associated with manual field operations.

One of the most significant safety improvements comes from the deployment of SCADA-enabled switching and isolation technologies, including SCADA-enabled switches, self-resetting fuses, and reclosers. Manual switching operations require field crews to physically operate equipment, often in hazardous conditions such as storms, high-traffic areas, or during live system operations. The integration of these automated devices and technologies reduces the need for on-site manual intervention, allowing operators to control the system from the operations centre, significantly reducing worker exposure to high-voltage

environments. Additionally, self-resetting fuses and reclosers reduces the need for workers to replace fuses following transient faults, ensuring that unnecessary manual operations are minimized while still maintaining system protection.

Fault detection technologies, including CFCIs, also contribute to worker safety by reducing the time required to locate faults. Without these devices, field crews must patrol long sections of the distribution network to visually inspect for faults, often working near live equipment or in challenging conditions. CFCIs provide real-time fault data directly to the control center, allowing crews to be dispatched precisely to the faulted location, reducing time spent in hazardous field conditions.

Station modernization also plays a critical role in enhancing safety across the distribution system. By deploying fibre optic communications, IEDs, and condition monitoring systems, Elexicon improves visibility into equipment condition and performance. These technologies enable earlier identification of potential issues and allow maintenance to be scheduled in a safer, more controlled manner. Enhanced monitoring reduces the likelihood of unexpected failures and helps ensure that when manual inspections are performed, they are more targeted and efficient, thereby lowering overall worker exposure to high-voltage environments.

Together, these investments will support a safer working environment for field crews and reduce public exposure to electrical hazards. By minimizing manual operations, improving predictive maintenance, and modernizing aging infrastructure, Elexicon is reinforcing its commitment to safety while ensuring that both workers and the public are better protected from the risks associated with operating and maintaining an aging electrical grid.

# 4. INVESTMENT TIMING & PACING

## 4.1 Summary of Expenditures

**Table 4: Summary of Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Distribution Modernization | 0.88 | 0.78 | 0.37 | 0.48 | 5.20[1] | 6.27[1] | 0 | 0.55 | 1.17 | 2.50 | 4.03 | 4.87 |
| Station Modernization | 0.17 | 0.78 | 3.33 | 3.56 | 3.64 | 0 | 0 | 1.16 | 1.22 | 1.39 | 1.89 | 2.00 |
| Distribution Capacity and Reliability Enhancements | 0.59 | 2.59 | 0.94 | 0.02 | 0 | 3.26 | 1.26 | 7.04 | 8.31 | 5.19 | 3.08 | 23.39 |
| Gross | **1.63** | **4.15** | **4.63** | **4.07** | **8.84**[1] | **9.53**[1] | **1.26** | **8.75** | **10.71** | **9.08** | **9.00** | **30.26** |
| Contributions | 0 | 0.17 | 0.12 | 0.32 | 2.20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capital (Net) | **1.63** | **3.99** | **4.52** | **3.75** | **6.64**[1] | **9.53**[1] | **1.26** | **8.75** | **10.71** | **9.08** | **9.00** | **30.26** |

Table 4 summarizes the total investments associated with the Grid Enhancements program, covering the actual expenditures from historical period from 2020 to 2024, the budgets for the bridge period from 2025 to 2026, and the forecasted investments for the 2027–2031 period.

Elexicon's planned investments in the Grid Enhancements program reflect a phased and prioritized approach that balances immediate reliability needs with long-term capacity and modernization objectives. Over the 2027–2031 forecast period, total program spending is approximately $68M. This investment supports a wide range of initiatives, beginning with automation projects such as SCADA-enabled switches and fault detection technologies, alongside targeted substation modernization, feeder enhancements, undersized conductor replacements, and the installation of animal guards and lightning arrestors.

The forecasted expenditures are paced to align with system needs and investment readiness, resulting in year-over-year variations. There is a step-change investment increase in 2031, which reflects the timing of GTA East TS coming into service and alignment of the construction of new feeders from that station to integrate into the distribution network. Compared to the historical period, where annual net investments

[1] Capital expenditures include the ICM-funded Whitby Smart Grid Project

ranged from $1.63M in 2020 to $6.64M in 2024, the forecast reflects a significant step-up in scale, aligned with the increasing need to increase capacity to meet future demand, support reliability enhancements, and modernize the system.

### 4.1.1 Distribution Modernization

**Table 5: Distribution Modernization Expenditures (Net)**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| SCADA Enabled Switches | 0 | 0.50 | 0.27 | 0.39 | 0.11 | 0.49 | 0 | 0.17 | 0.36 | 0.76 | 1.22 | 1.48 |
| CFCIs | 0.01 | 0.09 | 0.01 | 0 | 3.52[2] | 5.34[2] | 0 | 0.09 | 0.19 | 0.41 | 0.66 | 0.80 |
| Self-Resetting Fuses | 0.22 | 0.05 | 0.02 | 0 | 0.01 | 0.19 | 0 | 0.09 | 0.20 | 0.43 | 0.69 | 0.84 |
| Reclosers | 0.66 | 0.14 | 0.07 | 0.09 | 0.43 | 0.25 | 0 | 0.20 | 0.42 | 0.90 | 1.45 | 1.76 |
| Capital (Net) | **0.88** | **0.78** | **0.37** | **0.49** | **4.07**[2] | **6.27**[2] | **0** | **0.55** | **1.17** | **2.50** | **4.03** | **4.87** |

Elexicon plans to invest approximately $13.12M in Distribution Modernization between 2027 and 2031, covering SCADA-enabled switches, CFCIs, self-resetting fuses, and reclosers. Expenditures are phased to align with project readiness, beginning at approximately $0.55M in 2027 and increasing to $4.87M by 2031. This forecast is broadly consistent with the 2020-2026 period, during which total spending was approximately $12.86M, reflecting initial deployments of automation devices and a peak of $6.27M in 2024. The forecasted expenditures for 2027-2031 reflects the need to expand investment in distribution modernization.

### 4.1.2 Station Modernization

**Table 6: Substation Modernization Expenditures (Net)**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Station Modernization | 0.17 | 0.78 | 0.33 | 3.56 | 3.64 | 0 | 0 | 1.16 | 1.22 | 1.39 | 1.89 | 2.00 |
| Capital (Net) | 0.17 | 0.78 | 0.33 | 3.56 | 3.64 | 0 | 0 | 1.16 | 1.22 | 1.39 | 1.89 | 2.00 |

Elexicon plans to implement station modernization within the Grid Enhancements program, targeting a

[2] Capital expenditures include the Whitby Smart Grid ICM Project

deployment pace of approximately three stations per year. The deployment of modernization systems and devices will be coordinated with planned substation rebuild projects to ensure integration with broader station renewal investments and to optimize implementation efficiency. Additionally, as part of the broader station modernization effort, Elexicon will replace 26 protection relays across 7 stations. These relay replacements will be integrated with future substation modernization activities to ensure alignment with protection system upgrades, improve reliability, and maintain consistency with current design and operational standards.

### 4.1.3 Distribution Capacity and Reliability Enhancements

**Table 7: Distribution Capacity and Reliability Enhancements (Net)**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital (Net) | 0.07 | 0.20 | 2.69 | 2.35 | 2.57 | 3.26 | 1.26 | 7.04 | 8.31 | 5.19 | 3.08 | 23.39 |

Elexicon plans to invest approximately $47.01M in Distribution Capacity and Reliability Enhancements between 2027 and 2031. Expenditures are phased based on project needs, beginning at about $7.04M in 2027, increasing to $8.31M in 2028, moderating through 2029 to 2030, and then reaching a peak of $23.39M in 2031. The peak in 2031 is attributed to planned spending aligned with the commissioning of the GTA East TS, which will require the construction of new feeders to egress from the station along with system tie-points to integrate the station into the distribution network. The increase in investment over the forecast period also reflects the need to coordinate downstream capacity and reliability enhancements with new upstream station capacity additions identified under S1 Substation Growth Program, ensuring that the system can effectively distribute new supply and alleviate existing capacity constraints across the Ajax-Pickering, Whitby, Uxbridge, and Belleville regions. This represents a step-up from the 2020 to 2026 period, when total spending was approximately $12.40M. The higher investment levels in the upcoming

rate period are therefore directly tied to the timing of major station additions and the broader requirement to relieve system constraints and enhance reliability through targeted distribution upgrades.

## 4.2 Investment Pacing and Prioritization

Elexicon's approach to prioritizing and pacing expenditures within the Grid Enhancements Program is driven by a structured evaluation process that ensures investments align with system needs, reliability, and customer expectations. Projects within each year are ranked based on key prioritization metrics, including reliability impact, operational efficiency, and safety considerations. The prioritization framework considers factors such as historical outage data, fault location trends, equipment condition assessments, and customer-reported concerns to determine where investments will have the most significant impact. For example, areas with a history of frequent outages or aging infrastructure at risk of failure may be prioritized for SCADA-enabled switching, reclosers, and other Grid Modernization technologies.

Elexicon's decision-making process reflects a balance between system needs, financial constraints, and customer expectations. Customer engagement feedback, including preferences regarding grid reliability, service quality, and bill impacts, has been incorporated into the planning process to ensure investments align with customer priorities.

The prioritization of investments within the Grid Enhancements Program is fundamentally tied to system reliability and capacity constraints. Areas with recurring outage performance issues, aging assets nearing end-of-life, or feeders approaching thermal/voltage limits are prioritized for intervention to ensure the system can continue to provide safe and reliable service. Investments that directly relieve these constraints, such as SCADA-enabled switching, fault indicators, and capacity reinforcements, are ranked highest within the annual planning cycle.

The pacing of expenditures between 2027 and 2031 reflects both the urgency of these needs and the practical considerations of project readiness and resource availability. Initial spending in 2027–2028 is directed toward advancing the highest-priority projects, such as feeders with the poorest reliability performance or capacity concerns. Expenditures in 2029–2030 are moderated to reflect sequencing with

other investment programs, while the significant increase in 2031 expenditures corresponds to large-scale projects such as the feeder enhancements out of the new GTA East TS. By staging expenditures in this manner, Elexicon prioritizes addressing urgent reliability and capacity requirements throughout the 2027–2031 period, while strategically implementing long-term system improvements in alignment with projected growth and modernization objectives.

## 4.3 Execution Approach

As part of program execution, Elexicon applies several procedures to manage emerging risks that may occur, ensuring that projects are executed in a timely and optimal manner. This includes the following risk mitigations as summarized in :

**Table 8: Summary of Program Risks & Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| **Execution Flexibility:** Need to ensure the program can be adjusted to reflect changing system needs, customer expectations, and regulatory requirements. | • Adaptive Program Management: Investments will be reassessed on a recurring basis, allowing Elexicon to re-sequence projects and reallocate resources in response to emerging grid conditions and evolving customer needs. |
| **Supply Chain Disruptions:** Need to manage exposure to long lead times and potential delays in procuring equipment and devices. | • Proactive Procurement: Long-lead materials will be secured in advance through early vendor engagement, scenario planning and diversified sourcing to reduce exposure to supply chain delays. |
| **Resource Availability:** Need to ensure sufficient workforce capacity support to meet annual deployment targets and maintain schedule adherence. | • Resource Balancing: A blended delivery model will be applied to align internal labour and external contractor capacity with planned workload, ensuring that specialized expertise is available when required. |
| **System Integration Constraints:** Need to address technical limitations associated with integrating new devices and feeder enhancements into an operating system without compromising reliability. | • Coordinated Engineering and Operations Planning: Integration activities will be sequenced with system studies, planned outages and operational requirements to maintain reliability while new assets are brought online. |

| Risk | Mitigation Methods |
|---|---|
| **Execution Limitations:** Need to account for permitting timelines, municipal approvals, land access issues, and seasonal work restrictions that may delay project delivery. | • Advance Approvals and Seasonal Scheduling: Municipal permitting, land access and environmental reviews will be initiated early, with construction windows planned around known seasonal constraints. |
| **Customer-Driven Prioritization:** Need to ensure that execution sequencing continues to reflect customer engagement outcomes while balancing reliability and safety. | • Customer-Aligned Prioritization: Investment sequencing will be informed by customer feedback, outage performance and system needs to ensure that high-value, customer-focused work is advanced first. |

# 5. OPTIONS ANALYSIS

## 5.1 Options for Grid Enhancements

An integral component as part of Elexicon' s AM Planning Process (Exhibit 2 – Tab 3 - Schedule 1) is to assess the prudency of each investment program through the consideration of various investment options. For the Grid Enhancements program, Elexicon assessed three investment options: Needs-Based, Balanced, and Low. These options represent different investment pacing strategies to maintain system reliability, improve operational efficiency, and support safer, more effective grid operations. These investment options also considered the customer engagement results and preferences to balance rates with investment outcomes.

**Balanced Investment Option ($67.80M) – Recommended**

The Balanced option represents Elexicon's proposed and preferred investment option, providing a measured level of investment across all segments of the Grid Enhancements program. This approach maintains steady progress on automation, feeder capacity relief, and station modernization while aligning investment pacing with project readiness and the timing of major capacity additions under the Substation Growth program (Exhibit 2B - Tab 4 - Schedule 3 - Appendix I).

Under the Balanced option, Elexicon will implement the following investments:

**Table 9: Investment Quantities – Balanced Option**

| Investment Description | Quantity |
|---|---|
| Remote SCADA Enabled Switches | 21 units |
| Reclosers | 22 units |
| CFCIs (Locations) | 156 locations |
| Self-Resetting Fuses | 150 units |
| Station Modernization | 15 stations |
| Relays | 26 units |
| Undersized Conductors | 36 km |
| Animal Guards | 200 units |
| Arrestors | 57 units |

Additionally, to support Feeder Enhancements, Elexicon will also advance the following projects:

- **GTA East TS Feeder Enhancements:** Integration of new GTA East TS with the distribution system to address capacity constraints in Pickering & Whitby.
- **Baldwin (North x Columbus) Enhancements:** Feeder enhancements near the new Winchester West MS to support redundancy and relieve constraints on the existing 13.8 kV system
- **Country Lane Feeder Enhancements:** Feeder enhancements near the new Winchester West MS to support redundancy and relieve constraints on the existing 13.8 kV system.
- **Belleville DESN 2 Feeder Enhancements:** 44 kV feeder enhancements (8M15/8M18/8M9) from the new Belleville DESN 2 to address the capacity and reliability concerns on the 44 kV system.
- **Foster MS Feeder Enhancements:** Feeder enhancements from the Foster MS to existing 13.8 kV grid.
- **Foster MS 44kV Feeder Supply:** Enhancement of 44 kV supply feeder for the new Foster MS supply.

- **Uxbridge North Feeder Enhancements:** Enhancement of 44 kV supply feeder to the new Uxbridge North MS.
- **Uxbridge 4.16 kV Feeder Enhancements:** Enhancement of pole line on Uxbridge 4.16 kV network for resiliency and reliability.
- **Fairport SS Pole line Enhancement:** Enhancement of pole line to add additional 44kV supply feeder for additional resiliency.

The Balanced option includes continued deployment of SCADA-enabled switches, fault detection devices, and protection equipment to support reliability and operational flexibility; targeted station modernization investments to enhance visibility; and major feeder enhancements that relieve thermal and contingency constraints across Whitby, Pickering, Belleville, and Uxbridge. This plan ensures integration of new capacity from the GTA East TS, Winchester West MS, Foster MS, and Uxbridge North MS into the distribution system. Overall, the Balanced option reflects a sustainable pacing strategy that supports reliability and delivers capacity benefits.

**Needs-Based Investment Option ($84.01M)**

Under the Needs-Based option, Elexicon would install 11 additional SCADA-enabled switches beyond the Balanced plan, increasing the total to 32 units over the 2027–2031 period. In addition to this expanded automation deployment, Elexicon would also execute additional feeder enhancement projects to accelerate reliability and address capacity constraints across key growth areas.

Table 10 below outlines the investments within the needs-based option:

**Table 10: Investment Quantities – Needs-Based Option**

| Investment Description | **Quantity** |
|---|---|
| Remote SCADA Enabled Switches | 32 units |
| Reclosers | 22 units |
| CFCIs (Locations) | 156 locations |
| Self-Resetting Fuses | 150 units |
| Station Modernization | 15 stations |
| Relays | 26 units |
| Undersized Conductors | 36 km |
| Animal Guards | 200 units |
| Arrestors | 57 units |

In the needs-based option, Elexicon would advance additional feeder enhancement projects in addition to those previously identified within the balanced option:

- **Port Hope 44 kV Enhancement:** 44 kV feeder to support supply resiliency and capacity to the Port Hope region.
- **Beaverton 44 kV Additional Supply:** Reconfiguration of the 44 kV system by adding an additional supply feeder to enhance the radial supply configuration to a dual supply configuration.
- **Port Perry Mabley Feeder Enhancements:** 4.16 kV distribution feeder enhancement to address contingency and capacity constraints.
- **Bowmanville Feeder Enhancements:** Addition of new pole lines to unlock existing feeder capacity and improve system resiliency for the 13.8 kV system.
- **Port of Newcastle 13.8 kV Loop:** Reconfiguration of radial to loop supply for customers south Newcastle.

While the Needs-Based option provides the greatest near-term reliability and capacity benefits, it was not selected due to its substantially higher cost and greater pressure on customer rates. The Balanced option achieves similar long-term outcomes through a more sustainable pacing strategy that aligns with project readiness, available resources, and customer affordability.

**Low Investment Option ($33.64M)**

The Low option represents a significantly reduced investment level relative to the Balanced plan. Under this option, several projects would be deferred beyond 2031, resulting in slower progress toward distribution and station modernization and limited ability to integrate new capacity from the S1 Substation Growth program.

Table 11 below outlines the investments within the low option:

**Table 11: Investment Quantities – Low Option**

| Investment Description | Quantity |
|---|---|
| Remote SCADA Enabled Switches | 4 units |
| Reclosers | 4 units |
| CFCIs (Locations) | 31 locations |
| Self-Resetting Fuses | 30 units |
| Station Modernization | 7 stations |
| Relays | 26 units |
| Undersized Conductors | 4.5 km |
| Animal Guards | 200 units |
| Arrestors | 57 units |

Key reductions include:

- **Undersized Conductor Upgrades:** Reduced to 4.5 km from 36 km in the Balanced option to leaving many thermal bottlenecks unaddressed.

- **Distribution Modernization:** Limited to approximately 20 percent of Balanced spending, substantially reducing the number of SCADA Enabled Switches, reclosers, and CFCIs installed.
- **GTA East 44 kV Feeder Enhancements:** Reduced by 50 percent, limiting downstream integration of the new GTA East TS and restricting available transfer capability.
- **Belleville:** Removed 8M9 and 8M18 feeder enhancements, resulting in continued thermal loading and limited redundancy on key 44 kV feeders that supply regional growth areas.
- **Station Modernization:** Reduced by 50 percent, impacting condition-monitoring deployments.

While this lower-cost approach minimizes near-term capital requirements, it defers key modernization and capacity projects, prolongs reliance on radial supply configurations, and increases the risk of overloads and extended outage durations during contingency events.

# 6. INVESTMENT PROJECTS

## 6.1 Investment Projects for Grid Enhancement

**Table 12: List of Projects**

| # | Project Title/Description | Estimated Cost ($) |
|---|---|---|
| 1 | GTA East TS Feeder Enhancements | $20.20 M |
| 2 | Undersized Conductors | $11.28 M |
| 3 | Station Modernization | $7.65 M |
| 4 | Belleville DESN 2 Feeder Enhancements | $6.58 M |
| 5 | Reclosers | $4.73 M |
| 6 | Remote SCADA Enabled Switches | $3.98 M |
| 7 | Country Lane Feeder Enhancements | $2.40 M |
| 8 | Self-Resetting Fuses | $2.26 M |
| 9 | CFCIs (Locations) | $2.15 M |
| 10 | Foster MS Feeder Enhancements | $2.05 M |
| 11 | Baldwin (North x Columbus) Enhancements | $1.80 M |
| 12 | Uxbridge 4.16 kV Feeder Enhancements | $0.64 M |
| 13 | Fairport SS Pole line Enhancement | $0.62 M |
| 14 | Uxbridge North Feeder Enhancements | $0.51 M |
| 15 | Animal Guards | $0.41 M |
| 16 | Arrestors | $0.27 M |
| 17 | Foster MS 44kV Feeder Supply | $0.27 M |
| **Total** | | **$67.80 M** |

# S3 VOLTAGE & SYSTEM CONVERSION

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost: $1.71M | 2025-2026 Plan: $0M | 2027-2031 Forecast: $23.64M |
| Primary Driver: Capacity Constraints | | |
| Secondary Drivers: Reliability, Failure Risk, Safety | | |
| Outcomes: Customer Focus, Operational Efficiency – Reliability, Operational Efficiency – Safety, Financial Performance | | |
| Segments: N/A | | |

Continued urban densification, population growth, and electrification are driving the need for additional feeder capacity and more efficient use of existing infrastructure across Elexicon's service territory. While new substations expand supply into growth areas, some regions of the system still operate at legacy voltages of 4.16 kV and 8.32 kV. These legacy systems, though not necessarily at their thermal capacity, are functionally obsolete and they cannot accommodate larger customer connections or support modern system standards. As a result, they represent a barrier to growth and a prerequisite for the decommissioning of aging 4.16 kV and 8.32 kV infrastructure. The Voltage & System Conversion Program enables the transition of these areas to standardized 13.8 kV and 27.6 kV systems, allowing larger customers to be served, improving compatibility with new infrastructure, and supporting the safe decommissioning of legacy stations.

The Voltage & System Conversion program aligns with the Substation Growth program (see Exhibit 2B - Tab 4 - Schedule 3 - Appendix I), which addresses short- to long-term system needs. New and upgraded 13.8 kV and 27.6 kV municipal stations establish the supply sources necessary to transition customers from legacy 4.16 kV and 8.32 kV systems. Once these new and upgraded municipal stations are in service, voltage & system conversion projects then enable the safe and efficient transfer of load to standardized voltage levels, supporting the decommissioning of aging substations and improving network interoperability. Through system planning, load forecasting, and voltage & system conversion analysis, Elexicon has identified key priority areas for voltage & system conversion during the 2027–2031 rate period, with a total forecast investment of $23.64M. Key focus areas include Port Hope, Belleville, and

Pickering, where legacy systems and substations have reached the end of their useful life and cannot accommodate larger customer connections under current standards.

## 2. INVESTMENT DESCRIPTION

The Voltage & System Conversion Program is a capital investment initiative designed to upgrade Elexicon's distribution system by converting and replacing legacy 4.16 kV and 8.32 kV infrastructure to 13.8 kV and 27.6 kV operating voltages. This program forms a critical component of Elexicon's system strategy and is intended to address the following objectives:

- **Replacing Aging and Deteriorated Infrastructure**: Managing asset risk by rebuilding legacy 4.16 kV and 8.32 kV equipment to modern standards, enabling the eventual decommissioning of aging Municipal Stations and standardizing voltage levels to improve safety, operational efficiency, optimize planning, and simplify maintenance practices.
- **Capacity Constraints:** Mitigate anticipated capacity limitations that will arise following the decommissioning of aging 4.16 kV Municipal Stations in Belleville and Port Hope, and 8.32 kV infrastructure in Pickering. Expanding system capacity to accommodate current and future load growth, including planned residential developments, commercial expansion, and the increasing load from electrification initiatives such as electric vehicle charging and distributed energy integration, as detailed in Section 3.2.
- **Enhance Power Quality**: Conversion to modern voltage standards to reduce line losses, improve the efficiency of the distribution system, and reduce voltage drops for customers at the ends of distribution lines.
- **Enhancing Safety and Operational Efficiency:** Streamlining maintenance practices, restoration activities, and planning processes, while supporting control room operations to enable more effective long-term system management improved safety.

**Program Scope and Nature of Investments**

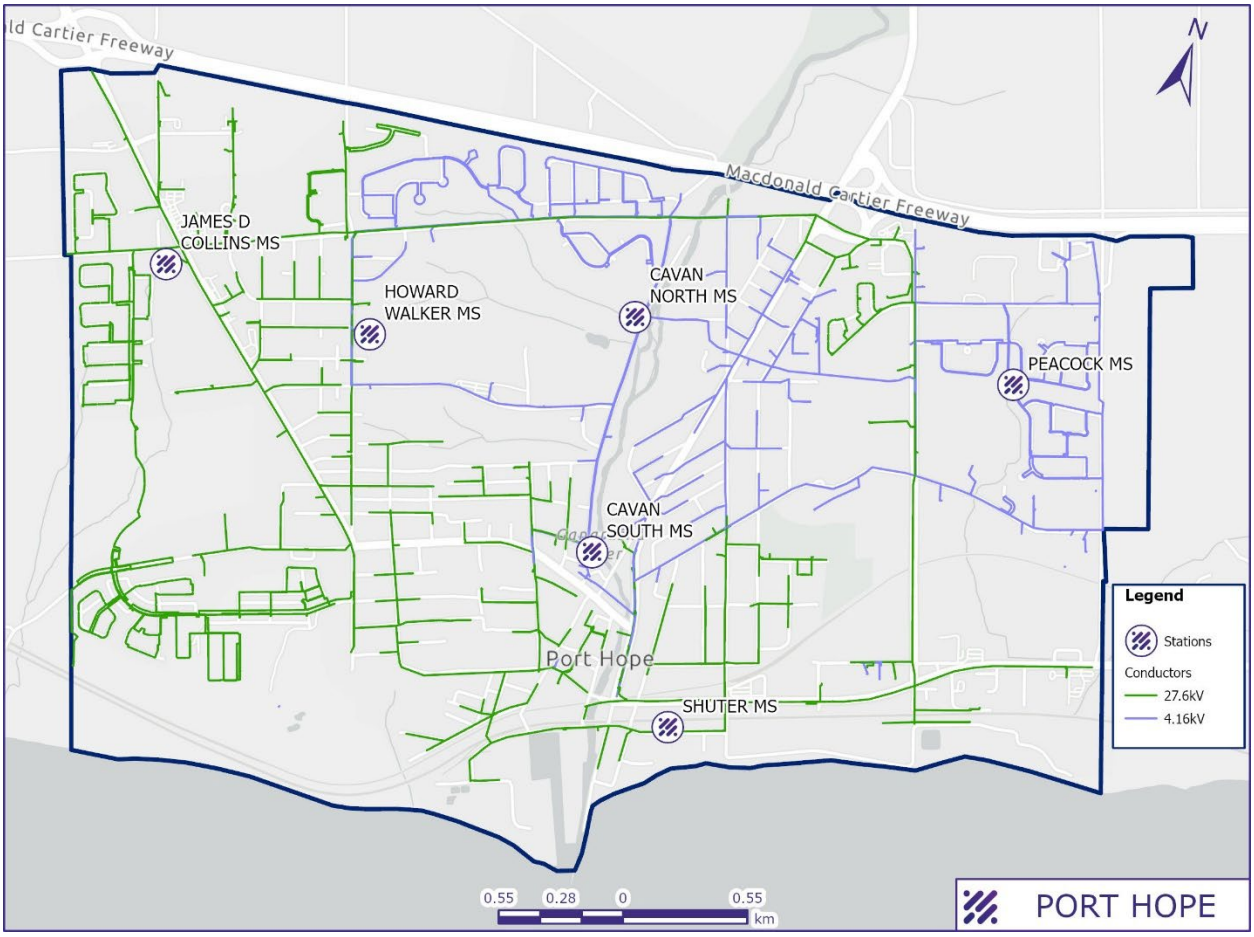
The Voltage & System Conversion Program is a system-wide initiative that supports the modernization and standardization of Elexicon's distribution network. Its primary objective is to transition legacy 4.16 kV and 8.32 kV systems to standardized 13.8 kV and 27.6 kV operation, enabling the safe decommissioning of aging substations and improving long-term system interoperability. The program enhances reliability, operational efficiency, and capacity to accommodate future load growth in alignment with Elexicon's long-term planning objectives:

- **Voltage & System Conversion Activities**: Transitioning customers and system infrastructure from legacy 4.16 kV and 8.32 kV feeders to 13.8 kV and 27.6 kV systems, ensuring alignment with Elexicon's long-term planning objectives.
- **Infrastructure Upgrades:** Upgrading associated distribution assets including feeders, transformers, poles, wooden cross arms, porcelain insulators, switches, cables, conductors to ensure compatibility with the higher voltage levels and modern system designs.
- **Legacy Station Retirements**: Facilitating the phased decommissioning of aging 4.16 kV and 8.32 kV substations once customers are transferred to standardized systems, reducing operational risk, improving maintainability, and lowering ongoing maintenance costs.

## 2.1 Port Hope Voltage & System Conversion

In the Port Hope service area, Elexicon currently operates four 4.16 kV substations: Cavan South MS, Cavan North MS, Peacock MS, and Howard Walker MS, along with two 27.6 kV substations, Shuter MS and James D Collins MS. Figure 1 below illustrates, the 4.16 kV and the 27.6 kV distribution network in the Port Hope area.

**Figure 1: System Voltage Map - Port Hope**




The legacy 4.16 kV substations and associated distribution infrastructure are nearing the end of their service life and present asset condition concerns, while the existing 27.6 kV system is also approaching its capacity limits. This is further reflected in current system loading, where the 27.6 kV system is already carrying a load of 10.9 MVA against a planning limit of 10.6 MVA, with two of the four feeders operating over its limit and another nearing it.

To address these constraints, a new Port Hope MS is scheduled to brought into service by 2029 under the Substation Growth Program (Exhibit 2B - Tab 4 - Schedule 3 - Appendix I). Once energized, the new Port Hope MS will provide the additional capacity on the 27.6 kV system and enable customers to be

transferred from the 4.16 kV to 27.6 kV system, enabling the safe and efficient decommissioning of aging substations. This transition will address capacity constraints on the 27.6 kV system while also resolving limitations of the legacy 4.16 kV network, which is unable to support customer connections exceeding 300 kVA.

The Voltage & System conversion program in Port Hope will begin with the conversion of the feeders supplied by Cavan South MS and Howard Walker MS. Cavan South MS is in poor condition and scheduled for decommissioning in 2028 as part of Elexicon's Substation Renewal Program (Refer to Substation Renewal Program in Exhibit 2B - Tab 4 - Schedule 3 - Appendix E for more details) with Howard Walker MS planned to be decommissioned in the future rate period.

Currently, Cavan South MS cannot currently be removed from service due to redundancy limitations and N-1 contingency requirements. The station provides critical backup support to neighbouring substations, including Howard Walker MS. Therefore, it cannot be decommissioned until Howard Walker MS load is also successfully transferred to the 27.6kV system which is capacity constrained. The commissioning of the new 27.6kV Port Hope MS in 2029 will resolve these limitations by creating the necessary transfer capacity to facilitate decommissioning.

By contrast, the 27.6 kV system provides significantly greater flexibility to accommodate larger customer connections and future load growth. Transitioning to this standardized system will ensure Port Hope is positioned to support new residential, commercial, and industrial developments while also reducing operational risk.

Elexicon plans to invest approximately $6.83M during the 2027–2031 rate period for voltage & system conversion within the Port Hope service area. Elexicon has planned the Port Hope voltage & system conversion project into seventeen construction phases to convert 4.16 kV distribution infrastructure in Port Hope to 27.6 kV. This investment will advance 5 of the 17 planned construction phases (approximately 30%) during the 2027-2031 period, with the remaining phases to be carried out in the future rate period(s). Table 1 provides a summary of the asset types and quantities scheduled for replacement during this rate period.

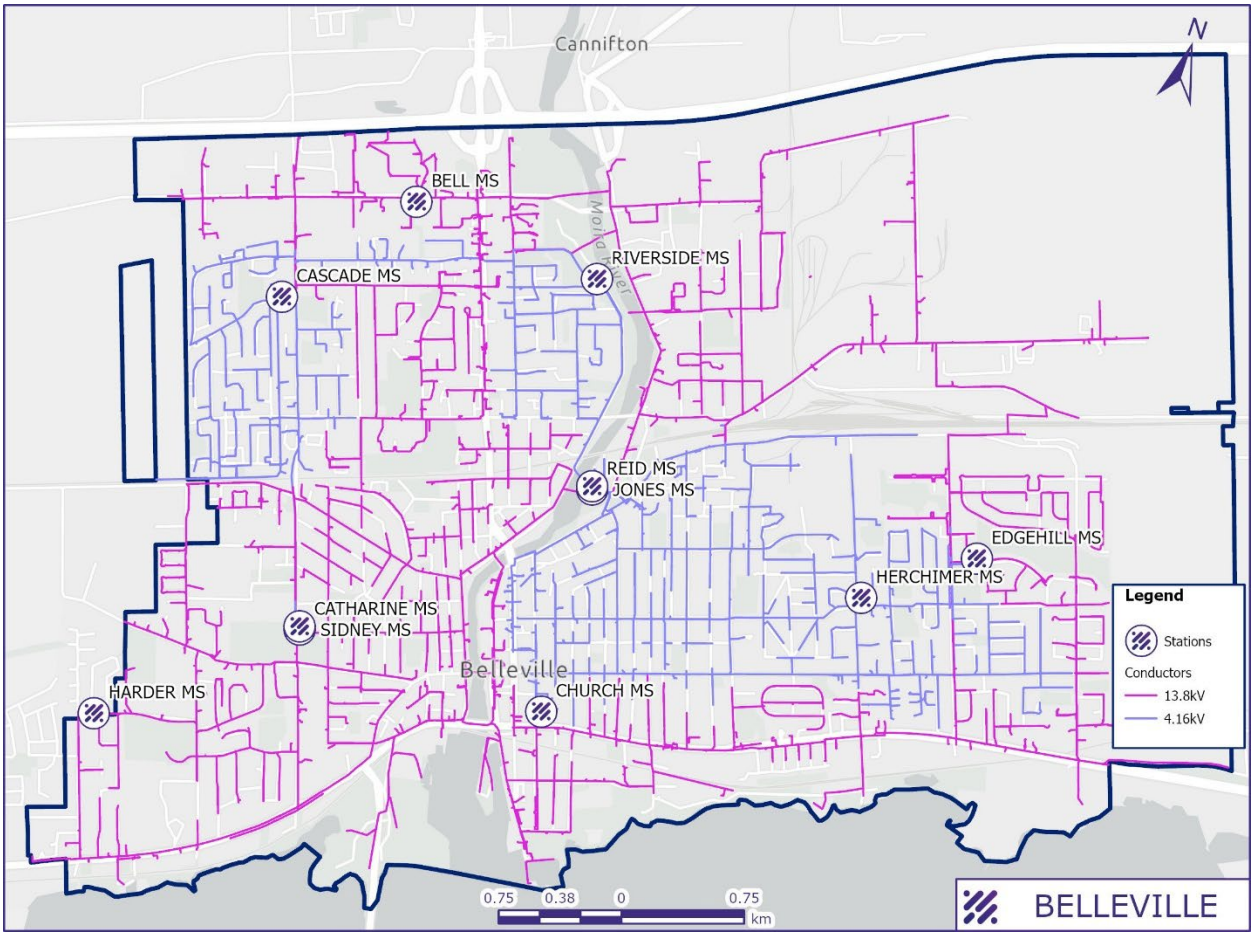
**Table 1 : Port Hope Voltage & System Conversion Asset Quantifies (2027-2031)**

| Description | Quantity |
|---|---|
| UG Conductor (km) | 7.7 |
| Poles | 57 |
| Pole-Mounted Transformers | 7 |
| Pad-Mounted Transformers | 52 |
| OH Switches | 17 |
| UG Switchgear | 1 |

## 2.2 Belleville Voltage & System Conversion

Elexicon is advancing a comprehensive Voltage & System Conversion program within the Belleville service area to support the long-term standardization of voltage levels across the region. This standardization will enhance system efficiency, improve operational flexibility and provide greater capacity to accommodate future load growth and electrification initiatives. The Belleville service area is supplied by six 4.16 kV, four 13.8 kV and one 13.8/4.16 kV dual-voltage municipal substations. The 4.16 kV stations include Herchimer MS, Jones MS, Church MS, Cascade MS, Catherine MS and Riverside MS. Edgehill MS operates with a dual-voltage configuration, where Transformer T1 operates at the 13.8 kV voltage level and Transformer T2 continues to operate at the 4.16 kV voltage level. Collectively, these 4.16 kV stations are operating near their planning capacity, as discussed in Section 3.2, leaving limited flexibility to accommodate future load growth or larger connection size. Figure 2 below illustrates the 13.8 kV and 4.16 kV distribution network in the Belleville service area.

**Figure 2: System Voltage Map - Belleville**




As part of Elexicon's Substation Growth program (see Exhibit 2B - Tab 4 - Schedule 3 - Appendix I), a new 13.8 kV municipal substation, Foster MS, is being constructed and is expected to come into service by 2029. Once Foster MS is energized, customers from Herchimer MS will be transferred over to the expanded 13.8 kV system. Additionally, some of the customers currently served by the Edge Hill MS 4.16 kV system will be progressively transferred to the 13.8 kV network, following the planned upgrade of the T2 transformer at Edge Hill MS to 13.8 kV in 2028. The addition of Foster MS will address the capacity constraints of the 13.8 kV system and support larger customer connections.

While Cascade MS, Jones MS, Church MS, Catherine MS, Riverside MS and Edge Hill MS T1 will continue to operate at the 4.16 kV system voltage during the 2027–2031 planning period, these stations are expected to be considered for conversion in subsequent rate periods. The long-term objective is to ensure that the entire Belleville service area is supplied at 13.8 kV or higher, supporting customer growth, reliability, operational efficiency, and system resilience.

Importantly, the planned voltage & system conversion will enable the decommissioning of Herchimer MS by 2030. The station is considered a high-risk asset because of its aging infrastructure, deteriorated condition and associated safety concerns (Refer to Substation Growth Program in Exhibit 2B - Tab 4 - Schedule 3 - Appendix I for further details).

Elexicon plans to invest approximately $10.76M during the 2027–2031 rate period for voltage & system conversion within the Belleville service area. This investment will advance 7 of the 11 planned construction phases (approximately 63%) for Southeast Belleville during the 2027-2031 period, with the remaining phases to be carried out in future rate periods. Table 2 provides a breakdown of the description and quantity of the assets scheduled for replacement during this period.

**Table 2: Belleville Voltage & System Conversion Asset Quantities (2027-2031)**

| Description | Quantity |
|---|---|
| UG Conductor (km) | 1.5 |
| Poles | 165 |
| Pole-Mounted Transformers | 87 |
| Pad-Mounted Transformers | 11 |
| OH Switches | 36 |

## 2.3 Pickering (North-West) Voltage & System Conversion

The northwest area of Pickering is currently supplied by a non-standard 8.32 kV distribution system, which receives power from Green River Step-Transformer. This legacy configuration is inconsistent with Elexicon's

standardized 27.6 kV design and operational practices and is becoming increasingly constrained and is unable to accommodate the growing residential and commercial development in the area. Figure 3 below illustrates the 8.32 kV and 27.6 kV distribution network in the Pickering area. Figure 4 shows the Green River Step-Transformer.

**Figure 3: System Voltage Map – Ajax / Pickering**

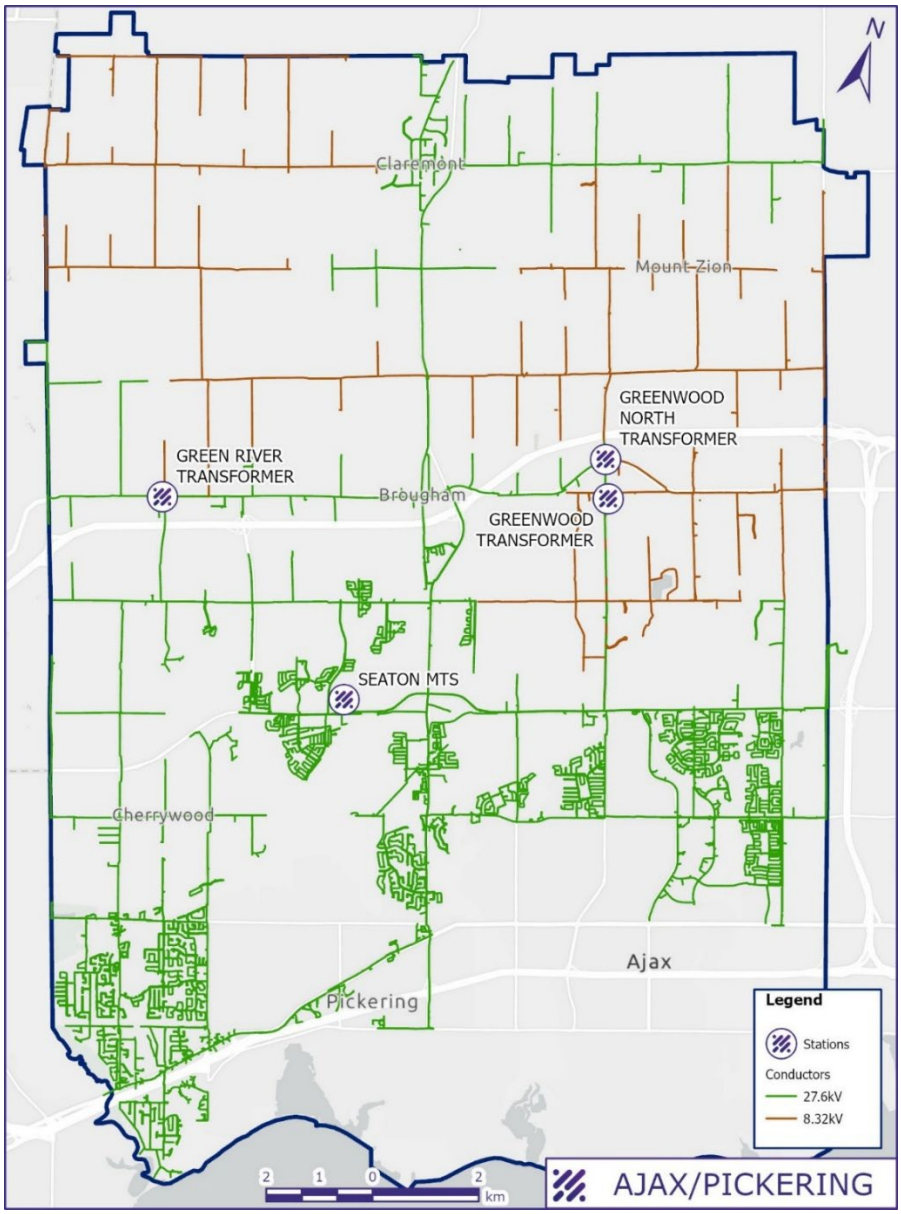


**Figure 4: Green River Step-Transformer**



With continued residential and commercial development expected in northwest Pickering, including the connection upgrades of existing customers, the 8.32 kV system is approaching its capacity limit. These constraints restrict Elexicon's ability to effectively manage load growth and maintain reliability within the area. To address this issue, Elexicon will undertake the conversion of the 8.32kV system to the 27.6 kV system. This upgrade will provide sufficient capacity to accommodate future growth while improving system performance and operational flexibility.

Converting the area to the 27.6 kV voltage level will provide several additional benefits. It will allow the interconnection of long radial feeders to improve redundancy, support greater standardization of equipment and maintenance practices, and reduce operational risk through enhanced integration with the broader distribution network. Once the 8.32 kV load is fully transferred to the 27.6 kV system, the Green River Step-Transformer can be safely decommissioned in a future planning period. Additionally, Elexicon's Conditions of Service do not permit individual connections exceeding 500 kVA on the system due to its technical and equipment limitations.

While capacity and growth are the primary drivers of this investment, the conversion also brings operational and reliability benefits. The 27.6 kV system offers improved automation, redundancy, and switching capability, supporting faster service restoration and greater operational flexibility.

The Pickering conversion project has a total allocated budget of approximately $6.01M and will focus on the west Pickering service area during the 2027-2031 period. Conversion of the remaining 8.32 kV system will be undertaken in subsequent rate periods. Conductors will be replaced only where required, primarily on rebuilt segments, to optimize investment costs and reduce unnecessary infrastructure upgrades. Table 3 provides a breakdown of the description and quantity of the assets scheduled for replacement during this period.

**Table 3: Pickering North-West Voltage & System Conversion Asset Quantities (2027-2031)**

| Description | Quantity |
|---|---|
| UG Conductor (km) | 0.24 |
| Poles | 89 |
| Pole-Mounted Transformers | 85 |
| Pad-Mounted Transformers | 2 |
| OH Switches | 50 |

## 2.4 Summary of Investment Outcomes and Benefits

Table 4 provides a summary of outcomes and benefits achieved by the system voltage & system conversion program.

**Table 4: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Customer Focus | • Converting feeders to higher standard voltages increases connection capacity and enables Elexicon to support growing customer demand without compromising service quality.<br>• Improved voltage profiles reduce fluctuations and mitigate low-voltage conditions at customer endpoints, particularly under peak load conditions.<br>• Transitioning away from aging infrastructure minimizes unplanned outages and reduces restoration times through improved network reliability.<br>• Customers benefit from more consistent power delivery, stable reliability performance, and increased ability to accommodate DER connections. |
| Operational Effectiveness – Reliability | • Replacing non-standard 4.16 kV and 8.32 kV feeder infrastructure with 13.8 kV and 27.6 kV designs improves fault tolerance and supports greater flexibility in load transfers across the network.<br>• Standardized voltages enhance system interoperability and enables more efficient integration of grid automation and remote switching technologies.<br>• The removal of voltage-constrained legacy feeders reduces the risk of voltage collapse or overload conditions during high demand.<br>• Conversion efforts enable a more stable and resilient network structure. |

| Outcome | Investment Benefits and Objectives |
|---|---|
| Operational Effectiveness - Safety | • Voltage conversion allows for the decommissioning of high-risk substations such as Cavan South MS and Herchimer MS eliminating safety concerns related to deteriorating equipment.<br>• Upgrading feeder infrastructure supports grid modernization initiatives reducing reliance on manual switching in the field, improving worker safety and reducing the likelihood of contact with aged or degraded assets.<br>• Standardized voltage designs support consistent application of modern protection and control schemes, which reduce exposure to arc flash hazards and unintended energization. |
| Financial Performance | • Voltage conversion sets the foundation for the long-term retirement of functionally obsolete equipment and non-standard infrastructure, which currently imposes a high-cost burden due to aging conditions and escalating maintenance requirements.<br>• While the full conversion of all 4.16 kV and 8.32 kV systems will not be completed during this rate period, these investments are integral to address capacity constraints by beginning to phase in standard voltage levels and progressively reduce long-term cost pressures.<br>• Consolidating voltage levels over time simplifies inventory management, reduces the need to stock specialized components, and lowers warehousing and procurement costs across the organization.<br>• As legacy feeders are upgraded, improvements in operational efficiency such as reduced fault frequency and faster restoration times will translate to lower reactive maintenance costs and more predictable budget forecasting.<br>• Voltage conversion supports alignment with long-term asset management strategies, enabling more informed capital planning, improved lifecycle cost control, and prioritization of future investments that deliver sustained financial and operational value. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

The Voltage & System Conversion program is designed to modernize Elexicon's distribution network by transitioning from legacy 4.16 kV and 8.32 kV systems to standard 13.8 kV and 27.6 kV voltages. The primary driver of this program is capacity constraints, which will be further impacted by the planned decommissioning of aging 4.16 kV municipal stations that present reliability and safety challenges in Port Hope and Belleville. In North-West Pickering, capacity limitations are driven by continued residential and commercial growth on the non-standard 8.32 kV network supplied by the Green River Step-Transformer. Secondary drivers include reliability, failure risk, and safety, reflecting the need to replace aging infrastructure and standardize voltages to enhance system performance. Through this program, Elexicon aims to improve customer focus by ensuring consistent service quality, enhance operational efficiency by reducing outage risks.

**Table 5: Summary of Investment and Need**

| Investment Driver | Investment and Need |
|---|---|
| Capacity Constraints | • Elexicon will face capacity limitations following the planned decommissioning of aging 4.16 kV Municipal Stations such as Cavan South MS in Port Hope and Herchimer MS in Belleville, as these provide critical load transfer and contingency support.<br>• In North-West Pickering, capacity constraints already exist on the 8.32 kV network supplied by the Green River Step-Transformer, which is approaching its planning limits and cannot accommodate larger customer connections or future electrification needs.<br>• Converting to 13.8 kV and 27.6 kV enables additional load to be served, supporting community growth and new customer connections.<br>• Voltage conversion unlocks available capacity on standard-voltage feeders and ensures alignment with upstream transformer station capabilities.<br>• Initiating this work now is essential to relieve pressure on constrained areas. |
| Reliability | • Upgraded systems provide greater load transfer flexibility during outages, minimizing customer impacts.<br>• Conversion supports better voltage regulation and stability, supporting reduction of the frequency and severity of service interruptions.<br>• Enhanced redundancy and system reconfiguration options contribute to more resilient operations.<br>• Standard voltage feeders allow for improved fault isolation, automated switching, and better integration with modern grid technologies. |
| Failure Risk | • The program reduces reliance on deteriorated and aged feeders and components that pose operational risks and require intensive maintenance.<br>• Many assets on the 4.16 kV and 8.32 kV systems are near or beyond their useful service lives, and while age alone is not the sole driver, it remains a contributing factor that increases the probability of failure alongside overall asset condition. |

| Investment Driver | Investment and Need |
|---|---|
| | • Voltage conversion allows Elexicon to systematically decommission aging infrastructure before failures occur.<br>• Transitioning to modern, standard-voltage infrastructure lowers the likelihood of unplanned outages due to equipment breakdowns. |
| Safety | • Aged and deteriorated components, particularly at substations like Herchimer MS and Cavan South MS, pose increased safety risks to field crews and the public.<br>• Decommissioning these assets mitigates hazards associated with legacy switchgear, insulation, and protective devices.<br>• Standardized systems support safer operating practices, and improved compliance with current design standards.<br>• Reducing manual switching and exposure to high-risk infrastructure supports a safer working environment for utility staff. |

## 3.2 Capacity Constraints

The Belleville, Port Hope, and North-West Pickering service areas are experiencing increasing capacity constraints due to customer growth, aging infrastructure, and reliance on non-standard lower-voltage distribution networks.

### 3.2.1 Port Hope

Capacity limitations are the primary driver of the Voltage & System Conversion Program in Port Hope. The Port Hope area is served by four 4.16 kV substations: Cavan South MS, Cavan North MS, Peacock MS, and Howard Walker MS and two 27.6 kV substations: James D. Collins MS and Shuter MS. Due to technical and equipment limitations, customer connections on the 4.16 kV system are limited to a maximum of 300 kVA per service. This limitation makes it difficult to accommodate larger commercial and industrial customers, whereas the 27.6 kV system can support loads of up to 3,000 kVA.

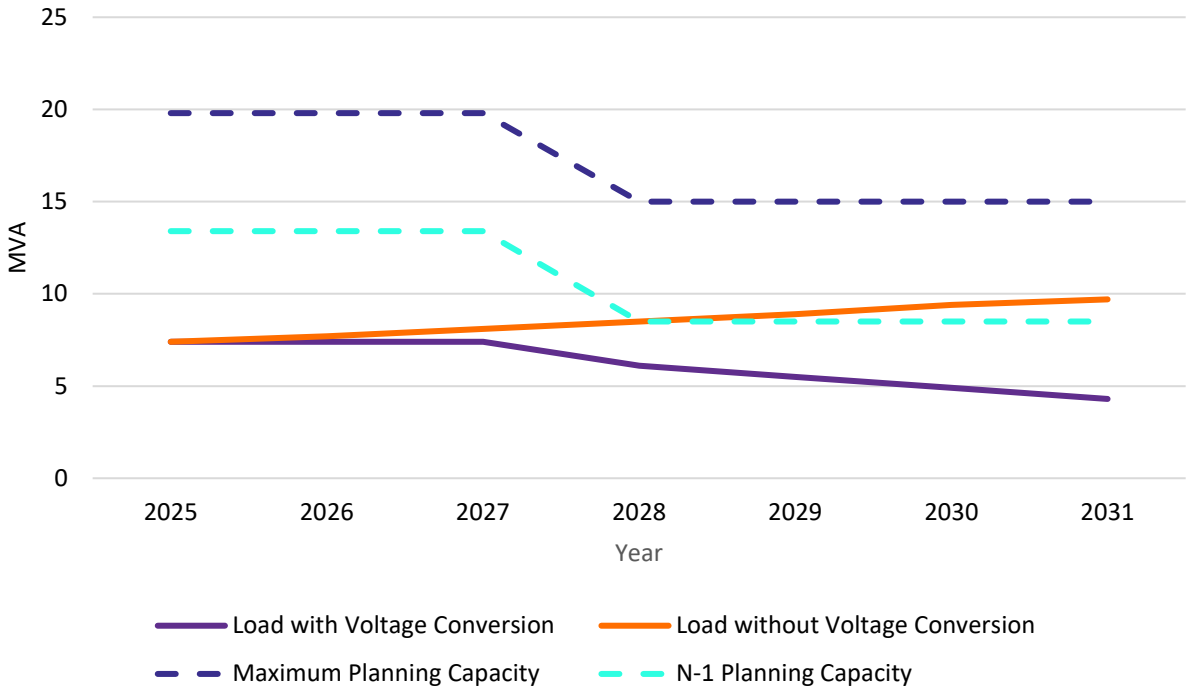
Cavan South MS is planned for decommissioning in 2028 due to its age and deteriorating condition, which present ongoing reliability and safety risks (Refer to Substation Renewal Program in Exhibit 2B - Tab 4 -

Schedule 3 - Appendix E for additional details). Despite its condition, the substation continues to play a critical role in supporting N-1 contingency scenarios and providing redundancy to neighbouring stations during both planned and unplanned outages, thereby ensuring system reliability. Voltage conversion will enable the transfer of customers from the 4.16 kV system to the 27.6 kV system, facilitating the decommissioning of Cavan South MS while maintaining reliability and redundancy across the system.

The new planned Port Hope 27.6 kV MS will provide the necessary capacity to offload the 4.16 kV network and accommodate future load growth. Once commissioned, it will enable the transfer of load from 4.16 kV network, maintaining reliability and system redundancy across the service area.

Figure 5 illustrates the forecasted 4.16 kV system loading with and without voltage & system conversion, compared against the maximum planning and N-1 planning capacities over the 2025–2031 period. A distinct capacity step change in 2028 corresponds to the planned decommissioning of Cavan South MS, resulting in reduced capacity on the 4.16 kV system and limits the ability to accommodate additional load. Without voltage & system conversion, the projected load is expected to exceed the N-1 planning capacity following this decommissioning, eliminating system redundancy and increasing the risk of service interruptions during contingencies. In contrast, with voltage & system conversion, load is transferred from the 4.16 kV to the 27.6 kV system once the new station is commissioned, maintaining the system within both maximum and N-1 capacity thresholds. This not only restores operational flexibility and redundancy but also enables the connection of future customer growth in the region.

**Figure 5: Port Hope 4.16 kV System Load and Capacity Forecast (2025 – 2031)**




To address these challenges, a new Port Hope 27.6 kV MS is scheduled to come into service in 2029 under Elexicon's Substation Growth Program (Exhibit 2B - Tab 4 - Schedule 3 - Appendix I). While the station investment itself is not part of the Voltage & System Conversion Program, it will provide capacity to allow for voltage & system conversion of the 4.16 kV system. Once commissioned, the new station will provide the additional capacity required to initiate the phased conversion of 4.16 kV feeders, beginning with Cavan South MS and Howard Walker MS feeders. The added capacity will relieve loading pressures and allow for greater operational flexibility, positioning the network to accommodate future load growth more effectively. Additionally, the increasing demand driven by electrification initiatives, such as electric vehicle (EV) charging infrastructure, cannot be reliably supported by the aging 4.16 kV system. Once the new Port Hope 27.6 kV MS is energized, it will create the transfer capability to continue the broader 4.16 kV to 27.6 kV conversion program.

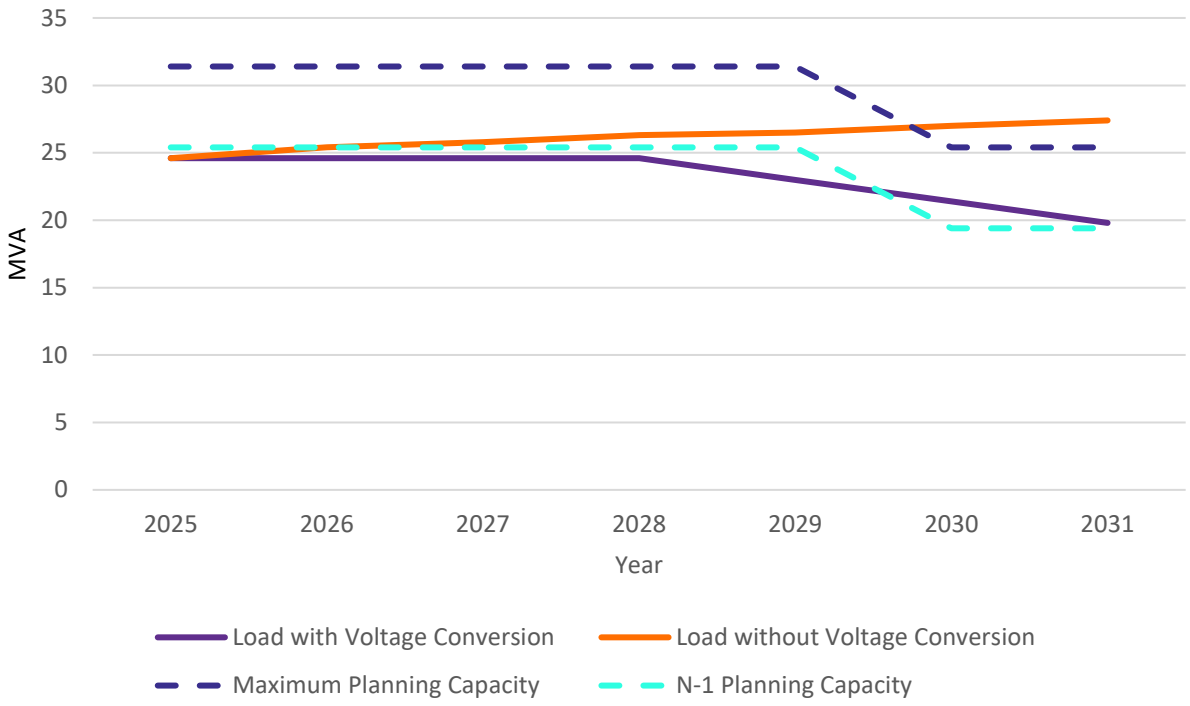
### 3.2.2 Belleville

Belleville currently contains six 4.16 kV substations which have limited capacity and are supported by an aging distribution network. These substations are unable to support continued growth, particularly in the southeast quadrant of Belleville. As new customers are added and energy demand increases, the limitations of the 4.16 kV infrastructure are becoming increasingly pronounced. To address these constraints, Elexicon is advancing a voltage & system conversion strategy focused on transitioning legacy feeders to 13.8 kV.

A foundational element of this transition is the planned Foster MS, a new 13.8 kV municipal station scheduled to brought into service in 2029 under the Substation Growth Program (see Exhibit 2B - Tab 4 - Schedule 3 - Appendix I). Once energized, Foster MS will provide the capacity required to transfer load from constrained substations such as Herchimer MS, which is planned for retirement due to its deteriorated condition. This coordinated approach ensures that voltage & system conversion can proceed in tandem with new station capacity, modernizing assets while providing the flexibility needed to manage future growth.

Figure 6 illustrates the forecasted 4.16 kV system loading for Belleville, comparing load with and without voltage & system conversion against the system's maximum and N-1 planning capacities over the 2025–2031 period. A distinct step change in 2030 corresponds to the planned decommissioning of Herchimer MS, which results in a significant reduction in available capacity across the 4.16 kV network. The system load is currently approaching the N-1 planning capacity and is forecasted to exceed both the N-1 and maximum planning capacity thresholds by 2030 following the decommissioning of Herchimer MS. In contrast, with voltage & system conversion, load is progressively transferred from the 4.16 kV system to the new 13.8 kV system supplied by Foster MS, maintaining system loading within both maximum and N-1 capacity thresholds. This coordinated transition restores operational redundancy and ensures sufficient capacity to accommodate future customer connections. This reinforces the urgency of expanding capacity to accommodate electrification initiatives such as EV charging and distributed energy resources (DERs), while also supporting industrial and residential development.

**Figure 6: Belleville 4.16 kV System Load and Capacity Forecast (2025 – 2031)**




Collectively, the constrained 4.16 kV substations restrict Elexicon's ability to serve new large customers. Due to technical and equipment limitations, customer connections on the 4.16 kV system are limited to a maximum of 300 kVA per service, which restricts connection of high rise residential, industrial and commercial developments. By contrast, the planned 13.8 kV system allow connections of up to 1,500 kVA (supplied from MS >10 MVA), significantly enhancing load-serving capability and supporting Belleville's long-term growth.

Belleville's distribution system is experiencing capacity pressures across both voltage levels. On the 4.16 kV network, nearly half of the feeders (8 of 20) are already operating over their planning limits, with an additional 1 feeder nearing the threshold. This highlights significant localized constraints despite the system-wide peak remaining below the planning limit. On the 13.8 kV system, 4 of 9 feeders are also operating above their planning limits, underscoring that capacity pressures are not limited to legacy 4.16

kV infrastructure but are also present on the higher-voltage network. Taken together, these results demonstrate that Belleville faces widespread feeder-level capacity constraints across both voltage classes, reinforcing the need for timely capacity expansion and voltage & system conversion to ensure reliable service and to support future growth.

### 3.2.3 Pickering (North-West)

In North-West Pickering, the distribution system continues to operate on a non-standard 8.32 kV network, supplied by Green River Step-Transformer. This system is not only limited in its capacity but also lacks the design compatibility required to integrate modern grid technologies. The area is experiencing steady residential and commercial growth, and the 8.32 kV feeders are increasingly unable to meet the corresponding increase in demand. This growth pressure is expected to accelerate with the implementation of the Northeast Pickering Secondary Plan, which will bring approximately 20,325 new residential units, 3,825 commercial units, and more than 11,000 jobs to the region[1]**.** Current loading shows that all feeders are operating at approximately 80% of capacity, with less than 500 kVA of available capacity remaining per feeder.

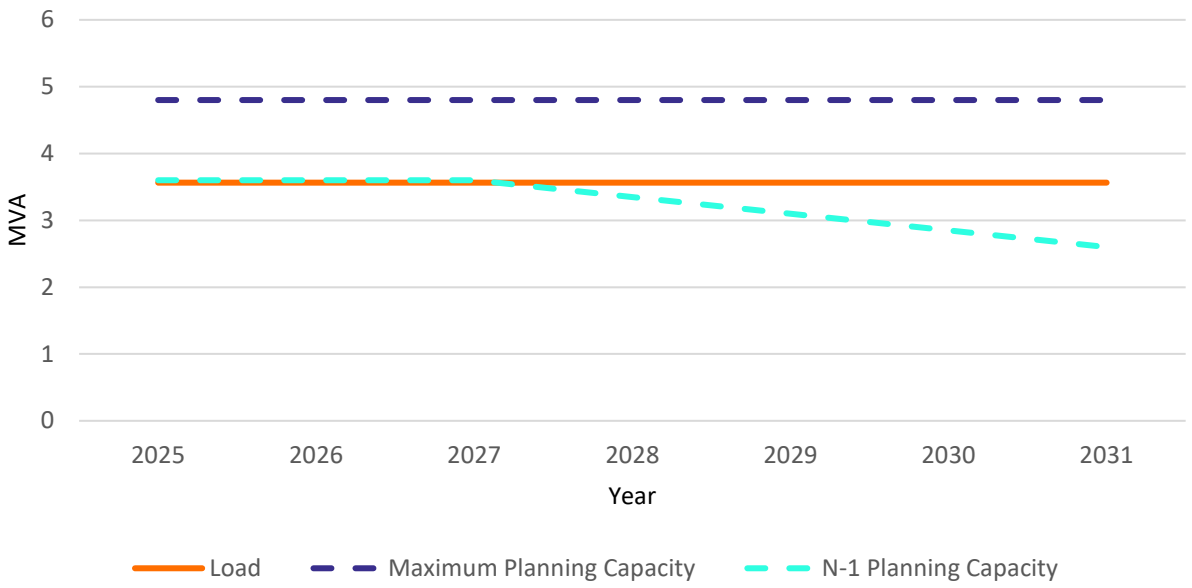
This leaves minimal capacity to serve new subdivisions or commercial projects. The constraints also restrict future electrification loads such as EV charging hubs, heat pump adoption, and electrified transit, which are expected to accompany this growth. The limitation is further compounded by the maximum transformer size of 500 kVA at 8.32 kV due to technical and equipment limitations, which restricts the ability to connect larger customers and developers compared to up to 3,000 kVA (utility owned transformer) at 27.6 kV. Discussions with the Northeast Pickering Landowners Group (NEPLG), which controls about 40% of the development area, have confirmed these growth expectations and highlight the urgency of ensuring sufficient capacity. To resolve these constraints, Elexicon plans to initiate a voltage & system conversion from 8.32 kV to 27.6 kV, enabling higher-capacity transformer installations, supporting

[1] City of Pickering, “Northeast Pickering Secondary Plan – Public Information Centre 1 Display Panels”, (May 25, 2023).

new customer connections with larger service size, and allowing for the eventual retirement of the aging Green River Step-Transformer once sufficient transfer capability is in place.

Figure 7 illustrates the forecasted loading of the 8.32 kV system in Pickering, compared against the system's maximum and N-1 planning capacities over the 2025–2031 period. The chart shows that the system is already operating near its N-1 planning capacity limit of 3.6 MVA. While forecasted load remains generally steady over the period, the N-1 capacity progressively declines. This condition effectively prevents Elexicon from connecting additional customers or supporting service upgrades within the area, constraining its ability to meet the Distribution System Code (DSC) requirements. Any new connection requests under current conditions would require costly system expansions from the 27.6 kV network, which are often economically unfeasible for some customers and developers. As a result, customers are either unable to proceed with their projects or must bear significant expansion costs, discouraging development and growth in the region. This reinforces the urgency of expanding capacity to accommodate electrification initiatives such as EV charging and distributed energy resources (DERs), while also supporting industrial and residential development.

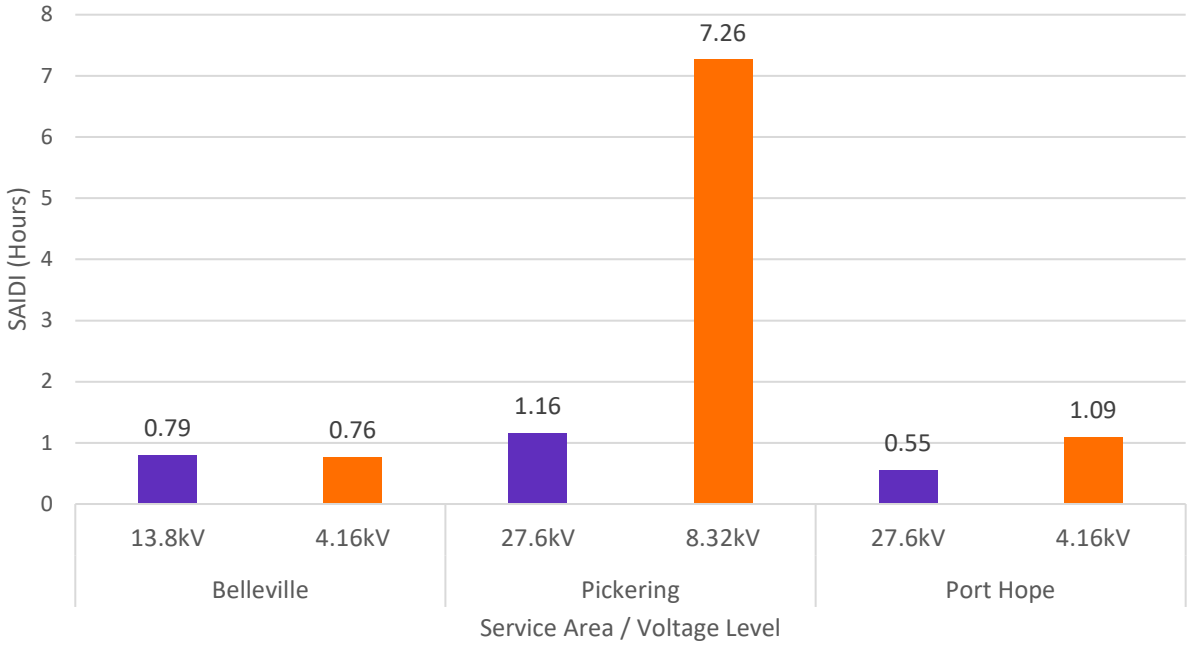
**Figure 7: North-West Pickering 8.32 kV System Load and Capacity Forecast (2025 – 2031)**



## 3.3 Reliability

Reliability performance is a key driver of voltage & system conversion across the most of Elexicon's service territory. As illustrated in Figure 8, analysis of the five-year average SAIDI values (2020 – 2024) of 13.8 kV and 27.6 kV systems compared to 4.16 kV and 8.32 kV systems in Belleville, Pickering and Port Hope.

**Figure 8: Average SAIDI by Voltage Class in Belleville, Pickering and Port Hope (2020 – 2024)**




In Port Hope, customers on the 4.16 kV system experience average outage durations approximately 2 times longer than those on the 27.6 kV network (1.09 hours vs. 0.55 hours). This disparity reflects poor reliability of 4.16 kV system due to aging infrastructure with limited redundancy resulting in longer restoration times when failures occur. The planned decommissioning of legacy 4.16 kV stations such as Cavan South MS, combined with the transfer of load to the 27.6 kV system, will address these reliability gaps and create a more resilient network capable of supporting growth and electrification.

In Pickering, customers supplied by the 8.32 kV feeders experience significantly higher outage durations (7.26 hours) compared to those on the 27.6 kV system (1.16 hours). These elevated SAIDI values reflect

limited capacity and redundancy, which restrict fault isolation, load transfer, and efficient restoration. The ongoing transition to 27.6 kV infrastructure will improve reliability, enhance system flexibility, and accommodate future residential and industrial development.

In contrast, reliability is not the primary driver in Belleville, where outage durations are relatively consistent between the 4.16 kV and 13.8 kV systems (0.76 hours vs. 0.79 hours) given the 4.16 kV network in Belleville has adequate redundancy and load transfer capability, supported by multiple stations and feeders similar to the 13.8 kV network. Instead, the focus in this area is on addressing feeder capacity constraints and advancing system standardization through continued voltage & system conversion.

These patterns reinforce the system's vulnerability and demonstrate the urgency of voltage & system conversion to ensure long-term service reliability, provide sufficient capacity, and enable the flexibility needed to support future electrification and growth.

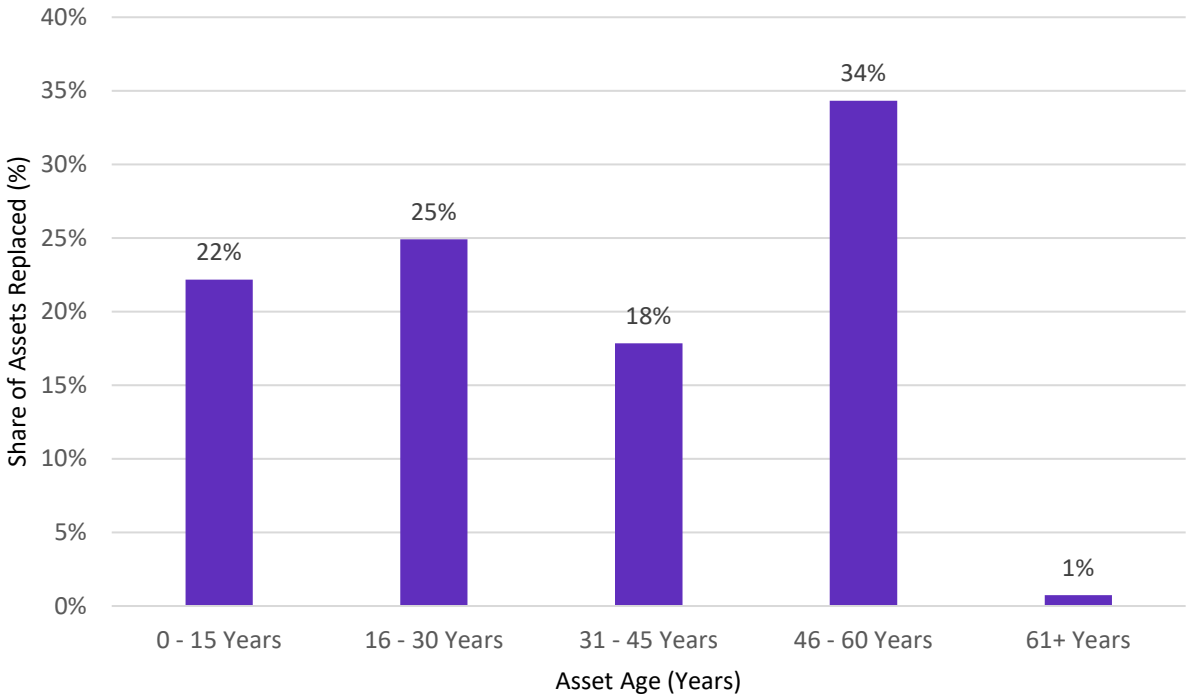
## 3.4 Failure Risk

Elexicon's distribution network contains a mix of 4.16 kV and higher voltage (27.6 kV, 13.8 kV) feeders, with varying asset conditions. Recent ACA (2025) evaluations reveal concerning trends, particularly for 4.16 kV infrastructure.

### 3.4.1 Port Hope

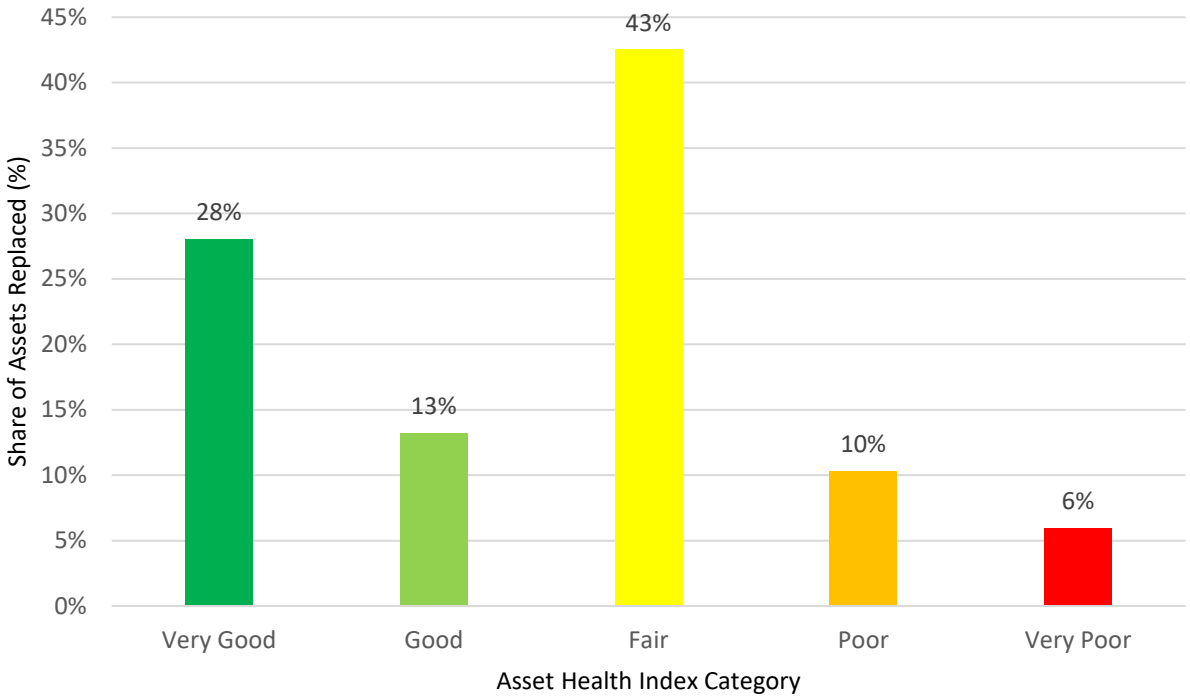
As demonstrated in Figure 9, approximately 34% of the distribution assets targeted for replacement through the Port Hope voltage & system conversion program fall within the 46+ year range, placing them at or beyond their typical useful life (TUL). This includes a significant quantity of poles, switches, transformers, and underground cables.

**Figure 9: Age Distribution – Port Hope Voltage & System Conversion Program**




Asset Health Index results provide further evidence of deterioration within the area targeted for conversion in Port Hope. As illustrated in Figure 10, approximately 17% of the assets are classified as Poor or Very Poor, with an additional 42% rated Fair and expected to deteriorate further over the forecast period. Without intervention, asset condition will continue to decline, reinforcing the need for timely investment through the Voltage & System Conversion Program.

**Figure 10: Health Index – Port Hope Voltage & System Conversion Program**

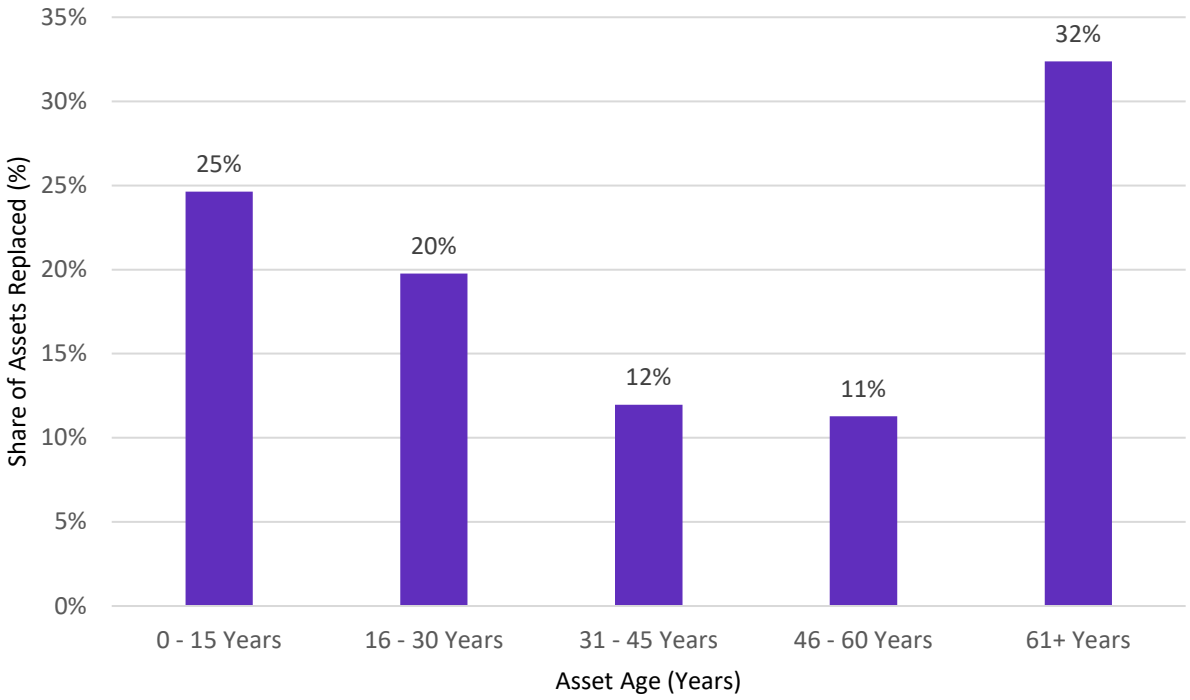



Overall, the results shown in Figure 9 and Figure 10 confirm that targeted voltage & system conversion in Port Hope will not only address the capacity and reliability concerns discussed in Section 3.2 and 3.3 but also as an added benefit will support system resiliency by mitigating failure risks from aging and deteriorated assets to sustain long-term system reliability.

### 3.4.2 Belleville

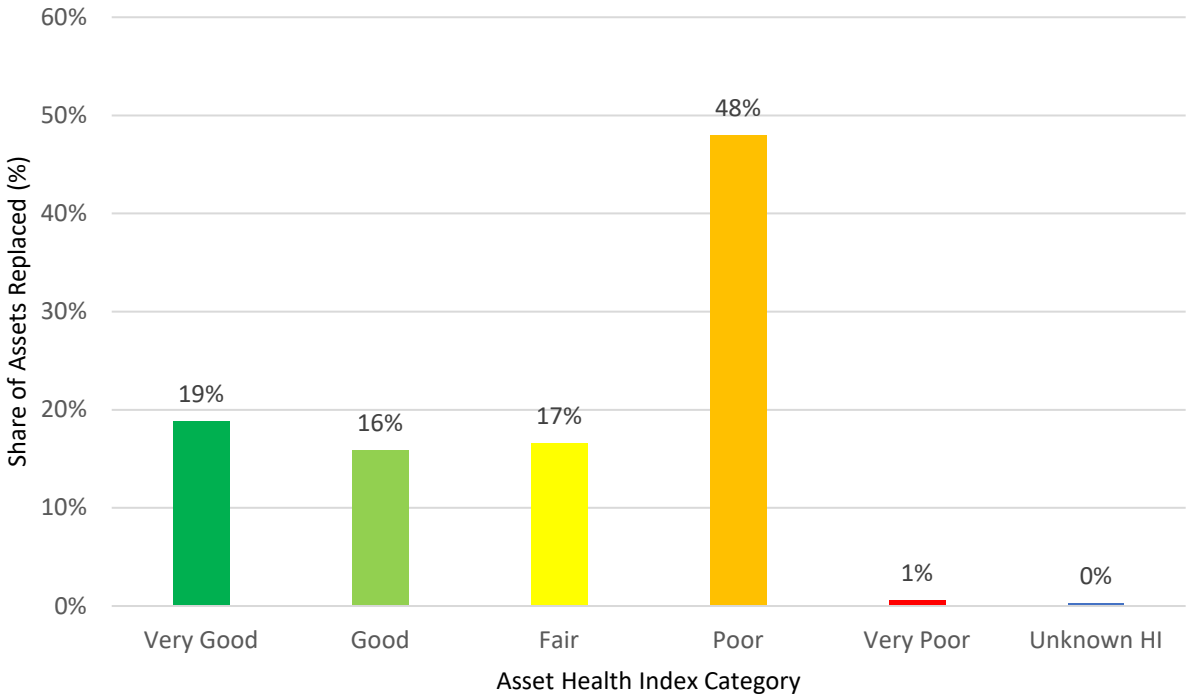
As illustrated in Figure 11, over 44% of the assessed assets are 46+ year range, placing them at or beyond their typical useful life. This reinforces the need for targeted renewal through the Voltage & System Conversion Program. Assets include poles, transformers, switches and underground cables that will be targeted for replacement through the voltage & system conversion program.

**Figure 11: Age Distribution – Belleville**




Asset Health Index results provide further evidence of deterioration within the area targeted for voltage-conversion in Belleville. As illustrated in Figure 12, approximately 49% of the assets are classified as Poor or Very Poor condition, with an additional 17% rated Fair and expected to deteriorate further over the forecast period. Without intervention, asset condition will continue to decline, reinforcing the need for timely investment through the Voltage & System Conversion Program.

**Figure 12: Health Index – Belleville**




Taken together, the evidence from Figure 11 and Figure 12 completing the voltage & system conversion work in Belleville is also anticipated to support system resiliency by mitigating failure risk associated with aging and deterioration assets in this area.

## 3.5 Safety

Safety is a critical driver underpinning the need to transition Elexicon's distribution system away from legacy 4.16 kV and 8.32 kV infrastructure. Many of the substations operating at these lower voltages are supported by aged assets that no longer meet current engineering, safety, or operational standards. In several instances, these assets pose a direct risk to field personnel, third-party contractors, and members of the public due to deterioration, lack of modern protection devices, and limited automation.

Legacy substations such as Herchimer MS in Belleville and Cavan South MS in Port Hope exemplify this issue. These sites have been in service for several decades and contain outdated equipment that is difficult

to maintain and lacks compatibility with modern protection systems. In particular, aging switchgear and cable terminations increase the probability of arc flash incidents, contact hazards, and equipment failures under fault conditions. Many of these facilities also present accessibility challenges for safe maintenance or emergency response due to outdated layouts and spatial constraints. Refer to Substation Renewal (Exhibit 2B - Tab 4 - Schedule 3 - Appendix E) for further details on the decommissioning of Herchimer MS and Cavan South MS.

The Voltage & System Conversion Program supports safety improvements by enabling the phased decommissioning of high-risk substations. As customers are transferred to standardized 13.8 kV and 27.6 kV systems, the legacy assets that present the greatest safety concerns can be systematically retired. The new infrastructure adheres to current safety design standards, this allows for Elexicon for future standardisation and grid modernization initiatives including modern protection schemes, fault interrupting devices, and SCADA-enabled monitoring, all of which reduce the need for manual switching and field exposure.

## 4. INVESTMENT TIMING & PACING

### 4.1 Summary of Expenditures

**Table 6: Summary of Expenditures**

| | Actuals ($M) | | | | | Bridge($M) | | Forecast($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Years | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Port Hope | 0.67 | 0.95 | 0.04 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 2.51 | 2.33 | 1.99 |
| Belleville | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 5.07 | 2.98 | 1.60 | 1.11 |
| Pickering | 0 | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 | 3.07 | 1.59 | 0.89 | 0.46 |
| Other | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capital (Net) | 0.68 | 0.96 | 0.05 | 0.01 | 0.01 | 0 | 0 | 0 | 8.14 | 7.08 | 4.83 | 3.58 |

Table 6 summarizes the total investments associated with the Voltage & System Conversion program, including actual expenditures incurred during the historical period from 2020 to 2024, forecasted spending during the bridge period from 2025 to 2026, and the planned investments over the 2027 to 2031 rate period.

During the historical and bridge periods, Elexicon focused capital investments on essential system access, sustainment and renewal activities. As a result, limited Voltage & System Conversion program work was undertaken during that period.

Voltage & System Conversion activities are scheduled to commence in 2028 and will progress through 2031 and onwards into subsequent rate periods. Initial work will begin in the North-West Pickering service area where conversion work is proceeding independent of station investments of this area. Conversion efforts in Port Hope and Belleville will follow, aligned with the anticipated commissioning of the new 13.8 kV Foster MS and 27.6 kV Port Hope MS in 2029. This timing enables the transfer of load from legacy 4.16 kV and 8.32 kV feeders to 13.8 kV and 27.6 kV infrastructure, addressing both capacity and reliability concerns in those regions.

Although significant progress will be made during the 2027–2031 period, there will remain additional areas within Elexicon's service territory that continue to operate on legacy 4.16 kV and 8.32 kV infrastructure. Remaining Voltage & System Conversion work will be scheduled for future rate periods, aligning with substation readiness and allowing Elexicon to manage investment pacing and rate impacts.

## 4.2 Investment Pacing and Prioritization

The prioritization and pacing of expenditures for the Voltage & System Conversion program have been established through a structured and risk-informed planning process. The program's intent is to strategically transition Elexicon's legacy 4.16 kV and 8.32 kV feeders to standard 13.8 kV and 27.6 kV systems, beginning with the most constrained and highest-risk areas of the network. Prioritization is based on a combination of technical and operational criteria, including feeder capacity utilization, the condition and age of infrastructure, risk of failure, safety concerns, and redundancy limitations.

The program will be delivered in a phased manner, coordinated with substation growth and renewal planning, asset condition, and system capacity constraints. Early-stage work will occur in North-West Pickering, where the 8.32 kV system is heavily constrained, and no new substation infrastructure is required to begin transitioning to 27.6 kV. These initial activities will relieve immediate capacity and reliability pressures.

In Port Hope, the priority is to progress Voltage & System Conversion on the 4.16kV system and transfer these customers to the new 27.6 kV station to address capacity constraints and ensure a safe and reliable transition. Establishing the necessary transfer capability will also enable the eventual decommissioning of Cavan South MS. In Belleville, load forecasts and capacity constraints in the southeastern quadrant, where several 4.16 kV substations are nearing their thermal limits, supported prioritizing the conversion of customers from Herchimer MS and other nearby facilities to the 13.8 kV system once Foster MS is commissioned in 2029.

The Voltage & System Conversion program is strategically paced to align with other investment programs, the availability of upstream capacity and resources, and the need to manage rate impacts while also addressing immediate risks across the distribution network. Belleville and Port Hope are timed to coincide with the energization of new 13.8 kV Foster MS and 27.6 kV Port Hope MS stations in 2029 as these conversions require a new substation to provide capacity on the 13.8 kV and 27.6 kV systems. This sequencing ensures that customer loads can be transferred seamlessly to the standard-voltage system, and that Elexicon's investment proceeds in lockstep with supporting infrastructure availability.

By staging the program over several years, Elexicon intends to mitigate operational and financial risk while progressing toward its long-term objective of retiring the aging 4.16 kV and 8.32 kV systems.

## 4.3 Execution Approach

As part of program execution, Elexicon applies a coordinated and staged delivery approach to manage emerging risks associated with system & voltage conversion activities. This ensures that conversion projects are executed safely and in alignment with system constraints, including the following risk mitigations as summarized in Table 7.

**Table 7: Summary of Program Risks & Mitigation Methods**

| Risk | Mitigation Methods |
|---|---|
| **Resource Availability:** Need to ensure that sufficient specialized labour, contractor capacity, and material availability are in place to deliver the program on time and within budget. | • Elexicon will leverage a combination of internal crews and qualified external MSA contractors to balance workload and ensure timely delivery.<br>• Long-lead materials will be procured in advance, supported by framework agreements with suppliers to secure availability. |
| **Project Delivery Constraints:** Some conversion work must be planned around system limits, weather impacts, and peak loading periods to avoid risks to reliability. | • New feeders will be constructed and energized ahead of customer transfers, allowing for short, scheduled outages.<br>• Wherever feasible, live-line work methods will be employed to minimize customer disruption.<br>• Conversion work will be restricted during summer peak periods, and feeder outages will be carefully staggered. |
| **Project Quality:** Ensuring that execution aligns with program intent and that system risk is appropriately mitigated as a result of conversion activities | • It will confirm that design, permitting, and materials are in place prior to starting construction.<br>• Delivery performance will be monitored through centralized oversight and post-execution reviews. |
| **Project Scheduling:** Projects must be executed on time and in accordance with system constraints and customer outage windows. | • Outage scheduling will be coordinated across Engineering, Supply Chain, and Project Delivery teams.<br>• Delivery performance is tracked through regular reviews to ensure timely completion.<br>• Program priorities will be reassessed annually through the capital planning cycle to respond to system needs and emerging risks. |
| **Cost Variance**: Potential risk if materials, resources, or scheduling issues cause delays that impact budget. | • The Program Delivery Group will govern the program through centralized oversight, performance tracking, and regular progress reviews. |

This staged and controlled execution strategy ensures that the program delivers measurable system improvements while remaining aligned with operational constraints and customer expectations.

## 5. OPTIONS ANALYSIS

An integral component as part of Elexicon' s AM Planning Process (Exhibit 2 – Tab 3 - Schedule 1) is to assess the prudency of each investment program through the consideration of various investment options. Elexicon evaluated three investments options as part of their assessment of the Voltage & System Conversion program, including Needs-Based, Balanced and Low investment options. These investment options also considered the customer engagement results and preferences to balance rates with investment outcomes.

**Balanced Investment Option ($23.64M) – Recommended**

The Balanced pacing option represents a moderate investment strategy that maintains steady progress on the Voltage & System Conversion program while managing customer affordability. Under this approach, work is sequenced to advance conversions in Belleville, Port Hope, and North-West Pickering, aligning with upstream substation readiness.

The balanced strategy delivers measurable improvements to reliability and safety while ensuring investment pacing remains sustainable and achievable. Major milestones include:

- Beginning conversion activities in North-West Pickering in 2028, where no new substation infrastructure is required;
- Advancing phased conversions in Port Hope and Belleville following the commissioning of new 27.6 kV Port Hope MS and 13.8 kV Foster MS stations in 2029; and

Although less proactive than the needs-based option, this approach achieves a prudent balance between cost and benefit, providing a sustainable pathway to complete voltage & system conversions over multiple DSP periods, commencing with the projects that address the most severe capacity constraints, reliability issues, and safety risks.

Table 8 and Table 9 summarizes the key outcomes of the balanced (recommended) option, highlighting the number of poor and very poor condition assets replaced through voltage & system conversion and the corresponding load transferred (MVA) to higher-voltage systems. Under this pacing strategy,

approximately 223 poor and very poor of Distribution assets are replaced, resulting in a combined 8.8 MVA of load transitioned to higher-voltage levels.

**Table 8: Distribution Assets Replaced in Poor or Very Poor Condition- Balanced Investment Option**

| Distribution Assets Replaced in Poor or Very Poor Condition | Port Hope | Belleville | Pickering |
|---|---|---|---|
| UG Conductor (km) | 8.21 | 0.48 | 0.5 |
| Poles | 14 | 159 | -- |
| Pole-Mounted Transformers | -- | 38 | -- |
| Pad-Mounted Transformers | -- | -- | 1 |
| OH Switches | -- | 1 | -- |
| Vault Transformers | -- | 1 | -- |

**Table 9: Load Transferred from Legacy Voltages – Balanced Investment Option**

| | Port Hope (4.16 kV) | Belleville (4.16 kV) | Pickering (8.32 kV) |
|---|---|---|---|
| Load Transferred from Legacy Voltages (MVA) | 3.1 | 4.8 | 0.9 |

**Needs-Based Investment Option ($28.81M)**

The needs-based pacing option represents an accelerated investment strategy designed to rapidly convert legacy 4.16 kV and 8.32 kV feeders to modern 13.8 kV and 27.6 kV standards. Under this approach, a greater share of conversions would be completed within the current DSP planning period, including planned work at Port Hope, Belleville, and Northwest Pickering, along with additional upgrades at Edgehill MS in Belleville. By advancing more areas at once, this option expands the system's ability to serve larger customer loads and support future electrification beyond what is achieved under other pacing strategies.

As shown in Table 10 and Table 11, this approach enables the replacement of approximately 258 Distribution assets in poor or very poor condition across Port Hope, Belleville, and North-West Pickering, and transferring about 9.4MVA of load to higher-voltage levels. In Belleville, this option includes four additional feeder phases, allowing for a more comprehensive conversion of the remaining 4.16 kV network.

**Table 10: Distribution Assets Replaced in Poor or Very Poor Condition - Needs-Based Investment Option**

| Distribution Assets Replaced in Poor or Very Poor Condition | Port Hope | Belleville | Pickering |
|---|---|---|---|
| UG Conductor (km) | 8.21 | 1.25 | 0.50 |
| Poles | 14 | 184 | -- |
| Pole-Mounted Transformers | -- | 38 | -- |
| Pad-Mounted Transformers | -- | -- | 1 |
| OH Switches | -- | 1 | -- |
| Vault Transformers | -- | 7 | -- |

**Table 11: Load Transferred from Legacy Voltages - Needs-Based Investment Option**

| | Port Hope (4.16 kV) | Belleville (4.16 kV) | Pickering (8.32 kV) |
|---|---|---|---|
| Load Transferred from Legacy Voltages (MVA) | 3.1 | 5.4 | 0.9 |

**Low Investment Option ($21.07M)**

The "low" pacing option emphasizes minimizing short-term costs and rate impacts, resulting in slower progress on the Voltage and System Conversion program. This approach would focus only on the most critical feeder conversions, leaving large portions of the 4.16 kV and 8.32 kV system in service throughout the planning period. Under this option, investment would be restricted to Belleville and Port Hope, where system capacity requirements cannot be deferred without risking connection limitations. Removing Pickering North-West would delay fixing the existing 8.32 kV system constraints, leaving the area unable to handle new customer connections or service upgrades without costly system expansions. While this option limits near-term expenditures, it delays the benefits of support reliability, capacity, and safety. Continued reliance on low-voltage infrastructure with limited capacity would restrict system flexibility and increase the risk of service interruptions during peak demand load.

As shown in Table 12 and Table 13, limited investment under this option includes replacing approximately 222 of Distribution assets in poor or very poor condition across Port Hope and Belleville, along with transferring a total of 7.9 MVA of load to higher-voltage systems.

**Table 12: Distribution Assets Replaced in Poor or Very Poor Condition - Low Investment Option**

| Distribution Assets Replaced in Poor or Very Poor Condition | Port Hope | Belleville |
|---|---|---|
| UG Conductor (km) | 8.21 | 0.48 |
| Poles | 14 | 159 |
| Pole-Mounted Transformers | -- | 38 |
| Pad-Mounted Transformers | -- | -- |
| OH Switches | -- | 1 |
| Vault Transformers | -- | 1 |

**Table 13: Load Transferred from Legacy Voltages - Low Investment Option**

| | Port Hope (4.16 kV) | Belleville (4.16 kV) |
|---|---|---|
| Load Transferred from Legacy Voltages (MVA) | 3.1 | 4.8 |

# P1 FACILITIES

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost ($M): $9.02M | 2025-2026 Cost ($M): $0.71M | 2027-2031 Cost ($M): $14.77M |
| Primary Drivers: System Maintenance and Capital Investment Support | | |
| Secondary Drivers: Safety and Failure Risk | | |
| Outcomes: Operational Effectiveness – Reliability, Operational Effectiveness – Safety, Financial Performance | | |
| Segments: Storage and Warehouse, Office Renovations, Condition Driven Investments | | |

This program pertains to the investments required to ensure Elexicon has sufficient and functional:

- workspace and parking for staff members,
- warehousing and materials storage,
- vehicle storage.

This program also includes the condition-based investments required to maintain the value and operationality of these non-system physical plant assets.

Facilities investments include capital repairs, replacements, and refurbishment, as well as optimization, of existing offices/operation centres and other non-system physical plant such as furniture, back-up generators, and HVAC systems. Facilities investments are crucial for maintaining and providing a safe, healthy, and productive workplace, and for the security of materials, equipment and vehicles. The primary objectives of these investments are to maintain the infrastructure that supports all of Elexicon's operations by repairing, replacing, or refurbishing assets in fair or poor condition, and/or that are not fit for purpose.

To determine the level of investment required, Elexicon retained the real estate advisory firm Cresa in 2024 to review Elexicon's assets in the context of Elexicon's current and future facilities requirements as they pertain to workforce and warehousing/storage, and to provide cost-effective options for addressing both current and future facilities challenges. Through Cresa, Elexicon engaged the engineering firm Brown and Beattie Ltd. to study the conditions of Elexicon's building portfolio and identify the repairs and actions needed to maintain these assets in a sound and serviceable condition.

Elexicon's portfolio consists of 7 locations, summarized as follows. Detailed descriptions of each facility together with an overview of the applicable Municipalities are included in Appendix L-1 of the report by Cresa Toronto Inc.

Figure 1 shows the 7 locations, primary function, current number of employees typically located at the site, size and acreage:

**Figure 1: Elexicon's Portfolio[1]**

| Address | Function | Approx. Staff | Year Built (Est.) | Building Size[1] | Acreage |
|---|---|---|---|---|---|
| 55 Taunton Road East<br>Ajax | Head Office &<br>Operations Centre | Office: 204<br>Other: 23 | 1991 / 2010 | 36,460 SF Office<br>22,078 SF Garage<br>3,174 SF Warehouse<br>**61,712 SF Total** | 9.97 Acres |
| 100 Taunton Road East<br>Whitby | Office and Operations<br>Centre | Office: 29<br>Other: 33 | 1992 | 27,282.2 SF Office<br>21,174.3 SF Garage<br>7,350.0 SF Warehouse<br>**55,805.5 SF Total** | 7.28 Acres |
| 1885 Clements Road, Unit 275<br>Pickering | [redacted] | N/A | N/A | 1,254 SF | N/A |
| 2489 Highway #2<br>Bowmanville[2] | Office and Operations<br>Centre | Operations: 7<br>Substations: 9 | 1985 | 7,268 SF Office/Garage<br>6,832 SF Warehouse<br>1,200 SF Outdoor Storage | 2.78 Acres |
| 412 Coleman Street<br>Belleville | Office and Operations<br>Centre | Operations: 7<br>Metering: 2<br>Asst. Mgmt. 2 | 2021 | 16,027 SF Office/Garage<br>1,200 SF Outdoor Storage | 3.429 Acres |
| 1395 Torah Concession 6<br>Beaverton | Operations Centre with<br>Office Component | Operations: 5 | 2001 | 3,000 SF Garage<br>1,500 SF Office<br>1,100 SF Outdoor Storage | 2.06 Acres |
| 195 Progress Drive<br>Gravenhurst | Operations Centre with<br>Office Component | Operations: 5 | 1994 | 4,500 SF Garage/Shop<br>3,600 SF Office | 3.46 Acres |
| | **Total** | **326** | | | |

[1] Building areas provided by Elexicon
[2] Bowmanville includes relocation of 9 Substations staff

Elexicon is proposing to carry out facilities work under three investment categories, which are described in more detail in the Section 2:

- Storage and Warehouse
- Office Renovations, and

[1] Cresa Toronto Inc., Brokerage, "Cresa Report", (June 2025) - Exhibit 2B - Tab 4 - Schedule 3 - Appendix L-1

- Condition Driven Investments

## 2. INVESTMENT DESCRIPTION

The Facilities Program (the "Program") is integral to supporting Elexicon's 24/7 operations, and delivering the capital and maintenance investment plans to ensure Elexicon continues to operate a safe and reliable system. This Program is split into three categories:

- Storage and Warehouse (Section 2.1)
- Office Renovations (Section 2.2)
- Condition Driven Investments (Section 2.3)

### 2.1 Storage and Warehouse – Whitby ($1.64M)

Elexicon is projecting a significant increase in the capital programs across the investment portfolios over the 2027-2031 period. This will result in a need for increased warehouse and outside storage space, to accommodate an increase in housed materials. For the sake of the Cresa study, Elexicon used an estimate of a 50% increase in materials (transformers, wire reels, etc.) plus approximately 60% increase in pole renewals. Elexicon also factored in additional space required for fleet additions as part of the Whitby yard.

Operationally, [Redacted]. The Ajax facility provides approximately 3,200 SF of low-height (20' clear) warehouse and approximately 3-4 acres of outside storage. Currently at Ajax both the warehouse and exterior yard at are capacity, and there is no feasible solution to expand these. Therefore, Elexicon will redesign the storage yard to utilize more of its space for future needs.

Elexicon has estimated the need for approximately 16,000 square feet of warehouse space (32' clear height) plus 4-5 acres of outside storage for the 2027-2031 period to support the operations and capital investments.

Elexicon worked with Cresa to assess the options available. To meet the utility's needs, Elexicon is planning to reconfigure and update the current storage area at the Whitby location.

The Whitby facility includes approximately 7,300 SF of low-height (20' clear) warehouse and 3.8 acres of outside storage. While the warehouse is at capacity, the exterior yard is underutilized and can be reconfigured to accommodate additional inventory. In 2027, the following investments will be made:

- Installation of covered storage for 15 large trucks (bucket trucks, RBDs etc). This will house both existing trucks as well the one additional new truck that is being purchased for new Whitby staff.
- Install 3-high racks for [Redacted] to increase capacity (approx. 6,480 SF of storage; 2,160 SF racking footprint + circulation)
- Increase space along west property line for pole storage.
- Creation of a designated area along north property line for [Redacted] (approx. 5,000 SF)
- Creation of a staging area (approx. 5,000 SF) plus area for seacan storage and waste bins

The following images show this storage option and layout of the Whitby yard:

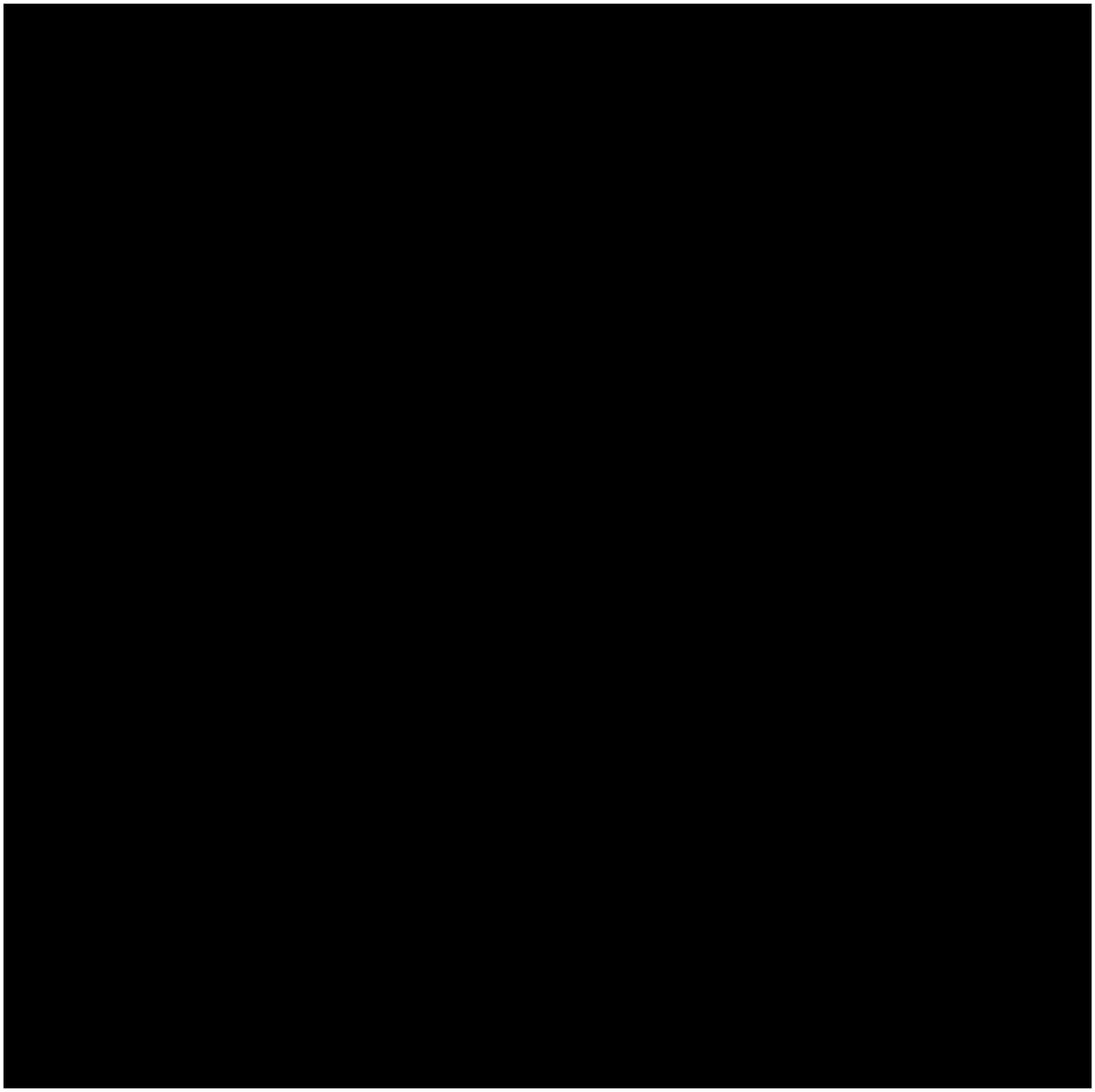
**Figure 2: Images of the covered parking and 3-rack storage solution.**





Figure 3 illustrates the layout of the Whitby yard and layout to maximize utilization.

**Figure 3: Layout of Whitby Yard**



To derive the estimated costs of the storage and warehouse investments, Elexicon used Cresa's estimate of $1.52M (see page 48 of the report), and escalated this by inflation and typical capital overheads to arrive at $1.64 M).

## 2.2 Office Renovations & Parking ($6.87M)

### 2.2.1 Office Space & Workstations

Over the historic period, Elexicon identified capacity issues pertaining to work stations for the "inside" staff (e.g., primarily office-based as opposed to "outside" staff who tend to the system assets and attend customer sites). As Elexicon's capital programs and workforce continue to grow, the office and warehouse spaces need to be designed and configured to ensure all employees have a safe and efficient environment to work in, and that there is sufficient storage space for materials warehousing, vehicles, and equipment.

Elexicon workforce is projected to add an additional 63 FTE from 2026-2031 (Exhibit 4 - Tab 2 - Schedule 1), with 58 of these located at the Ajax and Whitby offices. Elexicon's 'inside' staff are located primarily at the Ajax office (55 Taunton), which is already at capacity for workstations and parking on days where all staff assigned to Ajax must attend the worksite. One major issue that this investment program is intended to alleviate is the workstation and parking capacity issues that will persist if Elexicon does not make the appropriate investments to ensure sufficient and functional workspace.

Elexicon currently operates with a hybrid work model, wherein staff attend the office for a minimum of two-days a week, and the days are determined by operational requirements aligned to the needs of the business units. Although in-office days can be staggered to manage existing capacity constraints, effective and productive work interactions often require multiple business units in-office on the same day. This permits cross-functional meetings and interactions across multiple business units, and allows senior leadership to engage across the business. Elexicon deliberately retained flexibility in the hybrid policy so as to accommodate work requirements, and maintain the ability to permit more in-office days as needed.

In authoring its report, Cresa assessed the possibilities at both the Ajax and Whitby offices and found that the Whitby location is underutilized due to its current suboptimal configuration. The current configuration of the Whitby second floor only has closed door offices that have suboptimal layouts, and cannot house multi-member teams. Elexicon asked Cresa to consider what investments would be required to better utilize the entire Whitby location.

Options Analysis

After reviewing the work sites, and Elexicon's current and project workforce level, Cresa proposed a scenario based analysis to determine how best to optimize Elexicon's workstation availability. As noted at page 20 of the report, Cresa identified three scenarios:

- Option 1: "As Is" Hybrid Model" (no modifications to either site);
- Option 2: Same as option 1, but with the addition of workstations to Ajax, or
- Option 3: Renovate both Whitby and Ajax, with a major renovation on the second floor of the Whitby site to increase the number of workstations, and standardized work stations at both locations.

As noted, under Options 1 and 2 in Cresa's report (at page 20), Elexicon could 'manage' the existing office workspace by permanently staggering in-office days to ensure various teams do not overlap to the point where their physical presence cannot be accommodated. Although this option would preclude the need to renovate existing worksites, this option was found disruptive and detrimental to cross-unit collaboration, and restricts Elexicon's ability to adjust their hybrid policy in the future. Elexicon's leadership team sought an office configuration that supports collaborative and efficient operations, and reduces the 'siloing' that can happen across business units that cannot be collocated, limiting opportunities for interaction and supportive operations. By renovating Whitby, and standardizing workstations, Elexicon could maximize capacity, and retain flexibility in how it manages and assigns in-office work days. Option 3 also permits Elexicon to retain an operational model where staff have dedicated work stations, which was identified as essential for certain roles due to the nature of the work performed, or the information handled by the team/employee. Dedicated work stations also minimizes the requirement to add storage for personal effects that cannot be stored at a shared workstation. Furthermore, the current workforce of ~333 FTE is projected to increase to 395 by end of 2031, necessitating such investment to be made in near-term to accommodate the workforce as well as the objectives noted above.

Based on Cresa's analysis and the efficiency and productivity concerns noted above, Elexicon selected Option 3, and used Cresa's cost projections for this option to develop the forecast for this program.

Elexicon's investment will provide fully dedicated desks with standardized workstations throughout Ajax and Whitby to accommodate this future growth and will also renovate office areas as required.

Elexicon is planning a phased approach and will begin with some minor renovations at the Ajax office on 1st floor and introduce standardized workstations in 2027, then undertake a more in-depth renovation at the Whitby office in 2029. These projects will result in a sufficient number of fully dedicated desks with new standardized workstations and renovated office areas and will:

- Accommodate any potential future changes;
- Provide sufficient dedicated workstations for current and future employees;
- Introduce standardized workstations throughout Ajax and Whitby allowing teams and business units the flexibility to work from either location, as well as uniformity for employees;
- Provide sit/stand workstations throughout to improve ergonomic experience.

### 2.2.2 Parking

As identified in Cresa's report at page 35 of the report, there is insufficient parking at the Ajax office to accommodate the level of employees assigned to work at Ajax. On days where all teams are in attendance, there is a significant shortage.

Elexicon has considered changes to the parking requirements to address current constraints and accommodate the growth of employee. Currently, there is not enough parking for all employees assigned to Ajax, and the constraints are exacerbated when all teams are required to attend Ajax for Elexicon-wide meetings and events. When assessing the options, Elexicon found there to be limited cost-effective solutions to address these constraints and has opted to proceed with the lowest cost option.

Although the parking situation is expected to persist at both locations, through the renovation of the second floor of the Whitby office, and the retention of a flexible hybrid work model in the near term, Elexicon can facilitate sufficient workstations and parking capacity across both sites. By making investments in the Whitby space and allowing certain teams to work out of that office on a hybrid basis the parking situation at Ajax can be temporarily alleviated.

In light of the significant costs of constructing new parking facilities, Elexicon plans to keep existing parking at the Ajax location at current capacity (152 total, with 138 dedicated to employees). Elexicon will look to increase the capacity of parking at the Whitby location (currently 106 total, with 85 for dedicated employee spaces) by up to 48 additional parking spots. Elexicon is also exploring the possibility of increasing parking at existing grassed area on south side of building (approximately 36 spaces, subject to municipal approval) and/or entering into a sharing agreement with the local municipality to park excess vehicles at certain city-owned or controlled locations.

Elexicon derived the costs of the renovations at both locations (Ajax – $2.17M) and (Whitby – $4.01M), per Cresa's conclusions on page 47, and the estimated cost of minor parking adjustments (Whitby - $150K) and escalated these costs based on inflation and typical capital overheads to arrive at the forecast amount of $6.87M).

## 2.3 Building Condition Driven Investments ($6.26M)

Elexicon engaged Brown & Beattie Building Sciences to conduct Visual Building Condition Assessments of existing buildings in April 2025 (with the exception of Pickering and Belleville) in order to assess the physical and structural soundness of the buildings and develop order of magnitude budgets for capital repairs that may be required over a 10-year period. The asset condition assessment determines both a) the risks that may be present in respect of facilities assets and b) plans to mitigate these risks. Without sufficient funding to make these investments, Elexicon's facilities would be exposed to the risk of structural failures and significant hazards and/or damage, e.g. due to flooding or leaking. If these risks were to materialize, they would cause severe disruption to the utility's business activities and potentially prolonged outages.

A detailed table of all planned repairs is included below. See Tables 1-5.

The following subsections outline the investments Elexicon will carry out as recommended by the building condition assessment results for the 2027-2031 period. Considering funding constraints over the bridge years (2025 and 2026) Elexicon expects that the recommended repairs B&B identified in 2025 and 2026 will be deferred to 2027.

Options Analysis

The results of the building condition assessments recommended Elexicon undertake repairs and replacements to maintain the condition of facilities, as well as interior renovations for office interiors due to normal wear and tear. Elexicon sought feedback from Cresa in Appendix L-1 as to how to perceive these recommendations and Cresa identified the 'interior renovations' as discretionary. In light of Cresa's recommendations, and Elexicon's objective of maintaining a cost-effective facilities program, Elexicon opted to proceed with only the condition based investments, and did not allocation in this budget for office interiors due to normal wear and tear. The forecasted costs are limited to those viewed as essential to maintaining the sound and serviceable condition of the buildings impacted (see pages 49 and 50 of Appendix L-1).

Elexicon derived the estimated costs of the building condition investments by taking the amounts quoted by Cresa for the condition investments from 2025 to 2031 (approximately $5.62 M), per page 49 of Appendix L-1, and escalating this amount by inflation and typical capital overheads to arrive at $6.26M.

**Table 1: Ajax Planned Repairs**

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Roof Repairs | | • Replacement of roofing system within the original building's office area.<br>• Full replacement of all 8 skylights in conjunction with the roofing replacement. | | | |
| Walls | | | • Localized repair of metal and concrete panels.<br>• Sealant replacement in conjunction with localized wall repairs. | | |
| Windows and Doors | • Localized replacement of sealed units. | • [Redacted].<br>• Replacement of automatic door opener. | | | • Replacement of windows in the West Side Building. |

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Interior Finishes | | | • Replacement of corridor flooring, wall & ceiling finishes. | | • Refurbishment of exercise room. |
| Site Services | • Localized asphalt pavement repairs.<br>• Asphalt pavement replacement for rear lot. | • Replacement and repair of concrete walkway.<br>• Localized repairs of base of the Steel Quonset building to deal with rust. | • Localized landscaping and tree maintenance in areas around the building that have experienced erosion.<br>• [Redacted]. | | |
| Fire Safety | • Installation of a new nitrogen fire suppression system. | | • Suppression system – partial valve replacement and partial replacement of wet sprinkler piping. | • Generator Overhaul.<br>• Replacement of Fire alarm panel.<br>• Rewiring of fire alarm. | |
| Heating/Cooling | | | • Localized repairs of thermal ground source heating system. | | |
| Ventilation | | | • Overhaul of Fans.<br>• Partial replacement of A/C units. | | • Replacement of the CO system and sensors. |

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Supplemental Heaters | • Replacement of supplemental heaters. | | | | |
| Mechanical Distribution | • Replacement of the BAS to deal with compatibility issues. | | • HVAC Distribution piping and valves repairs. | | • Replacement of dual circulating pumps. |
| Site | | | • Localized repairs to storm and sanitary connections.<br>• Localized domestic water piping repairs. | | • Replacement of sump pumps and related pit area repairs. |
| Electrical Systems – Main Distribution | | | | • Replacement of electrical components, such as distribution panels.<br>• Replacement of uninterruptible power supply units (UPS). | |

**Table 2: Whitby Planned Repairs**

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Concrete Block Foundation Walls | • Install parging along exposed areas of foundation. | | | | |
| Roof Repairs | • Localized replacement of roof insulation due to water damage. | | | | |
| Walls | • Sealant replacement in conjunction with localizes wall repairs. | | • Localized repair of metal panels.<br>• Repair of masonry walls where spalling and cracks have been identified. | | |
| Automatic Door Openers | | | • Replacement of automatic door openers. | | |
| Interior Finishes | • Repairs due to leakage issues. | | | • Replacement of corridor flooring, wall & ceiling finishes. | • Replacement of garage and washbay loading dock mechanism and localised concrete repair. |

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| | | | | • Refurbishment of lobby, dry rooms, and cafeteria. | |
| Site Services | • Localized asphalt pavement repairs.<br>• Replacement of gate entrance.<br>• Replacement of inoperable tube heater. – Steel Quonset Outbuilding.<br>• Replacement of inoperable loading dock. | • Replacement and repair of concrete walkway<br>• [Redacted] of the Steel Quonset Outbuilding | • Localized landscaping and tree maintenance in areas around the building that have experienced erosion. | | |
| Fire Safety | • Replacement of fire alarm system. | | • Suppression system – partial valve replacement and partial replacement of wet sprinkler piping. | • Replacement of generator and transfer switch. | |
| Ventilation | • Partial replacement of garage rooftop units.<br>• Replacement of rooftop exhaust fans. | | • Partial replacement of A/C units. | | |

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| | • Replacement of the CO system and sensors. | | | | |
| Supplemental Heaters | • Replacement of supplemental heaters. | | | | |
| Site | • Replacement of hot water heater, which has active leaks. | | • Localized repairs to storm and sanitary connections<br>• Domestic water piping repairs. | | |
| Electrical Systems – Main Distribution | | | | • Replacement of electrical components, such as distribution panels.<br>• Replacement of uninterruptible power supply units (UPS). | |
| Electrical Systems – Lighting | • Replacement of all bollard light fixtures. | | | | |

**Table 3: Beaverton Planned Repairs**

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Garage Roof – Heat Tracing | • New Installation of Heat tracing that does not exist currently | | | | |
| Roof Eavestroughing | • Replacing of eavestroughs at both buildings due to current damage and increase maintenance requirements | | | | |
| Walls – Localized Wall Repairs | • Repair of localized damage to exterior walls. | | | | |
| Wall -Sealants | • Sealant replacement in conjunction with localizes wall repairs. | | | | |
| Overhead Doors | | | | • [Redacted] | |
| Wire Fencing | • [Redacted] | | | | |
| Steel Storage Shed | • Repair of the damaged block foundation of the storage shed | | | | |
| Landscaping – Tree Maintenance | | | • Localized landscaping and tree maintenance in areas around the building that have experienced erosion. | | |
| A/C Unit | • Replace of current unit due to current refrigerant systems. | | | | |

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Sanitary System | | | | • Repair of the pump and septic tank structure. | |
| Electrical System Allowance | | | | • Replacement of electrical components, such as distribution panels. | |

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**Table 4: Gravenhurst Planned Repairs**

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Roof Repairs | • New installation of heat tracing within the garage. | • Localized improvement to ventilation within the attic to minimize potential ice damming. | | | |
| Walls | | • Localized repair of walls near garage door. | | • Replacement of sealant in conjunction with the window replacement project. | |
| Windows and Doors | | | | • Replacement of windows. | |
| Interior Finishes | • Localized repairs to both shower areas following roof leak. | | | | |
| Site Finishes | | | • Localized landscaping and tree maintenance in areas around the building that have experienced erosion. | | |
| Site | | | | • Localized repairs to sump and septic structure. | |

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| | | | | • Localized repairs to domestic water supply. | |
| Electrical Systems – Main Distribution | | | | • Replacement of electrical components, such as distribution panels. | |

1

**Table 5: Bowmanville Planned Repairs**

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Structure | • Install parging along exposed area of foundation. | | | | |
| Roof Repairs | • Localized repairs of roof. | | | | |
| Walls | | | • Localized repairs of concrete block masonry. | | |
| Windows and Doors | | • Partial replacement of automatic door openers. | | | • Replacement of windows.<br>• Replacement of front entrance doors. |
| Site Finishes | • Localized asphalt pavement repairs. | • Localized repairs of steel Quonset building to deal with rust issues. | • Localized repairs of concrete unit paved walkways. | | |
| Fire Safety | | • Replace Fire Alarm System | | • Generator Overhaul | |
| Ventilation | • Replacement of gas-fired heaters. | | • Partial replacement of A/C units. | • Replacement of north unit heating and cooling system. | |

| Investment Description | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Supplemental heaters | • Localized replacement of supplemental heaters. | | | | |
| Plumbing | | | • Localized repairs to domestic water supply | | |
| Electrical Systems – Main Distribution | | | | • Replacement of electrical components, such as distribution panels.<br>• Replacement of uninterruptible power supply units (UPS). | |
| Electrical Systems – Lighting | | | | | • Replacement of site lighting. |
| Electrical Systems – Ancillary | | | | | • [Redacted] |

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## 2.4 Summary of Investment Outcomes and Benefits

**Table 6: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Operational Effectiveness – Safety & Reliability | Reliability<br>• It is vital that Elexicon staff have working, safe, and reliable facilities to manage their day-to day jobs. This includes ensuring crews have access to their equipment and vehicles as required and can respond to outages in a timely manner. Without sustained and proper investment in work sites, crew response times for outage incidents could be impacted.<br>Safety<br>• Ensuring compliance with applicable legislative and regulatory requirements, such as the Occupational Health and Safety Act, Ontario Regulation 851: Industrial Establishments, the Ontario Building Code and the Fire Code.<br>• Providing the utility's employees safe and functioning work centres by repairing deficiencies that may cause hazards.<br>• Addressing deficiencies identified through condition assessments will ensure employees continue to operate in safe environment. |
| Financial Performance | • Operational efficiency, and therefore financial performance is affected by facility investments made by Elexicon. Fleet and operations require facility investments into locker rooms, garages, and supplies. Any sub-optimal facilities prevent the operational efficiencies for outside workers.<br>• Facility investments into interior furniture also help inside workers more optimally approach and perform work. New facilities equipment such standardized workstations tend to be more efficient than legacy equipment, supporting the cost-effectiveness for Elexicon as an organization. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

Facilities investments are critical to Elexicon's 24/7 operations and the need for facilities that can accommodate staff and provide warehouses and storage yards that can store the materials and equipment required for system investments. Facilities investments are driven by: system maintenance and capital investment support as well as safety and failure risk. Table 7 below described the reasoning and investment benefits for each driver.

**Table 7: Investment Driver and Reasoning**

| Investment Driver | Risk of Inaction & Expected Results |
|---|---|
| System Maintenance & Capital Investment Support | • Elexicon will see a significant workforce increase over the next five years to ensure that they can deliver on the increase investment plans and continue to maintain a safe and reliable system. To accommodate the new workforce and the material and equipment needed to support the investment plans, Elexicon needs to invest in renovating the existing two main offices. Without renovating these office and storage yards, Elexicon will not be able to accommodate staff and materials, as these facilities are at capacity.<br>• Through the proposed facilities investments, Elexicon will be able to accommodate the current and future workforce, as well as house all the equipment and material required to maintain the system and deliver the proposed capital investment plan. |
| Safety and Failure Risk | • Elexicon has identified repairs needed to maintain sound and serviceable condition, preserving the value of the properties, and providing a safe and healthy workplace. If these assets are not replaced or refurbished and damage or deterioration impacts the usability of the facility, it may impact the ability of Elexicon staff to carry out their duties in a safe and efficient manner. Furthermore, damage and degradation could also pose safety risk to employees. Facilities investments can prevent incidents permit Elexicon staff to safely and reliably work within the facilities and deliver on the needs of customers. |

# 4. INVESTMENT TIMING & PACING

## 4.1 Summary of Expenditures

**Table 8: Summary of Expenditures**

| Year | Historical ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.79 | 0.83 | 5.36 | 1.37 | 0.67 | 0.21 | 0.50 | 5.17 | 1.98 | 5.42 | 1.41 | 0.79 |
| Total (Net) | 0.79 | 0.83 | 5.36 | 1.37 | 0.67 | 0.21 | 0.50 | 5.17 | 1.98 | 5.42 | 1.41 | 0.79 |

The investments for the forecast period (2027-2031) period are outlined in Section 2.1, 2.2, 2.3 of this narrative.

Elexicon is planning to spend an additional $5.75M in the 2027-2031 period compared to the 2020-2024 period. The forecasted increase is primarily due the projected costs associated with standardized workstations across Whitby and Ajax, and the cost of renovating the second floor of Whitby to greatly increase the availability of office spaces, the costs of addressing and improving building conditions, and the costs associated with enhancing storage. Elexicon's current facilities, which are critical in ensuring the staff can maintain and deliver the required services, are at or beyond capacity and require upgrades to accommodate this growth. To accommodate materials, tools, and vehicles required to execute a larger capital program, Elexicon needs to redesign the storage yard at the Whitby location. If the costs of the office renovations and storage yard were removed, the remaining investments, which are those needed to maintain facilities in sound and serviceable condition (and are recurring investments that make up most of the historical expenditures) the five-year investments would be at a similar level.

The historical, bridge, and forecasted budget can be split into the three investment categories:

**Table 9: Budget Breakdown by Category (2020-2031)**

| Year | Historical ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Storage and Warehouse | 0.08 | 0.05 | - | - | - | - | 0.05 | 1.64 | - | - | - | - |
| Office Renovations | 0.16 | 0.08 | 0.13 | 0.19 | 0.18 | 0.06 | 0.06 | 2.35 | - | 4.52 | - | - |
| Building Condition Investments | 0.55 | 0.70 | 5.23 | 1.18 | 0.49 | 0.15 | 0.39 | 1.18 | 1.98 | 0.90 | 1.41 | 0.79 |
| Total | 0.79 | 0.83 | 5.36 | 1.37 | 0.67 | 0.21 | 0.50 | 5.17 | 1.98 | 5.42 | 1.41 | 0.79 |

## 4.2 Investment Pacing and Prioritization

As previously mentioned, Elexicon commissioned Cresa to review the facilities portfolio and propose investments based on the current and future needs of Elexicon, as well as the investments needed as a result of building condition assessments.

Overall, Elexicon has relied on the recommendations of the expert reports to pace the building condition repairs. For the office and storage related investments, Elexicon has developed a plan to complete these in coordination with the workforce growth and capital work trajectory.

The following sections go into further detail on the investment and pacing for each investment category.

### 4.2.1 Storage and Warehouse

As Elexicon embarks on the 2027-2031 investment plan, it will be important to address the storage and warehouse needs early enough to be able to accommodate the additional materials, equipment and vehicles required to execute the work programs. Elexicon has decided to carry out the reconfiguration of the Whitby storage yard in 2027, to ensure that the necessary space is available to accommodate materials, fleet and equipment as the capital work programs grow.

### 4.2.2 Office Renovations

Elexicon is proposing to carry out the renovation investments into the Ajax and Whitby offices in two phases. Phase 1 will start with the Ajax Office, which will be provisioned with additional workstations and minor renovations in 2027. This will provide some space relief as Elexicon's workforce increases. In 2029,

the Whitby office renovations will be completed, along with the additional parking at this office. Elexicon decided not to do pursue the alteration or renovation to Ajax and Whitby simultaneously as that would limit accessibility of both spaces. Elexicon intended to ensure one office was fully functioning and available at all times.

#### 4.2.3 Building Condition Investments

The tables in Section 2.3 provide a snapshot, by year, of the capital investment projects that should be anticipated on an annual basis to maintain the buildings in sound and serviceable condition. The pacing of these investments has been aligns with the recommendation outlines in the building condition and Cresa report (Appendix L-1), with only the proposed 2025 and 2026 projects deferred until 2027. On average, Elexicon will invest $1.25M a year on building condition needs. The pacing typically follows the recommendations of Brown & Beattie.

## 4.3 Execution Approach

The Program is vulnerable to several risks that could affect the planning and timing of proposed investments, including:

- Delays in obtaining the necessary approvals and permits may delay the start or completion of projects. To mitigate against this risk, Elexicon will utilize subject matter experts to work with the necessary stakeholders to obtain approvals and permits in a timely manner where required. In addition, Elexicon will initiate the relevant processes as early as possible to ensure permits are issued for the project's scheduled execution timing and mitigate delays.
- The rising costs of material and labour are an ongoing issue in the post-COVID market. Supply chain disruptions have become an ongoing issue across many industries as well and have continued to pose a risk. Elexicon has close relationships with suppliers and will continue to engage them closely as the investment plans are executed.
- If an operational need has been identified by operational departments with regards to facilities capabilities, the facilities committee at Elexicon will evaluate the request and ensure Elexicon continue provide safe environments for staff to work in.

## 5. OPTIONS ANALYSIS

Options analysis was completed for the office space and parking investments, see Section 2.2 above.

For building condition investments, Elexicon relied on the recommendations of the building condition experts to determining the timing of the repairs or replacements, and Cresa's recommendations as to what investments were discretionary, see options analysis at 2.3, above.

# EXHIBIT 2B - TAB 4 - SCHEDULE 3: APPENDIX L-1
# "CRESA REPORT"



# Elexicon Energy Inc.
# Strategic Real Estate Plan
# Phase 2 – Real Estate Optimization

Cresa Toronto Inc., Brokerage

June 9, 2025 (Final)

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# 1 Introduction, Objectives & Sources



# Introduction

In 2024, Cresa Toronto Inc. was engaged by Elexicon Energy Inc. to develop a Strategic Real Estate Plan for Elexicon's current and planned real estate assets with the expectation that the Strategic Plan would be used by Elexicon both for planning purposes and to determine capital requirements for its facilities.

The Strategic Plan was to be delivered in 2 Phases, encompassing a review of Elexicon's existing facilities, located at:

- 55 Taunton Road East, Ajax
- 100 Taunton Road, Whitby
- 1885 Clements Road, Unit 275, Pickering
- 2489 Highway #2, Bowmanville (Clarington)
- 412 Coleman Street, Belleville
- 1395 Torah Concession 6, Beaverton
- 195 Progress Drive, Gravenhurst



# Introduction

## Phase 1 – Strategic Real Estate Plan Preliminary Report

Phase 1 of the Strategic Real Estate Plan, dated August 29, 2024, evaluated the potential consolidation of 55 Taunton Road East, Ajax and 100 Taunton Road East, Whitby, based on Cresa's experience with similar developments within the utility sector and information provided by Elexicon.

The **Phase 1 Report** included:

- The approximate recommended size of a consolidated new building including future growth considerations provided by Elexicon.
- The recommended site size (in acreage) based upon requirements provided by Elexicon.
- Current market value of land within the Pickering/Ajax/Whitby geographic area.
- A high-level budget for the design/build of the new facility.

The Phase 1 Preliminary Report provided a high-level evaluation based on a review of Elexicon's current facilities at 55 Taunton Road East, Ajax and 100 Taunton Road East, Whitby. The building size and valuations were approximations based on estimated requirements confirmed by Elexicon.

## Phase 2 – Real Estate Optimization Plan

Subsequent to delivery of the Phase 1 Strategic Real Estate Plan, Elexicon determined that the consolidation of the Ajax and Whitby sites is not viable at this time. As a result, the scope of the Phase 2 report was adjusted to encompass a review of Elexicon's existing facilities to determine how best to optimize utilization and accommodate projected growth to 2030.

This **Phase 2** report has been developed based on the following:

- **Kick-Off Meeting** with Elexicon's internal project sponsors, Erin Stevens and Devin Rolfe to confirm engagement objectives and review business needs, hypotheses and strategic elements to be explored.
- **Site Audits and Evaluation of Current State** including visits to all existing locations to verify utilization.
- **Development of Conceptual Space Plans** to demonstrate how existing facilities may be reconfigured to accommodate growth.
- **Review of Options** for inventory management, warehousing and outside storage
- **Recommendations and Conclusions** based on the information provided.

# Our Information Sources

The information contained within this report has been compiled from the following:

- Tours of all existing Elexicon facilities
- Review of future needs through discussion with Elexicon's Erin Stevens, Manager of Accounting & Regulatory and Devin Rolfe, Manager Corporate Services
- Growth projections for workforce and materials/equipment to 2030 provided by Elexicon (revised vs Phase 1)
- Review of existing drawings provided by Elexicon
- The results of Building Condition Assessments (BCA's) of Elexicon's existing portfolio completed by Brown & Beattie Building Science Engineering dated April 21, 2025
- Preliminary Concept (space) Plans prepared by Cresa and its Interior Design Partner, SDI Design




# 2 Financial Summary

# Financial Summary

The following Financial Summary provides a high-level overview of estimated costs to implement the various officing and inventory management solutions described herein.

- These costs are estimates only, based on 2025 Canadian Dollars.
- No allowance has been made for the impact of tariffs or other economic uncertainties due to the current political environment.
- All estimates are based on the requirements as detailed herein and are subject to refinement as additional details are confirmed.
- No provision has been made for inflation or general increases over time.
- No allowance has been made for unknown or unforeseen site conditions.
- All taxes are in addition to the estimates provided.

# Financial Summary

| Scenario – Office | Changes Required | Total Costs |
|---|---|---|
| Hybrid Policy Retained – 2 days a week.<br>Assumptions:<br>• Establish fixed and staggered anchor days for each Business Unit (Monday through Friday), reduce flexibility with respect to when employees attend office locations to manage workstation availability.<br>• With the exception of Executive Offices, all offices and workstations shared.<br>• Flexibility as to Whitby or Ajax; preference to keep business units together.<br>• Use of booking system to reserve hoteling desks. | Option 1 – As Is<br>• Total seating approximately 210 (Office Personnel Only) | No Cost |
| | Option 2 – New Workstations in Ajax Only<br>• Total seating approximately 255 (Office Personnel Only) | $1.3 Million |
| • Dedicated space for each worker.<br>• Enough space to accommodate positions to be added by 2030. | Option 3 – New Workstations in Ajax and Whitby with renovated spaces<br>• Total seating approximately 303 (Office Personnel Only) | $6.1 Million |

| Scenario – Warehouse/Storage | Changes Required | Total Costs |
|---|---|---|
| No changes to volume, existing capital work programme (i.e., space needs to accommodate 2024 levels of equipment and materials). | No Changes Required | No Cost |
| Capital programme materials / equipment needs increased by 50% from 2024 requirements. | • Increase Efficiency of Whitby Storage Yard plus additional [redacted] Storage in Ajax as per Concept Plan | • $1,500,000 |
| | • Lease additional Warehouse Space for Increased Capacity | • $300,000 - $400,000 per annum (plus equipment) |
| | • Enter into external 3PL Agreement | • TBD |
| | • Adopt a direct ship-to-site model with vendors | • No Cost |

# Financial Summary

| Scenario – Parking | Changes Required | Total Costs |
|---|---|---|
| Review options to accommodate increased parking requirements at Ajax and Whitby based on planning scenarios. | Ajax - Increase Parking by approximately 62 – 113 spaces (depending on planning scenario) | |
| | • Explore opportunities to share / lease parking from neighbouring properties | • TBD |
| | • Explore potential to add deck parking on Ajax site (assuming 150 total deck parking spaces) | • $15 Million |
| | Whitby - Increase Parking by approximately 6 - 48 spaces (depending on planning scenario) | |
| | • Increase parking at existing grassed area on south side of building (approximately 36 spaces, subject to City approval) | • $150,000 (est) |
| | • Enter into sharing agreement with City to park excess vehicles at City facility on McKinney Drive | • TBD |

# Financial Summary

| Address | Estimated Capital Investment – Buildings (Per Building Condition Assessments conducted by Brown & Beattie) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | TOTAL 2025-31 | 2032 | 2033 | 2034 | 2035 | TOTAL 2032-35 | TOTAL 2025-35 |
| 100 Taunton Road East, Ajax | $40,000 | $450,000 | $22,500 | $55,000 | $147,500 | $480,000 | $57,500 | $1,252,500 | $540,000 | $1,162,500 | $2,560,000 | $37,500 | $4,300,000 | $5,552,500 |
| 55 Taunton Road East, Whitby | $50,000 | $177,500 | $150,000 | $1,522,500 | $575,000 | $347,500 | $390,000 | $3,212,500 | $242,500 | $110,000 | $722,500 | $3,390,000 | $4,465,000 | $7,677,500 |
| 2849 Durham Regional Road, Bowmanville | $0 | $52,500 | $5,000 | $49,500 | $30,000 | $182,500 | $205,000 | $524,500 | $22,500 | $40,000 | $802,500 | $15,000 | $880,000 | $1,404,500 |
| 1395 Thorah Concession Road 6, Beaverton | $50,000 | $50,000 | $60,000 | $0 | $25,000 | $150,000 | $0 | $335,000 | $40,000 | $30,000 | $50,000 | $35,000 | $155,000 | $490,000 |
| 195 Progress Drive, Gravenhurst | $25,000 | $0 | $0 | $200,000 | $25,000 | $45,000 | $0 | $295,000 | $40,000 | $30,000 | $40,000 | $60,000 | $170,000 | $465,000 |
| **TOTAL ANNUAL INVESTMENT** | **$165,000** | **$730,000** | **$237,500** | **$1,827,000** | **$802,500** | **$1,205,000** | **$652,500** | **$5,619,500** | **$885,000** | **$1,372,500** | **$4,175,000** | **$3,537,500** | **$9,970,000** | **$15,589,500** |

| Address | Estimated Interior Renovation Costs (Optional) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | TOTAL 2025-31 | 2032 | 2033 | 2034 | 2035 | TOTAL 2032-35 | TOTAL 2025-35 |
| 100 Taunton Road East, Ajax | - | - | - | - | - | $600,000 | - | $600,000 | - | - | - | - | $0 | $600,000 |
| 55 Taunton Road East, Whitby | - | - | - | - | $2,000,000 | $50,000 | $30,000 | $2,080,000 | $30,000 | $100,000 | $200,000 | $200,000 | $530,000 | $2,610,000 |
| 2849 Durham Regional Road, Bowmanville | - | - | - | - | - | - | - | $0 | - | - | $350,000 | - | $350,000 | $350,000 |
| 1395 Thorah Concession Road 6, Beaverton | - | - | - | - | - | - | - | $0 | - | - | - | - | $0 | $0 |
| 195 Progress Drive, Gravenhurst | $20,000 | - | - | - | - | - | - | $20,000 | - | - | - | $20,000 | $20,000 | $40,000 |
| **TOTAL ANNUAL INVESTMENT** | **$20,000** | **$0** | **$0** | **$0** | **$2,000,000** | **$650,000** | **$30,000** | **$2,700,000** | **$30,000** | **$100,000** | **$550,000** | **$220,000** | **$900,000** | **$3,600,000** |



# 3 Current Situation – Portfolio Overview

# Portfolio Overview

Elexicon's portfolio consists of 7 locations, summarized as follows. Detailed descriptions of each facility together with an overview of the applicable Municipalities are included in Appendix 'A'.

| Address | Function | Approx. Staff | Year Built (Est.) | Building Size[1] | Acreage |
|---|---|---|---|---|---|
| 55 Taunton Road East<br>Ajax | Head Office &<br>Operations Centre | Office: 204<br>Other: 23 | 1991 / 2010 | 36,460 SF Office<br>22,078 SF Garage<br>3,174 SF Warehouse<br>**61,712 SF Total** | 9.97 Acres |
| 100 Taunton Road East<br>Whitby | Office and Operations<br>Centre | Office: 29<br>Other: 33 | 1992 | 27,282.2 SF Office<br>21,174.3 SF Garage<br>7,350.0 SF Warehouse<br>**55,805.5 SF Total** | 7.28 Acres |
| 1885 Clements Road, Unit 275<br>Pickering | [redacted] | N/A | N/A | 1,254 SF | N/A |
| 2489 Highway #2<br>Bowmanville[2] | Office and Operations<br>Centre | Operations: 7<br>Substations: 9 | 1985 | 7,268 SF Office/Garage<br>6,832 SF Warehouse<br>1,200 SF Outdoor Storage | 2.78 Acres |
| 412 Coleman Street<br>Belleville | Office and Operations<br>Centre | Operations: 7<br>Metering: 2<br>Asst. Mgmt. 2 | 2021 | 16,027 SF Office/Garage<br>1,200 SF Outdoor Storage | 3.429 Acres |
| 1395 Torah Concession 6<br>Beaverton | Operations Centre with<br>Office Component | Operations: 5 | 2001 | 3,000 SF Garage<br>1,500 SF Office<br>1,100 SF Outdoor Storage | 2.06 Acres |
| 195 Progress Drive<br>Gravenhurst | Operations Centre with<br>Office Component | Operations: 5 | 1994 | 4,500 SF Garage/Shop<br>3,600 SF Office | 3.46 Acres |
| | **Total** | **326** | | | |

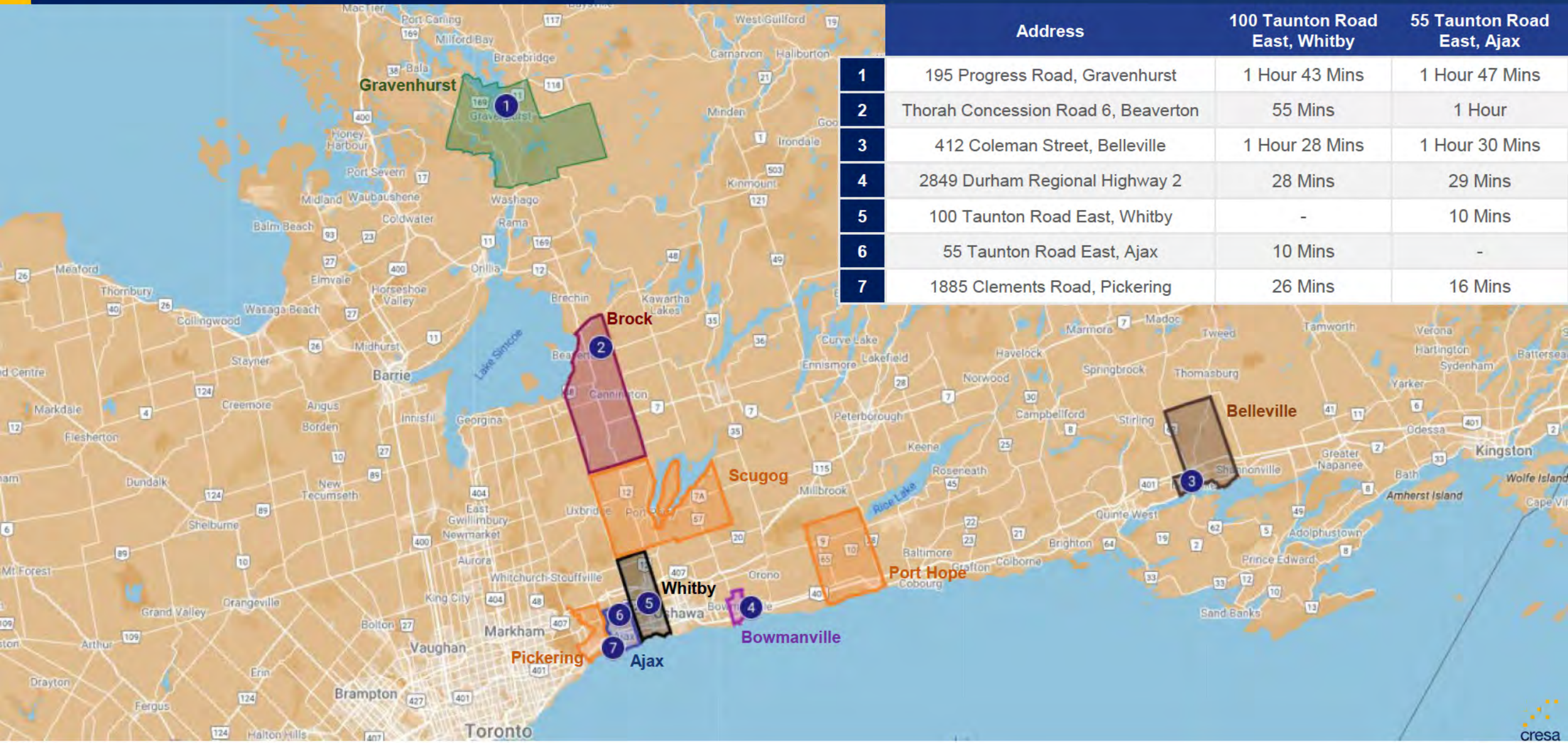
[1] Building areas provided by Elexicon
[2] Bowmanville includes relocation of 9 Substations staff



# 4 Future Requirements

# Future Requirements

## Overview Map




| | Address | 100 Taunton Road East, Whitby | 55 Taunton Road East, Ajax |
|---|---|---|---|
| 1 | 195 Progress Road, Gravenhurst | 1 Hour 43 Mins | 1 Hour 47 Mins |
| 2 | Thorah Concession Road 6, Beaverton | 55 Mins | 1 Hour |
| 3 | 412 Coleman Street, Belleville | 1 Hour 28 Mins | 1 Hour 30 Mins |
| 4 | 2849 Durham Regional Highway 2 | 28 Mins | 29 Mins |
| 5 | 100 Taunton Road East, Whitby | - | 10 Mins |
| 6 | 55 Taunton Road East, Ajax | 10 Mins | - |
| 7 | 1885 Clements Road, Pickering | 26 Mins | 16 Mins |

# Future Requirements

The Phase 1 Strategic Study indicated that, although Elexicon is currently following a hybrid work policy, provision should be made for all inside employees to have a dedicated work location. When planning for growth, dedicated seating for all inside staff is to be provided.

In Phase 2, the space optimization plan considers multiple scenarios:

**Scenario 1**: Maintain two-day in office hybrid policy with office premises. Staff in office 2 days a week, staggered in-office days. All offices and workstations shared on a 2:1 ratio with the exception of CEO and Vice Presidents who have dedicated offices.

**Scenario 2**: Maintain hybrid policy with new standardized workstations throughout Ajax only (Whitby remains 'as is'). Staff in office 2 days a week, staggered in-office days. All offices and workstations shared on a 2: 1 ratio with the exception of CEO and Vice Presidents.

**Scenario 3**: Provide fully dedicated desks with standardized workstations throughout Ajax and Whitby to accommodate future growth. Renovate office areas as required.

Elexicon also specified that Cresa should assume employees could be located in either the Ajax or Whitby. However, any strategy should take into account where staff live in proximity to Elexicon's existing locations in order to minimize the impact on any positions that may be relocated.

Elexicon's projected growth is approximately 80 to 90 workers, who will be added gradually between 2025 and 2030. It is assumed that approximately 80% of the new positions will be inside workers. For the purpose of analysis, all inside growth positions will be located at Ajax and Whitby. It is also assumed that a combination of offices and workstations will be required to accommodate inside growth.

With respect to the growth of outside staff within the Operations team, there is no definition at this point where positions will be located. For purposes of this report, it is assumed they will be spread throughout the portfolio. Given the number of outside staff to locations, it is not expected that the interior space occupied by Operations will be impacted. As such, no replanning of those areas has been undertaken. However, some consideration has been given to increasing utility of the exterior yard at Whitby to accommodate and support future growth.

Future space requirements will also need to accommodate anticipated increases in materials and equipment as a result of significant growth in Elexicon's capital work programme starting in 2027.

A review of Elexicon's current locations has been undertaken to determine where there is opportunity to absorb projected growth in office staff.

- Ajax is fully built out with offices, workstations and support spaces with a limited number of vacant seats. Due to the change in use over time, there are some areas that could be repurposed into functional office space to add capacity, including the high density filing area and the previous security desk on the ground floor. Additionally, some of the area occupied by Asset Management on the 2nd floor is dedicated to filing and layout spaces that are no longer utilized. From a space planning perspective, the Ajax layout is considered to be quite generous and presents opportunities for increased efficiency.
- Whitby's office space is currently underutilized. While Finance, Metering, Stations & Automation occupy much of the ground floor, the 2nd floor [redacted] and provides an opportunity to accommodate additional staff.
- Belleville's engineering space is currently built out with several workstations but [redacted]. The main boardroom/lunch room is very large for the number of staff on site. This area could potentially be reconfigured to accommodate a limited number of additional staff. However, for purposes of this report, Belleville will remain 'as is'.
- Clarington office space that was previously used as a backup control room is being reconfigured for Substations. As a result, there is no significant space to accommodate any other group.
- Beaverton has marginal office space and does not represent a realistic opportunity to accommodate office staff.
- Gravenhurst has a small ground floor office component currently built out with 2 private offices, 2 workstations and meeting rooms which is used [redacted] for the operations team and their supervisor. If needed, this area could potentially be renovated to accommodate a small team. However, given the location this may not be a viable option.

# General Assumptions

Elexicon's growth projections to 2030 indicate a total of 410 total employees dispersed across various positions/functions. These positions/functions will, in turn, require different physical accommodation. For planning purposes, various scenarios have been developed ***for office staff only*** using a Hybrid approach with a 2:1 sharing ratio for all but the CEO and Vice Presidents, as well as a scenario where all staff would have dedicated desks as noted below. All non-office staff will be accommodated in specific locations dedicated to their functions.

| Position | Accommodation | Total Positions | Total Desks Required (Hybrid 2:1) | Total Desks Required (Dedicated) |
|---|---|---|---|---|
| CEO Office and Vice Presidents | Private Offices (Dedicated) | 9 | 9 | 9 |
| Directors, Managers and Supervisors* | Private Offices | 55 | 28-31 | 55 |
| Other Office Staff | Open Workstations | 214 | 107 | 214 |
| **Total Office Staff** | | **278** | **144 - 147** | **278** |
| Control Room, Operations, P&C, Stations, Warehouse, Fleet, Metering | Other Occupied Areas | 132 | N/A | N/A |
| **Total Staff (2030)** | | **410** | | |

* A range is allowed to compensate for requirements of individual Business Units (e.g., 2 Business Units may not share the same office)



# 5 Optimizing Current Assets – Office & Parking

# Optimizing Current Assets

## Overview

With a focus on accommodating office growth within Ajax and Whitby, three scenarios have been developed to determine the most efficient and effective use of Elexicon's existing office space. A separate analysis has been undertaken with respect to warehousing and inventory storage requirements.

### Scenario 1
**"As Is" Hybrid Model (Existing)**

**Assumptions:**

- Hybrid policy requires all staff to be present in office 2 days per week.
- In-office days to be staggered; each Business Unit to determine anchor days.
- Dedicated offices for CEO and VPs only. All others (including Directors, Managers and Supervisors) will share desks.
- Staff can be accommodated either in Ajax or Whitby.
- Booking system will be introduced to handle workstation occupancy.
- Existing offices and workstations to be maximized without any renovation.

### Scenario 2
**Hybrid Model with New Standardized Workstations (Ajax only) – No Renovation**

**Assumptions:**

- Hybrid policy requires all staff to be present in office 2 days per week.
- In-office days to be staggered; each Business Unit to determine anchor days.
- Dedicated offices for CEO and VPs only. All others (including Directors, Managers and Supervisors) will share desks.
- Staff can be accommodated either in Ajax or Whitby.
- Existing offices to be maximized without any renovation.
- New standardized (6x8) workstations to be provided in Ajax only.
- Booking system will be introduced to handle workstation occupancy.
- Whitby to be utilized "as is".

### Scenario 3
**Fully Dedicated Desking with New Standardized Workstations and Renovated Office Areas**

**Assumptions:**

- Dedicated offices and workstations for all office staff regardless of hybrid policy.
- All new standardized (6x8) workstations throughout Ajax and Whitby.
- Maximize re-use of existing private office furniture.
- Staff can be accommodated either in Ajax or Whitby.
- Booking system is optional as all desks are dedicated.
- Renovate office areas in Ajax and Whitby to accommodate maximum capacity.

# Scenario Comparison – Capacity

The following summary demonstrates the number of offices and workstations provided in each of the planning scenarios together with the number of offices and workstations in excess (or lacking) based on quantities required. Concept plans for each planning scenario are also provided. These plans are preliminary in nature and are subject to refinement as Elexicon's detailed requirements evolve, specifically to determine office vs workstation needs.

| | Scenario 1 "As Is" Hybrid Model (Existing) | | | | Scenario 2 Hybrid Model with New Standardized Workstations (Ajax only) – No Renovation | | | | Scenario 3 Fully Dedicated Desking with New Standardized Workstations and Renovated Office Areas | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location** | **Offices** | **Work-stations** | **Total Desks** | **Meeting Rooms*** | **Offices** | **Work-stations** | **Total Desks** | **Meeting Rooms*** | **Offices** | **Work-stations** | **Total Desks** | **Meeting Rooms*** |
| Ajax 1st Floor | 25 | 69 | 94 | 4 | 25 | 102 | 127 | 4 | 29 | 102 | 131 | 6 |
| Ajax 2nd Floor | 8 | 55 | 63 | 2 | 8 | 67 | 75 | 2 | 12 | 65 | 77 | 2 |
| **Ajax Total** | **33** | **124** | **157** | **6** | **33** | **169** | **202** | **6** | **41** | **167** | **208** | **8** |
| Whitby 1st Floor | 11 | 28 | 39 | 3 | 11 | 28 | 39 | 3 | 7 | 26 | 33 | 5 |
| Whitby 2nd Floor | 12 | 2 | 14 | 4 | 12 | 2 | 14 | 4 | 16 | 46 | 62 | 2 |
| **Whitby Total** | **23** | **30** | **53** | **7** | **23** | **30** | **53** | **7** | **23** | **72** | **95** | **7** |
| **Total Ajax & Whitby** | **56** | **154** | **210** | **13** | **56** | **199** | **255** | **13** | **64** | **239** | **303** | **15** |
| **Office & Workstation Requirements** | | | | | | | | | | | | |
| Desks Required | 40 | 107 | 147 | - | 40 | 107 | 147 | - | 64 | 214 | 278 | - |
| Desks Provided | 56 | 154 | 210 | - | 56 | 199 | 255 | - | 64 | 239 | 303 | - |
| **Surplus/Deficit** | **+16** | **+47** | **+63** | **-** | **+16** | **+92** | **+108** | **-** | **-** | **+25** | **+25** | **-** |

* Meeting Room count includes Boardrooms and Training Rooms

cresa

# Ajax – 1st Floor Concept Plan (As Is)

| Summary | |
|---|---|
| Offices | 25 |
| Workstations | 69 |
| Boardroom | 1 |
| Meeting Rooms | 2 + Training Room |
| Comments | • Provides 3 phone booths |



Existing



# Ajax – 2nd Floor Concept Plan (As Is)

| Summary | |
|---|---|
| Offices | 8 |
| Workstations | 55 |
| Meeting Rooms | 2 |
| Comments | • Provides 3 Phone Booths |

[redacted]




Existing

# Whitby – 1st Floor Concept Plan (As Is)

| Summary | |
|---|---|
| Offices | 11 |
| Workstations | 28 |
| Meeting Rooms | 3 |

[redacted]

Existing

[redacted]

1ST FLOOR
PAGE 1 OF 3

WHITBY - 1ST FLOOR
Scenario 1

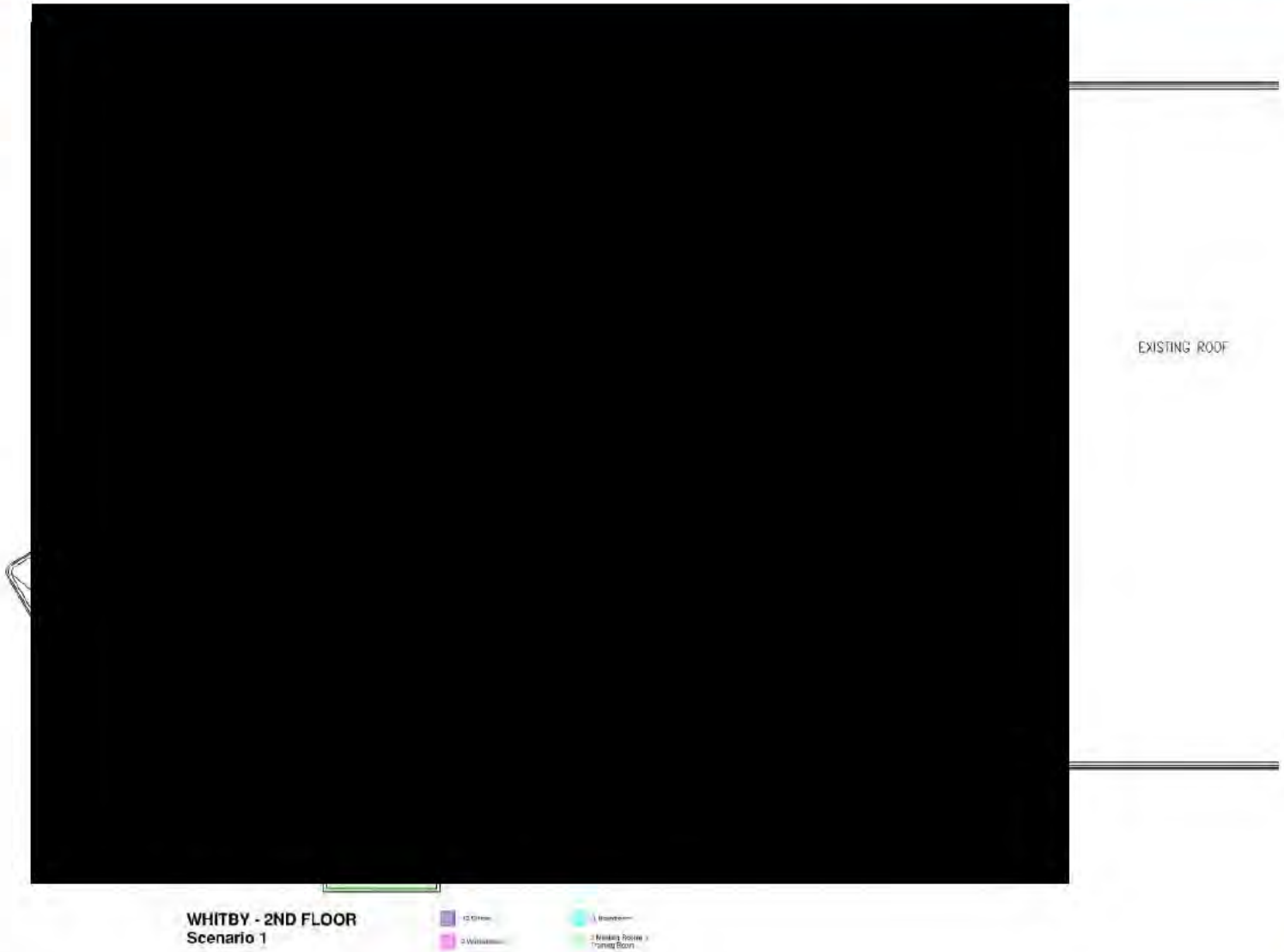
[redacted]

# Whitby – 2nd Floor Concept Plan (As Is)

| Summary | |
|---|---|
| Offices | 12 |
| Workstations | 2 |
| Boardroom | 1 |
| Meeting Rooms | 2 + Training Room |



Existing

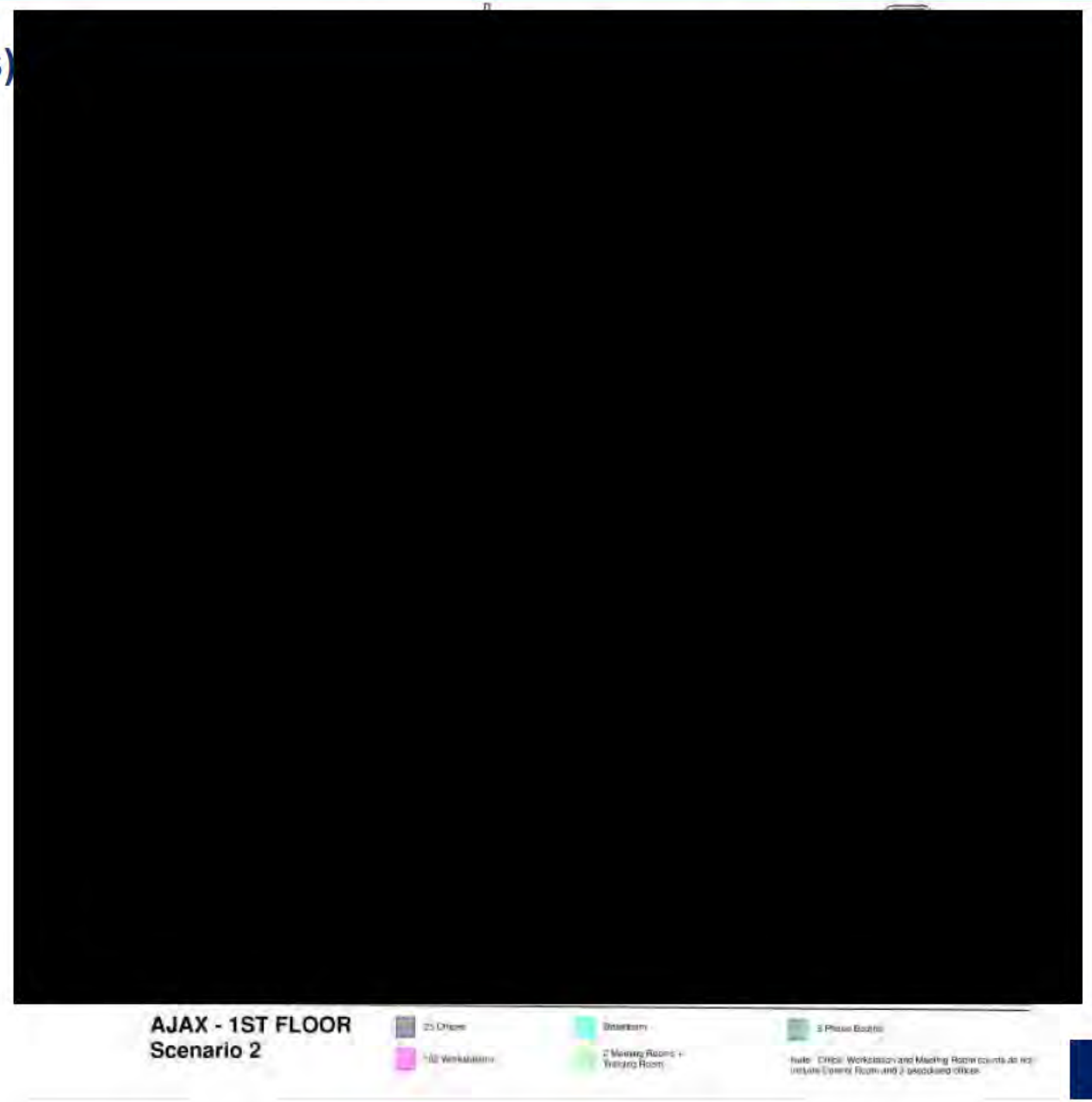


# Ajax – 1st Floor Concept Plan (New Workstations)

| Summary | |
|---|---|
| Offices | 25 |
| Workstations | 102 |
| Boardroom | 1 |
| Meeting Rooms | 2 + Training Room |
| Comments | • Provides 3 phone booths |



Existing



# Ajax – 2nd Floor Concept Plan (New Workstations)

| Summary | |
|---|---|
| Offices | 8 |
| Workstations | 67 |
| Meeting Rooms | 2 |
| Comments | • Provides 3 phone booths |

[redacted]

Existing

AJAX - 2ND FLOOR
Scenario 2

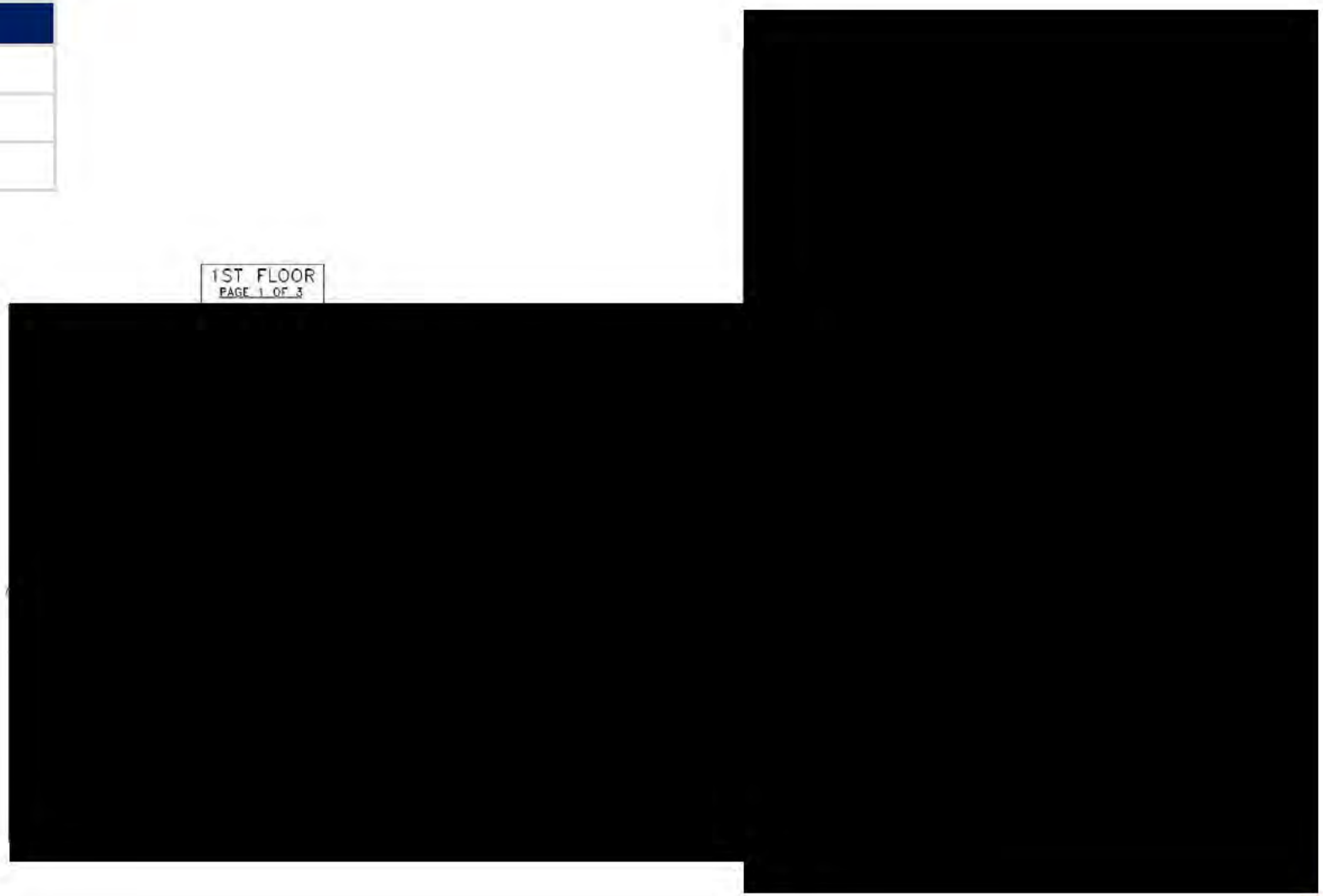
cresa

# Whitby – 1st Floor Concept Plan (As Is)

| Summary | |
|---|---|
| Offices | 11 |
| Workstations | 28 |
| Meeting Rooms | 3 |



Existing



# Whitby – 2nd Floor Concept Plan (As Is)

| Summary | |
|---|---|
| Offices | 12 |
| Workstations | 2 |
| Boardroom | 1 |
| Meeting Rooms | 2 + Training Room |



Existing



# Ajax – 1st Floor Concept Plan

| Summary | |
|---|---|
| Offices | 29 |
| Workstations | 102 |
| Boardroom | 1 |
| Meeting Rooms | 4 + Training Room |
| Comments | • 4 added offices, 2 added meeting rooms vs Scenario 2 |

[redacted]

Existing

[redacted]

AJAX - 1ST FLOOR
Scenario 3

# Ajax – 2nd Floor Concept Plan

| Summary | |
|---|---|
| Offices | 12 |
| Workstations | 65 |
| Meeting Rooms | 2 |
| Comments | • 4 added offices, 2 less workstations vs Scenario 2 |

[redacted]

AJAX - 2ND FLOOR
Scenario 3

12 Offices
65 Workstations
2 Meeting Rooms

Existing

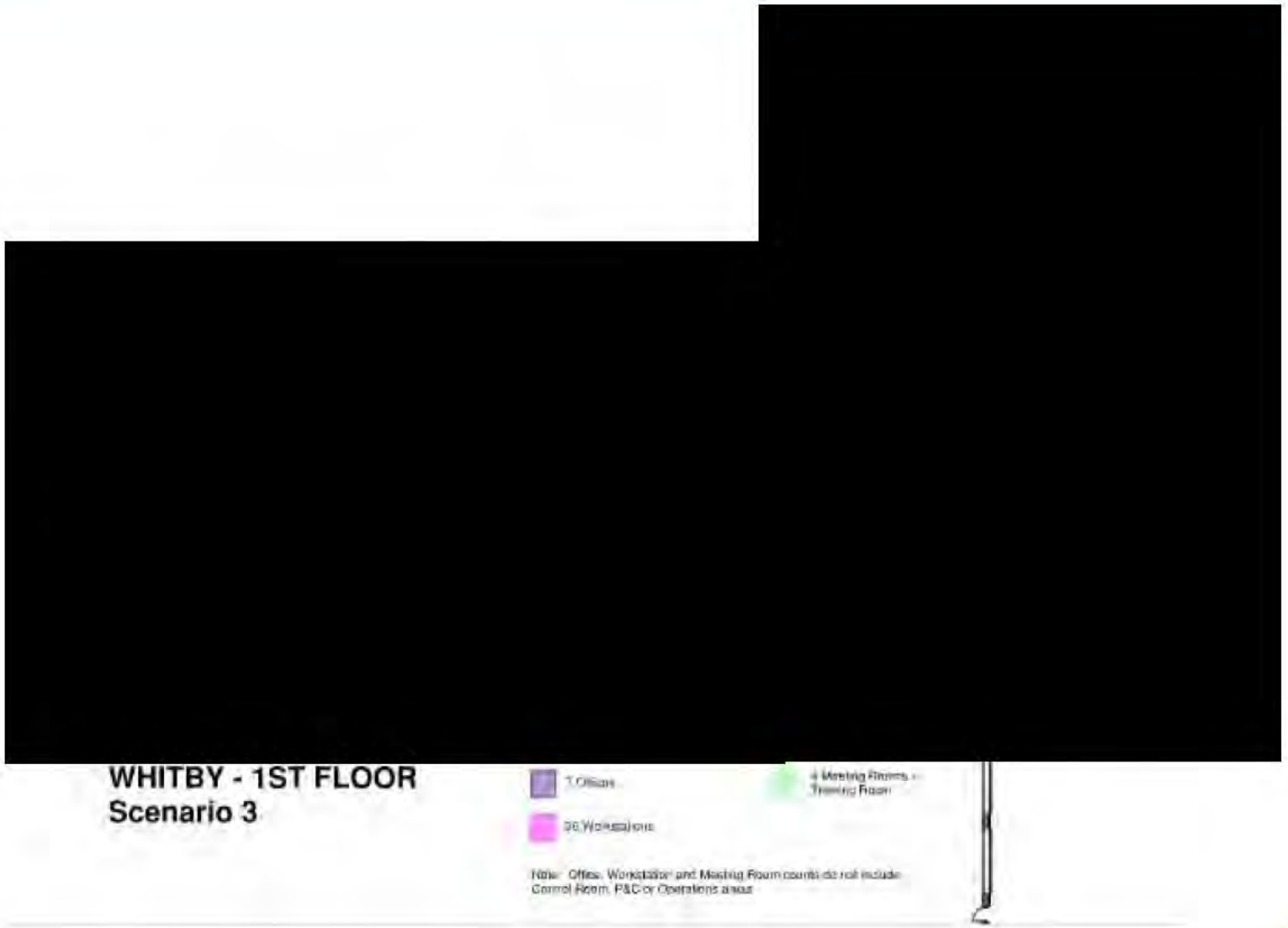
# Whitby – 1st Floor Concept Plan

| Summary | |
|---|---|
| Offices | 7 |
| Workstations | 26 |
| Meeting Rooms | 4 + Training Room |
| Comments | • 4 fewer offices, 2 fewer workstations vs Scenario 2<br>• Training Room relocated from 2nd Floor |

[redacted]

Existing

[redacted]

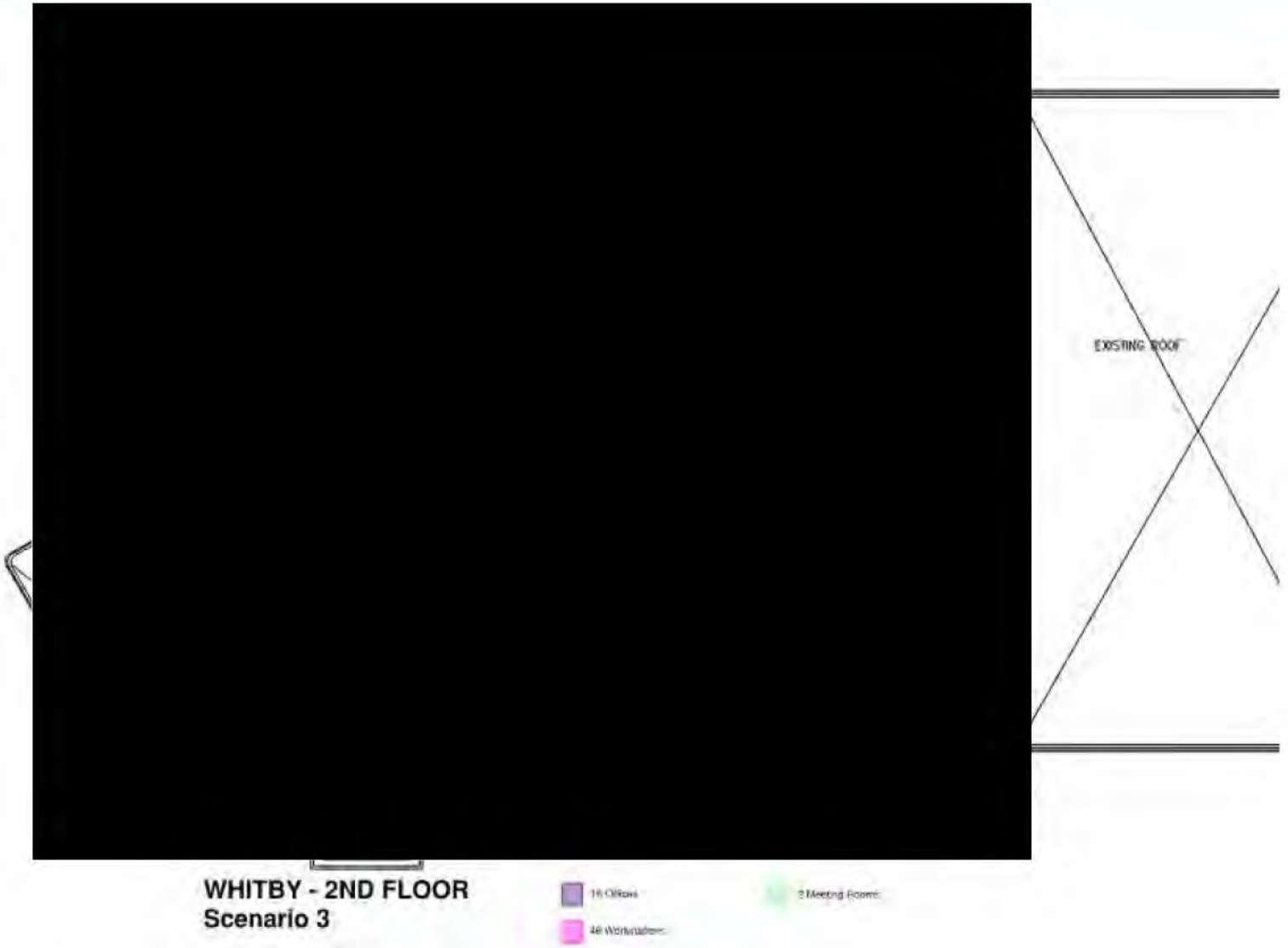


# Whitby – 2nd Floor Concept Plan

| Summary | |
|---|---|
| Offices | 16 |
| Workstations | 46 |
| Meeting Rooms | 2 |
| Comments | • 4 additional offices, 44 additional workstations vs Scenario 2<br>• Training Room relocated to 1st Floor |



Existing



# Optimizing Current Assets

## Summary

### Scenario 1
**"As Is" Hybrid Model (Existing)**

**Pros:**
- Provides more than enough office and workstation spaces based on a Hybrid environment with 2:1 sharing (with the exception of CEO Office and VPs): +63 desks
- Zero cost solution
- Parking at Whitby includes 85 employee spaces (including secured parking for operations team); can accommodate 53 office staff in hybrid scenario by using 6 visitor/EV charging spaces

**Cons:**
- Requires formalization of hybrid model and commitment of all Business Units to manage anchor days, ensuring appropriate availability of work spaces
- No ability to change hybrid policy or increase number of in-office days in future.
- Reduces flexibility for staff to alter in-office days to accommodate work requirements.
- Some compromise to working adjacencies may be required
- Does not provide for standardized workstations
- Parking at Ajax totals 138 employee spaces; not sufficient for 157 office staff in hybrid scenario (plus [redacted] operations, warehouse staff)

### Scenario 2
**Hybrid Model with New Standardized Workstations (Ajax only) – No Renovation**

**Pros:**
- Provides more than enough office and workstation spaces based on a Hybrid environment with 2:1 sharing (with the exception of CEO Office and VPs): +108 desks
- Provides standardized workstations throughout Ajax, improving flexibility to relocate staff
- Initial investment limited to furniture and recabling of workstations at Ajax
- Parking at Whitby includes 85 employee spaces (including secured parking for operations team); can accommodate 53 office staff in hybrid scenario by using 6 visitor/EV charging spaces

**Cons:**
- Requires formalization of hybrid model and commitment of all Business Units to manage anchor days, ensuring appropriate availability of work spaces
- No ability to change hybrid policy or increase number of in-office days in future.
- Reduces flexibility for staff to alter in-office days to accommodate work requirements.
- Some compromise to working adjacencies may be required
- Whitby workstations remain as existing; not consistent with new standard at Ajax
- Parking at Ajax totals 138 employee spaces; not sufficient for 201 office staff in hybrid scenario (plus [redacted] operations, warehouse staff)

### Scenario 3
**Fully Dedicated Desking with New Standardized Workstations and Renovated Office Areas**

**Pros:**
- Provides potential for full return-to-office in future including projected growth and dedicated seating for all staff (303 desks)
- Standardized workstations throughout Ajax and Whitby provide flexibility for relocating Business Units and uniformity for employees
- Potential for sit/stand workstations throughout to improve ergonomic experience
- Given the current vacancy at Whitby, renovation can proceed with minimal disruption

**Cons:**
- Most expensive alternative, requiring renovation of existing buildout as well as new workstations throughout
- Renovation of the Ajax building will create some disruption to current operations and will require phasing
- Parking insufficient at both Ajax and Whitby

## PARKING

While each of the three options identified above provide adequate seating for all office staff, the parking at both the Ajax and Whitby locations is a key consideration that will need to be addressed.

55 Taunton Road in Ajax currently provides 152 total parking spaces, allocated as follows: 66 in the west parking lot, 77 in the east parking lot, 4 accessible parking spaces and 5 EV charging spaces. Considering that visitor parking comprises 7 regular spaces, 2 accessible visitor spaces and 5 EV charging spaces, that leaves only 138 dedicated employe parking spaces.

100 Taunton Road in Whitby provides 106 total parking spaces, allocated as follows: 74 parking spaces in the east, south and west lots, plus 32 spaces in the north lot. This includes 14 visitor parking, 5 accessible parking and 2 EV charging spaces, leaving a total of 85 dedicated employee parking spaces.

The summary below demonstrates the shortage of employee parking spaces for each of the planning scenarios described earlier, assuming full attendance on a given day. This does not take into account any days when there may be special events such as board meetings, executive meetings, or training sessions when parking demand will increase.

| Location | Total Personnel Count | Scenario 1 | Scenario 2 | Scenario 3 |
|---|---|---|---|---|
| 55 Taunton Road, Ajax | Office Personnel (Desks Available)<br>Other Personnel*<br>Total Staff (Parking Required) | 157<br>43<br>200 | 202<br>43<br>245 | 208<br>43<br>251 |
| | Employee Parking Available | 138 | 138 | 138 |
| | Parking Shortage | 62 | 107 | 113 |
| 100 Taunton Road, Whitby | Office Personnel (Desks Available)<br>Other Personnel*<br>Total Staff (Parking Required) | 53<br>38<br>91 | 53<br>38<br>91 | 95<br>38<br>133 |
| | Employee Parking Available | 85 | 85 | 85 |
| | Parking Shortage | 6 | 6 | 48 |

Notes:
- Numbers under Total Personnel Count are approximate; subject to refinement as planning scenarios are finalized
- * Other Personnel includes [redacted] Field/Lines Operations, Meter Techs, P&C and Locates staff who are not located within the office space but will require parking.

## PARKING (cont'd)

### 55 Taunton Road, Ajax

At 55 Taunton Road, there is little opportunity to increase parking without impacting other important operations. A portion of the original employee parking has now been allocated to service vehicles. If that space is reclaimed for employee parking, other arrangements will need to be made to accommodate Elexicon vehicles.

The storage yard is also at capacity and does not appear to provide an opportunity to expand employee parking.

Given the constraints of this site, Elexicon will need to determine whether it is feasible to add parking on any of the surrounding green space, or to lease parking from a nearby property and introduce a shuttle system to move employees back and forth.

A further consideration would be the introduction of a parking deck on site. This possibility would require a full architectural evaluation to determine the feasibility, as well as approval by the City. The estimated cost of construct deck parking is approximately $100K per parking space; total cost for a 60,000 SF, 150 space parking deck would be in the range of $15 million (including professional fees, etc.).

### 100 Taunton Road, Whitby

Although parking at Whitby is also limited, there appears to be more flexibility to accommodate projected requirements. Over the short term, visitor parking could be utilized to accommodate employees on days when everyone is present in Scenarios 1 and 2. To accommodate a full complement of staff in Scenario 3, other opportunities may exist, as follows:

- Consider adding parking in the grassed area on the south side of the building, between Taunton Road and the existing parking. Subject to final planning and approval by the City, this space could accommodate up to 36 parking spaces.
- Approach the City to determine whether there is the possibility of a sharing arrangement whereby Elexicon could use a portion of the City's parking lot across the street on McKinney Drive.

On days when the building is being used for training sessions, it will be important to have a plan in place to accommodate extra parking needs over and above employees who are assigned to that location.



# 6 Optimizing Current Assets – Inventory Management

## OVERVIEW

Elexicon is projecting a 50 – 70% increase in its capital (planned) work over the next 5 years. This will result in a need for increased warehouse and outside storage space, to accommodate approximately 50% increase in materials (transformers, wire reels, etc.) plus approximately 60% increase in pole renewals.

The Phase 1 Report indicated an estimated requirement for approximately 16,000 square feet of warehouse space (32' clear height) plus 4-5 acres of outside storage in the event that Ajax and Whitby were consolidated into a single facility.

Given the physical constraints of the existing buildings and sites at 55 and 100 Taunton Road, a physical expansion of the warehouse square footage does not appear to be feasible. However, there are companies that specialize in raising the height of existing warehouse structures to bring aging facilities up to current standards with 30' clear heights that provide additional cubic storage. The potential to do so at the Taunton Road buildings would require a comprehensive evaluation to determine (a) whether it is structurally possible, (b) whether it is cost effective, and (c) whether Elexicon's operations can continue with the disruption that this may create.

In the event that modification of the existing buildings is not practical, other potential solutions for managing inventory need to be considered, including:

- Increase efficiency and capacity of existing yards at 55 and 100 Taunton Road;
- Lease or purchase of additional warehouse space within proximity to 55 and 100 Taunton Road East;
- Outsource additional inventory management to a 3PL partner;
- Arrange for future inventory to be held by vendors and shipped directly to site(s) as needed.

## 55 TAUNTON ROAD and 100 TAUNTON ROAD

Operationally, Elexicon [redacted]

The Ajax facility at 55 Taunton Road provides approximately 3,200 SF of low-height (20' clear) warehouse and approximately 3-4 acres of outside storage. Both the warehouse and exterior yard are at capacity.

The Whitby facility at 100 Taunton Road includes approximately 7,300 SF of low-height (20' clear) warehouse and 3.8 acres of outside storage. While the warehouse is at capacity, the exterior yard is underutilized and can be reconfigured to accommodate additional inventory. A preliminary concept plan to increase utilization of the exterior yard at 100 Taunton Road has been prepared to demonstrate a possible solution. This concept also includes covered parking for 15 large trucks in the event that additional fleet capacity is needed. If additional fleet parking is not required, that space can be used to provide additional outdoor storage.



# Outside Storage Concept Plan - Whitby

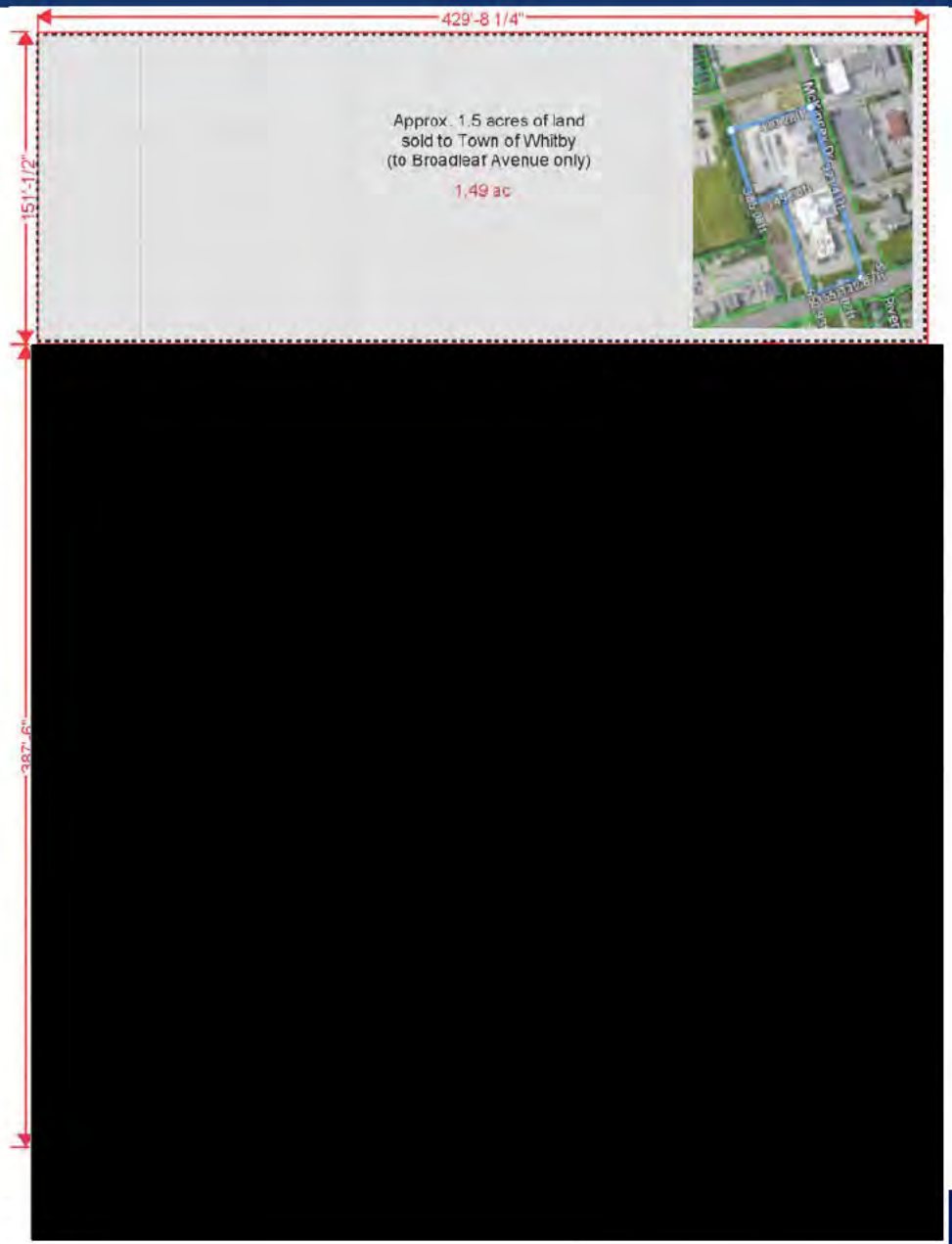
## 100 Taunton Road East - Outside Storage – Concept Plan

A conceptual plan has been prepared to demonstrate how additional storage can be achieved in Whitby, with the following details:

- Provide covered storage for 15 large trucks (buckets, RBDs, etc.). Provide power at each stall for plug-ins.
- Provide 3-high racks for [redacted] to increase capacity (approx. 6,480 SF of storage; 2,160 SF racking footprint + circulation)
- Maximize space along west property line for pole storage.
- Create designated area along north property line for [redacted] (approx.5,000 SF)
- Create staging area (approx. 5,000 SF) plus area for seacan storage and waste bins



[redacted]



## LEASING / PURCHASING ADDITIONAL WAREHOUSE SPACE

It is estimated that Elexicon will require approximately 10,000 – 15,000 SF of additional warehouse space in order to accommodate its growth. A survey of the current leasing market in the Pickering/Ajax/Whitby area, included on page 41, demonstrates that there are a limited number of buildings of appropriate size being offered for lease. There are, however, a number of large blocks on the market that could be investigated further for potential to divide down to a size that is suitable for Elexicon.

While there are some newer buildings with clear heights of 28' or more, the majority of leasing opportunities are in older buildings with clear heights between 16' and 20', similar to Elexicon's existing Taunton Road facilities.

There is one freestanding building of approximately 19,800 square feet on Dillingham Road in Pickering, that would provide Elexicon with sole control of the site. A small amount of outside storage is also available in this location. Available buildings are otherwise multi-tenant opportunities which share access and driveways. Further considerations with respect to these sites include: access for large vehicles, flatbeds, etc., may be restricted due to site sizes and configurations; sites are subject to confirmation of zoning for outside storage, if required; security for inventory stored outside will require review.

Asking rental rates on an 'as is' basis range between $12.75 - $17.00 PSF for older buildings and $20.00 PSF for newer locations. Lease terms are typically between 1 and 10 years.

With respect to purchase opportunities, a preliminary survey has revealed only 1 property that is currently available for purchase (as well as lease). This is a condominium complex at 1440 Victoria Street East, which consists of multiple, smaller units of approximately 7,500 square feet each.

From a financial perspective, the annual cost of leasing is estimated at approximately $300,000 to $400,000. The actual cost to lease will be subject to negotiation and it is expected that some reduction to asking rates may be achievable.

In addition to straight lease costs, Elexicon needs to factor in the cost of labour to staff a separate warehouse, as well as the one-time cost of additional racking and equipment required to operate a separate warehouse facility. Depending on final layout and height required, the cost of storage racking is estimated between $150,000 - $200,000. Additional equipment such as forklifts, pump trucks, reach trucks, ladders, pallet carts, etc. will need to be identified and budgeted separately.

# Market Overview – Whitby / Pickering / Ajax

| | 202 S. Blair Street<br>Units 34-35<br>Whitby | 1440 Victoria Street E.<br>Units B4 & B5<br>Whitby | 153 Crown Court<br>Unit 2<br>Whitby | 1999 Forbes Street*<br>Whitby | 910 Brock Road<br>Units 101 & 102<br>Pickering | 953 Dillingham Road<br>Pickering | 585 Granite Ct<br>Pickering |
|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |
| Type | Multi-Tenant | Multi-Tenant (Flex) | Multi-Tenant | Multi-Tenant | Multi-Tenant | Freestanding | Multi-Tenant |
| Area Available (SF) | 16,674 | 17,172 (8,597 + 8,575) | 13,146 | 31,000 (11,000 + 20,000) | 23,527 SF (Total)<br>14,869 SF (101)<br>8,658 SF (102) | 19,832 SF<br>(90% WH / 10% Office) | 29,378 SF |
| Year Built | 1954 | 2024 | 1988 | 1987 | | | 1987 |
| Clear Height | 18' | 28' | TBD | 20' | 16' | 18' | 20' |
| Dock Level Doors | 1 | Yes (No Levellers) | 0 | 5 | 2 (101) + 1 (102) | 3 | 4 |
| Drive-In Doors | 1 | Yes (Qty TBD) | 4 | 1 | 0 | 1 | 1 |
| Net Rent (Asking) | $14.00 PSF | $20.00 | $13.50 | $17.00 (Direct) | $12.75 PSF (101 & 102)<br>$13.50 PSF (101)<br>$14.50 PSF (102) | $14.95 | TBD |
| TMI | $4.50 PSF | $6.00 | $4.00 | TBD | $4.00 PSF | $4.33 | $3.50 |
| Gross Rent | $18.50 PSF | $26.00 | $17.50 | TBD | $16.75 | $19.28 | TBD |
| Lease Term | 1-10 Years | Negotiable | 1-10 Years | | Negotiable | Negotiable | 1-10 Years |
| Comments | • Parking 1/1,000 SF<br>• Part of 302,943 SF building on 20.5 acres | • Parking 2.39/1,000 SF<br>• Part of 83,340 SF building on 10.6 acres<br>• Building for sale @ $3,850,650 | • Parking .95/1,000 SF<br>• Part of 42,004 SF building on 2.3 acres | • * Currently available for Sublease to August 2025<br>• Part of 79,482 SF building on 4.4 acres | • Units can be leased together or individually | • Some outside storage<br>• 10-14 parking spaces | • Approximately 50% of building owned by Peg Perego<br>• Parking .88/1,000 SF |

## OUTSOURCING (3PL) AND DIRECT-TO-SITE

In the event that leasing additional warehouse space is not desirable, Elexicon will need to consider other options such as a 3PL relationship or a ship-to-site model.

Utilities have traditionally managed their own inventory and have been reluctant to move to a 3PL scenario. However, with increased demand for storage space resulting from growing capital projects, this approach may warrant serious consideration. Pros and cons of this approach include:

**Pros:**

- Reduce warehouse space requirements
- Reduce vehicle traffic at existing Operations Centres
- Reduce number of personnel and associated traffic picking up materials
- No need for additional staff
- Flexibility with respect to contact terms and duration

**Cons:**

- Associated costs and potential long-term contract commitment
- Requirement for integrated ERP / Inventory Management System

The cost of a 3PL partnership will be subject to negotiation between Elexicon and a third-party service provider based on specific requirements and is beyond the scope of this report to determine.

A final approach, which could be used in combination with any existing or expanded warehousing, is for vendors to deliver capital materials directly to site, when needed. This would typically apply to large capital projects that are completed over an extended period. Materials would be held by vendors and delivered to a fenced yard or housed in shipping containers until needed on site. Similarly, poles would be delivered to site vs being held by Elexicon. This model would reduce material handling and storage requirements for Elexicon, but may require increased security at vendors' facilities and a strong inventory management system.



# 7 Budget Considerations

## BUDGET CONSIDERATIONS

The cost to complete a renovation of Ajax and Whitby as illustrated on the Concept Plans will be dependent on a variety of factors.

- The plans provided are preliminary in nature based on initial inputs from Elexicon. A detailed review by stakeholders will be required in order to obtain feedback prior to proceeding with renovation drawings.
- Scenario 1, which maintains both Ajax and Whitby in 'as is' condition is a 'no cost' solution.
- With respect to Scenarios 2 and 3, there will be limited hard construction required in Ajax to achieve the plan and renovations are generally limited to the 1st floor northwest wing. Most of the expense will be the replacement of furniture with more standardized and efficient workstations. A full review of existing components will be required to determine whether they can be reconfigured; however, experience has shown that reworking workstations, if possible, is rarely more economical and usually results in a less successful outcome. Additionally, there is currently a combination of fixed and sit-stand stations which Elexicon may wish to address. It is anticipated that private offices could be reused in both scenarios; however, an allowance for replacement has been included in Scenario 3 only for budgeting purposes.
- With respect to the Whitby building, construction to achieve Scenario 3 will be more extensive and, given the age of the facility, upgrades to various mechanical and electrical systems may be warranted. There may also be additional upgrades required to meet current building codes (e.g., the addition of a universal washroom). These requirements will only be determined once a full and proper evaluation has been completed. A full review of FF&E will also be necessary to determine whether any existing items are to be retained.
- The selection of finishes will have an impact on the cost of renovation.
- In both locations, a review should be undertaken to ensure that meeting and training rooms are equipped with updated technology to support both in person and remote meeting participation.
- These budget estimates do not include any capital upgrades that may be required to any base building elements (structure, windows, exterior façade, site improvements). These upgrades are addressed in the Building Condition Assessments prepared by Brown & Beattie and summarized in the following section.
- For purposes of high-level budgeting, a construction budget of $150.00 per square foot of area affected by the renovation has been used. This is representative of today's costs and includes an allowance for professional fees, permitting and construction. An ancillary budget will be required to cover the cost of furniture, fixtures and equipment.

# Budget – Scenario 2

| Scenario 2 - Preliminary Budget Estimate | |
|---|---|
| **Construction Budget** | |
| No Construction Anticipated | |
| **Total Construction Budget** | **$0** |
| **FF&E Ancillary Budget** | |
| Workstations (169 @$4,600) | $777,400 |
| Task Seating (169 @ $750) (only new stations) | $126,750 |
| Recabling (169 @ $400) | $67,600 |
| Electrical Allowance | $50,000 |
| Audio Visual (Allowance/Estimate) | $100,000 |
| Interior Signage / Wayfinding | NIC |
| **Total FF&E Budget** | **$1,121,750** |
| Contingency (15%) | $168,263 |
| **Total Budget – Scenario 2** | **$1,290,013** |

## Notes:

- Budget represents new workstations and associated task seating for Ajax only; no other furniture or renovation included. Final pricing will be dependent on specific components contained within workstations (e.g., personal towers, filing, ped storage, etc.)
- No allowance has been included for upgrade/replacement of carpet or floor finishes in workstation areas
- No allowance included for upgrade to server room or data centre equipment; allowance for recabling of workstations included.
- Allowance has been included for electrical changes required to accommodate workstations; scope to be confirmed
- Allowance has been included for upgrades to audio visual equipment; scope to be confirmed
- Cost to remove and dispose of existing furniture is not included
- All taxes extra

# Budget – Scenario 3

| Scenario 3 - Preliminary Budget Estimate | | | | | |
|---|---|---|---|---|---|
| **Construction Budget** | | Ajax | | Whitby | Total |
| 1st Floor | | $700,000 | | $1,513,350 | $2,213,350 |
| 2nd Floor | | Incl. Above | | $1,289,700 | $1,289,700 |
| Recabling | | $85,000 | | Incl. Above | $85,000 |
| **Total Construction Budget** | | **$785,000** | | **$2,803,050** | **$3,588,050** |
| **FF&E Ancillary Budget** | **Qty** | | **Qty** | | |
| Private Offices (@ $5,500) | 41 | $225,500 | 23 | $126,500 | $352,000 |
| Workstations (@$4,600) | 167 | $768,200 | 72 | $331,200 | $1,099,400 |
| Training Room (Optional) | | $0 | | $50,000 | $50,000 |
| Café (Optional) | | $0 | | $60,000 | $60,000 |
| Appliances (Café, Coffee Stations) | | $0 | | $10,000 | $10,000 |
| Audio Visual (Allowance) | | 100,000 | | $100,000 | $200,000 |
| Interior Signage / Wayfinding | | $10,000 | | $10,000 | $20,000 |
| Security Upgrades (Not Required) | | 0 | | 0 | $0 |
| **Total Ancillary Budget** | | **$1,103,700** | | **$687,700** | **$1,791,400** |
| **Total Construction & FF&E** | | **$1,888,700** | | **$3,490,750** | **$5,379,450** |
| Contingency (15%) | | $283,305 | | $523,613 | $806,918 |
| **Total Budget** | | **$2,172,005** | | **$4,014,363** | **$6,186,368** |

## Notes:

- Budget represents only office areas to be renovated a per Concept Plan. Does not include areas occupied by Operations, Metering, P&C, Warehouse, etc.
- Cost to renovate Whitby based on 10,089 SF (1st Floor) plus 8,598 SF (2nd Floor) @ $150 PSF
- No allowance has been made for base building upgrades or exterior site work
- Assumes new office and workstation furniture throughout including delivery and installation; some private offices may be reused, subject to a full review and inventory
- Allowance carried for new training room and café furniture in Whitby; existing may be reused, subject to a full review and inventory
- Assumes reuse of existing meeting room furniture
- AV Allowance included. Detailed requirements to be defined.
- No allowance included for upgrade to server room or data centre equipment; allowance for recabling include in construction cost
- Cost to remove and dispose of existing furniture is not included
- No allowance for any asbestos remediation or removal
- All taxes extra.

# Budget – Whitby Yard

| Preliminary Budget Estimate<br>Outside Storage Concept Plan - Whitby | |
|---|---|
| Covered Parking Structure | $550,000 |
| Covered Parking Concrete Slab (8,700 SF x 8" thick) @ $25 PSF | $217,500 |
| Electrical (Allowance) | $150,000 |
| [redacted] Storage Racks | $100,000 |
| Storage Rack Concrete Slabs (2,160 SF x 8" thick) @ $25 PSF | $54,000 |
| Pole Bunks (Allowance) (Whitby) | $75,000 |
| Pole Bunks (Allowance) (Ajax)* | $75,000 |
| Security Upgrades (Allowance) | $100,000 |
| **Sub Total** | **$1,321,500** |
| Contingency (15%) | $198,225 |
| **Total** | **$1,519,725** |

## Notes:

- Estimate is based on conceptual plan; detailed drawings and engineering review will be required
- Covered Parking includes structure and foundations
- Electrical requirements to be confirmed; assumes existing electrical service will support plug-ins at covered parking
- Assumes exterior yard is heavy duty paving, designed to support proposed uses
- Additional security requirements to be confirmed
- Costs do not include escalations due to timing, unforeseen material cost increases, etc.
- No allowance for specialty [redacted] storage
- No allowance for special soil conditions
- * Allowance for additional pole bunks at Ajax included
- All taxes extra

# Building Condition Assessments

## 2025 – 2035 Capital Requirements

Elexicon engaged Brown & Beattie Building Sciences to conduct Visual Building Condition Assessments of its existing buildings (with the exception of Pickering and Belleville) in order to assess the physical and structural soundness of the buildings and develop order of magnitude budgets for capital repairs that may be required over a 10-year period. The detailed results of these BCA's are contained in separate reports dated April 21, 2025.

The summary below provides a snapshot, by year, of the capital investment that should be anticipated on an annual basis in order to maintain the buildings in good condition. These values are for budgetary purposes in 2025 dollars with no escalation applied for inflation. All values are estimates only; final costs should be determined by competitive tender based on properly developed specifications.

| Address | Estimated Capital Investment | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | TOTAL 2025-31 | 2032 | 2033 | 2034 | 2035 | TOTAL 2032-35 | TOTAL 2025-35 |
| 100 Taunton Road East, Ajax | $40,000 | $450,000 | $22,500 | $55,000 | $147,500 | $480,000 | $57,500 | $1,252,500 | $540,000 | $1,162,500 | $2,560,000 | $37,500 | $4,300,000 | $5,552,500 |
| 55 Taunton Road East, Whitby | $50,000 | $177,500 | $150,000 | $1,522,500 | $575,000 | $347,500 | $390,000 | $3,212,500 | $242,500 | $110,000 | $722,500 | $3,390,000 | $4,465,000 | $7,677,500 |
| 2849 Durham Regional Road, Bowmanville | $0 | $52,500 | $5,000 | $49,500 | $30,000 | $182,500 | $205,000 | $524,500 | $22,500 | $40,000 | $802,500 | $15,000 | $880,000 | $1,404,500 |
| 1395 Thorah Concession Road 6, Beaverton | $50,000 | $50,000 | $60,000 | $0 | $25,000 | $150,000 | $0 | $335,000 | $40,000 | $30,000 | $50,000 | $35,000 | $155,000 | $490,000 |
| 195 Progress Drive, Gravenhurst | $25,000 | $0 | $0 | $200,000 | $25,000 | $45,000 | $0 | $295,000 | $40,000 | $30,000 | $40,000 | $60,000 | $170,000 | $465,000 |
| **TOTAL ANNUAL INVESTMENT** | **$165,000** | **$730,000** | **$237,500** | **$1,827,000** | **$802,500** | **$1,205,000** | **$652,500** | **$5,619,500** | **$885,000** | **$1,372,500** | **$4,175,000** | **$3,537,500** | **$9,970,000** | **$15,589,500** |

In addition to the base building estimates, Brown & Beattie provided projections for interior renovations that may also be required over the planning timeframe to refresh and restore office interiors due to normal wear and tear.

Values are in 2025 dollars and detailed descriptions are contained in the BCA reports dated April 21, 2025.

These costs are considered discretionary and will be highly dependent on whether Elexicon chooses to proceed with any renovations required to accommodate the planning scenarios identified earlier in this report.

| Address | Estimated Interior Renovation Costs | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | TOTAL 2025-31 | 2032 | 2033 | 2034 | 2035 | TOTAL 2032-35 | TOTAL 2025-35 |
| 100 Taunton Road East, Ajax | - | - | - | - | - | $600,000 | - | $600,000 | - | - | - | - | $0 | $600,000 |
| 55 Taunton Road East, Whitby | - | - | - | - | $2,000,000 | $50,000 | $30,000 | $2,080,000 | $30,000 | $100,000 | $200,000 | $200,000 | $530,000 | $2,610,000 |
| 2849 Durham Regional Road, Bowmanville | - | - | - | - | - | - | - | $0 | - | - | $350,000 | - | $350,000 | $350,000 |
| 1395 Thorah Concession Road 6, Beaverton | - | - | - | - | - | - | - | $0 | - | - | - | - | $0 | $0 |
| 195 Progress Drive, Gravenhurst | $20,000 | - | - | - | - | - | - | $20,000 | - | - | - | $20,000 | $20,000 | $40,000 |
| **TOTAL ANNUAL INVESTMENT** | $20,000 | $0 | $0 | $0 | $2,000,000 | $650,000 | $30,000 | $2,700,000 | $30,000 | $100,000 | $550,000 | $220,000 | $900,000 | $3,600,000 |



# 8 Recommendations

## RECOMMENDATIONS

As outlined herein, there are several space planning options to be considered by Elexicon, each with its own timeline and financial impact. In the event that Elexicon is not prepared to proceed with a full renovation of Ajax and Whitby before 2027, changes can be made incrementally to accommodate growth. This would require a detailed analysis of growth by individual Business Units to ensure appropriate planning at each stage.

## Office Space Requirements

Based on information provided by Elexicon, it is evident that the current office capacity at Ajax and Whitby is not sufficient to support a model whereby all office staff have dedicated seats.

Current total capacity in both buildings is 210 desks (Ajax = 157, Whitby = 53). Total office-based staff count to the end of 2024 was projected to be 237 with 13 additional growth positions in 2025 for a total requirement of 250. Further growth of 40-50 office positions is expected between 2025 and 2030.

In order to accommodate the short-term growth, without renovation, the hybrid model currently in place needs to be refined and formalized to ensure that the needs of all Business Units can be met and that all employees are provided adequate workspaces. However, a managed hybrid workplace has limited opportunity for cross functional collaboration, which has been identified as a limitation of this option to manage the growth.

To manage within existing office space, Elexicon will need to do the following:

- All Business Units, working co-operatively, must establish a schedule for anchor days when their teams will be in office. Given the space constraints, anchor days will need to be staggered in order that individual workgroups can be properly accommodated.
- Once established, Management must ensure that the schedule is adhered to.
- With current capacity of 210 desks and total 2025 staff complement of 250, it will be necessary to implement a shared desk policy for some positions. Management will need to determine which positions can operate on a shared desk model.

# Recommendations

- Consideration must be given to the location of desks relative to the size of each Business Unit. As indicated, Ajax currently provides capacity for 157 total office staff, while Whitby has 53 desks. The interior layouts will also dictate the size of workgroups that can be accommodated. Assuming each work group is to be kept together, it will be necessary to review the existing layouts to ensure Business Units are properly located.
- As decisions are made around the use of interior spaces, consideration must also be given to parking capacity to ensure that existing parking is not oversubscribed on anchor days.
- Meetings with external parties who will require parking must also be accounted for. If possible, those meetings should be scheduled for days when office attendance is reduced, in order to allow for access to parking for outside visitors.

## Warehousing & Yard Storage

As indicated, Elexicon's existing warehouse facilities are at capacity. Although actual projected inventory volumes have not been quantified, Elexicon estimates that an additional 10,000 – 15,000 square feet of inside storage will be needed to handle the anticipated growth in capital projects over the next 5 years. There will also be a need for additional outside storage, yet to be quantified.

While there may be an opportunity to increase storage volume through reorganization of the existing facilities, the additional capacity achieved will be marginal. A physical expansion of the building in Ajax is not feasible due to the site constraints, and adding to the Whitby warehouse, while possible, will compromise the outside storage.

As a result, it is recommended that Elexicon proceed to quantify future warehousing needs and undertake a leasing arrangement for a standalone warehouse facility, located in proximity to its current locations. A lease term of 5-7 years will accommodate near-term storage needs.

The exterior storage yard at Ajax is also at capacity with limited opportunity to increase storage volume. A portion of the yard previously used for storage has been re-allocated for parking; reversing this use will only compound the shortage of parking at that site.

As noted, there is opportunity to increase storage at Whitby through a reorganization of the layout and introduction of vertical storage for [redacted] Regardless of the additional capacity that can be achieved, it is recommended that Elexicon consider a third-party storage agreement for large capital items, or work with vendors to develop a ship-to-site strategy which will assist in minimizing Elexicon's direct handling costs.

# Recommendations

## Change Management

Most employees are already accustomed to a hybrid approach whereby they are not in office full time, with flexibility around the days when they are required to be present. It should be anticipated that some will have difficulty transitioning to a more 'formal' and less flexible policy whereby their in-office days are prescribed.

Additionally, some individuals may be uncomfortable sharing desks due to health concerns (e.g. sharing keyboards and chairs) and lack of 'ownership' of personal space.

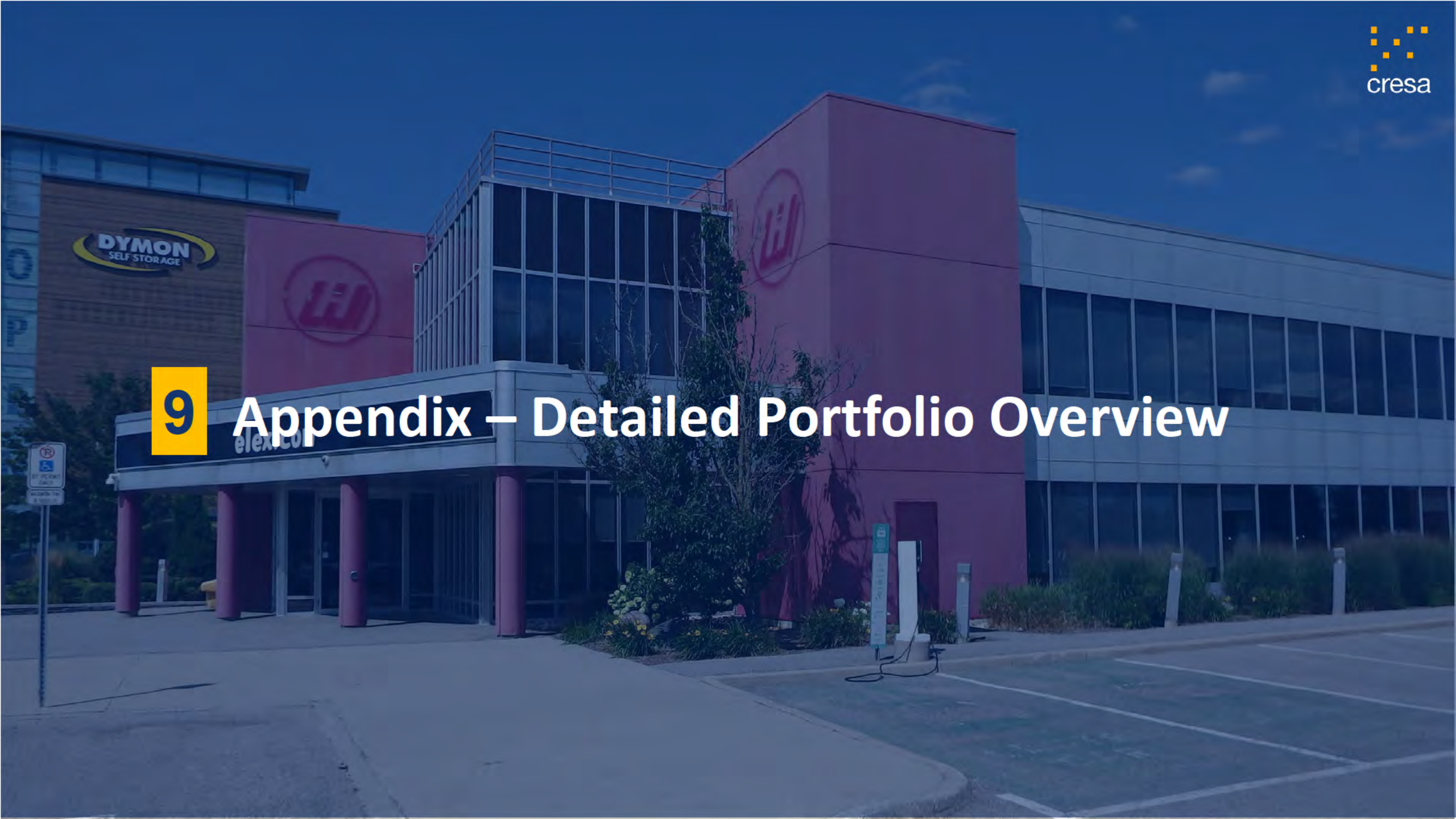
If Elexicon employs a highly managed hybrid model as an interim solution to office space constraints, its management team should be prepared to invest the time and resources needed to address these concerns and assist staff to adapt. Team building exercises on anchor days can be used to help build culture within individual business units.

The involvement of HR and Heath & Safety may also be beneficial to develop guidelines for sharing spaces.

## Inflationary Considerations

As indicated in this report, all estimates represent current costs in 2025 Canadian dollars without factoring in inflation or the impact of any tariffs or currency fluctuations if products or materials are sourced outside of Canada.

For general construction, Brown & Beattie uses an annual inflation rate of just over 3% to predict future values. This is consistent with Cresa's experience in managing projects of various sizes. For future planning, it is recommended that Elexicon apply an inflation factor between 3% and 4% to the values used in this report.



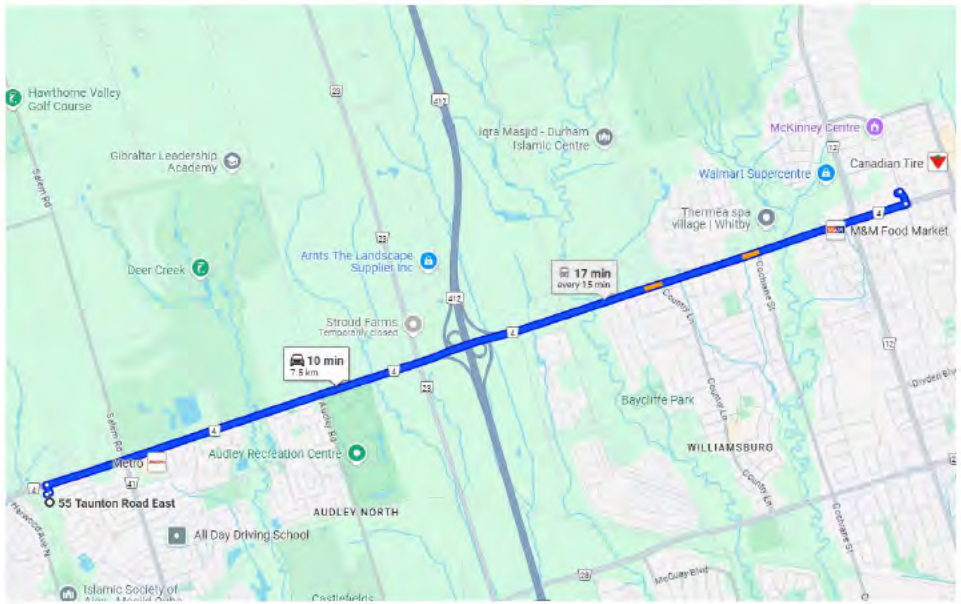

# 9 Appendix – Detailed Portfolio Overview

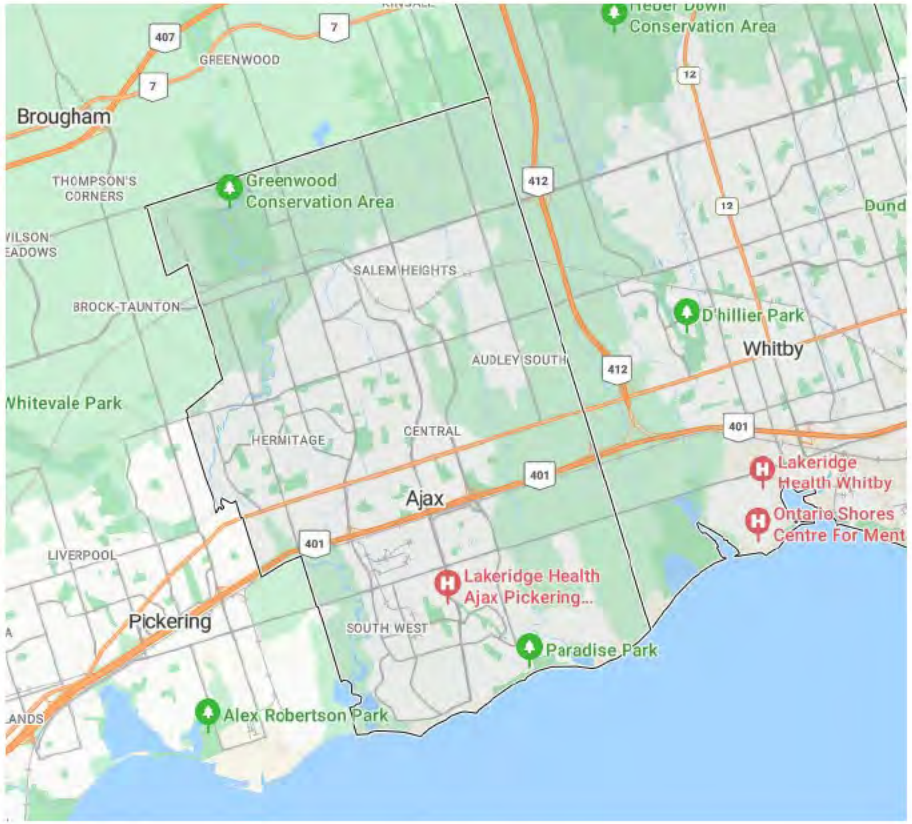
# Town of Ajax- Overview

The Town of Ajax, bounded by Pickering on the west and north and Whitby on the east, encompasses approximately 25 square miles in area.

Population in Ajax has grown steadily since 2018 and is estimated to be 134,250 in 2024. Projected growth to 153,550 people by 2028 represents an increase of approximately 14.4% over 4 years, outpacing the rate of growth since 2018.

This portion of Elexicon's territory is serviced from the Head Office and Operations Centre located at 55 Taunton Road East. The Ajax facility is approximately 4.6 miles from the Whitby Operations Centre, representing a drive time of approximately 10 minutes.




| Town of Ajax – Growth Projection[1] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Population | 2018 | 2020 | 2022 | 2024 | 2026 | 2028 | 10 Year Growth | |
| Population | 127,490 | 132,305 | 134,990 | 134,250 | 143.200 | 153,550 | 26,060 | 20.44% |

[1]-Regional Municipality of Durham Information Report December 1,2023

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# 55 Taunton Road East, Ajax

## 55 Taunton Road East
Ajax, Ontario



| | |
|---|---|
| **Site Size:** | 9.97 Acres |
| **Building Size:** | 36,460 SF Office<br>22,078 SF Garage<br>3,174 SF Warehouse<br>61,712 SF Total |
| **Year Built:** | 1991; Extension 2010 |
| **Parking:** | 152 Total (Including 2 Visitor Accessible, 7 Visitor, 5 EV Charging Spaces) = 138 Employee Spaces |
| **Staff:** | 227 |

- Elexicon's Ajax location serves as the company's Head Office together with an Operations Centre. The site is approximately 10 total acres.
- The building is 61,712 total SF including 36,460 SF of office on 2 floors, a 22,078 SF garage and 3,174 SF warehouse.
- This location houses all of Elexicon's Executive and Head Office functions, with the exception of Finance, which operates out of Whitby. The [redacted] is at this location together with Facilities, Procurement and Operations staff.




| | | |
|---|---|---|
| Site Size | 9.97 Acres | |
| Office | 36,460 SF | $m^2$ |
| Garage / WH | 25,252 SF | $m^2$ |

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# 55 Taunton Road East, Ajax

- The ground floor is built out with a number of private offices and open workstations, together with support spaces such as the main Boardroom, meeting rooms, [redacted], lunch room, etc.
- Executive Offices are located on the ground floor as well as Engineering, Human Resources, Health & Safety, [redacted].
- The [redacted] as there is no public interface at the building.
- The second floor is occupied by Customer Experience, Billing, Credit, Call Centre, and Regulatory.
- Standard offices are 10' x 10' with some exceptions for corner offices.
- Workstations vary in size from 5'x7' in the call centre, to 7'x7' general stations and some 8'x10' stations in Asset Management. Some stations have been equipped with sit/stand desks.
- Small phone booths have been created to facilitate private calls or Teams meetings away from the open workstation areas, but are not used a lot.
- The existing training room is smaller than required; a space to accommodate 40 people in various seating arrangements is desirable (similar to Whitby but divisible).
- The [redacted] has recently been updated and will meet the ongoing needs of the Operations team.
- A larger lunch room is desirable to accommodate additional staff.
- The existing gym is adequate and should be retained.
- Existing high density filing located in proximity to the Executive Offices and IT area is to be removed.
- The existing Operations area provides workstations for the Lead Hands and includes space for the Reactive and Construction crews
- The existing locker room appears adequate; however, it is suggested that a larger drying room would be beneficial
- Facilities could use a larger space to accommodate 4 desks and workshop

# 55 Taunton Road East, Ajax

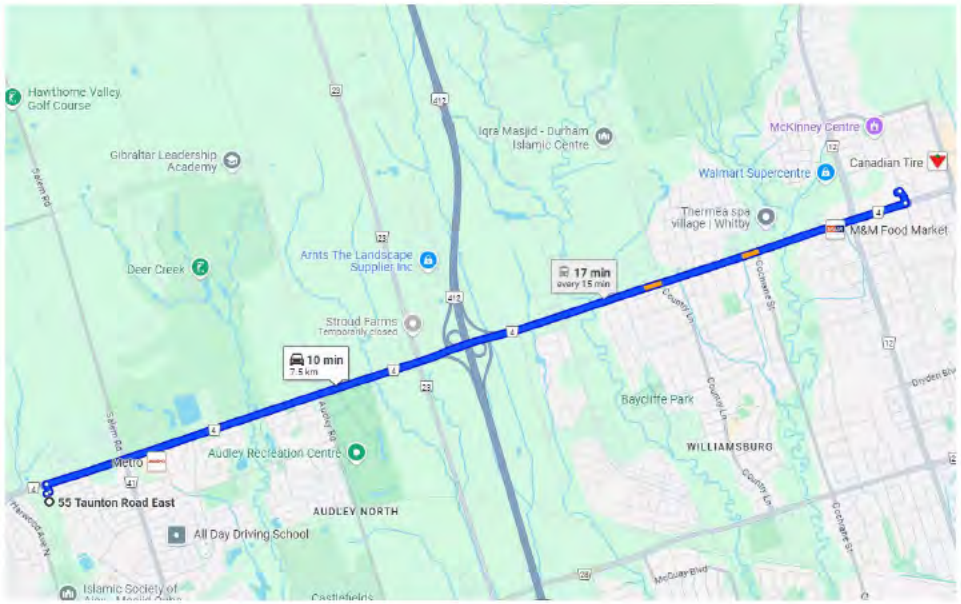
- The warehouse is approximately 3,174 SF with 20’ clear height.
- [redacted].
- The drive-through garage provides 10 indoor parking spaces for large bucket trucks, 8 spaces for smaller vehicles and includes a wash bay; 3 spaces are dedicated for the tool cage/storage
- The fleet repair shop is 2 bays – preference is to have a larger space with up to 5 bays
- The outdoor storage yard is fully paved and provides a combination of open space together with covered storage for tension machines, [redacted].
- [redacted] on 3-level racks.
- The yard is considered to be at capacity.
- The outdoor training area includes a pole training area together with an underground vault.
- The entire building is supported by a backup generator.
- On-site fuel tanks are available.

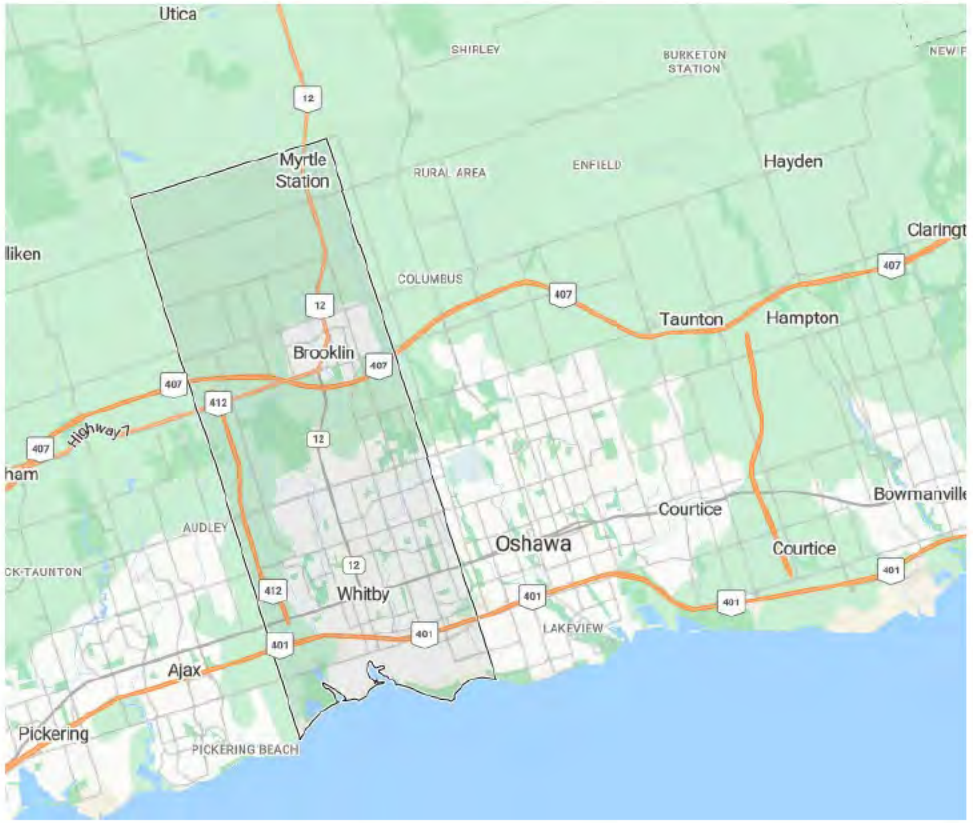
# Town of Whitby- Overview

The Town of Whitby, which is the headquarters of Durham Region, is located between Ajax and Oshawa, and encompasses approximately 56.5 square miles in area. The southern part of the Town is an urban economic hub, while the northern portion remains rural.

As with other areas in Durham Region, Whitby has experienced steady population growth since 2018 and is estimated to be at 151,800 in 2024. Projected growth to 167,250 people by 2028 represents an increase of approximately 10% over the next 4 years.

The Town is serviced from Elexicon's Operations Centre at 100 Taunton Road East, formerly Whitby Hydro. The facility is approximately 4.6 miles from the Ajax Head Office and Operations Centre, representing a drive time of approximately 10 minutes.




| Town of Whitby – Growth Projection[1] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Population** | **2018** | **2020** | **2022** | **2024** | **2026** | **2028** | **10 Year Growth** | |
| Population | 136,310 | 140,755 | 149,250 | 151,800 | 158,350 | 167,250 | 30,940 | 22.7% |

[1]-Regional Municipality of Durham Information Report December 1,2023

# 100 Taunton Road East, Whitby

## 100 Taunton Road East
Whitby, Ontario




| | |
|---|---|
| **Site Size:** | 7.28 Acres |
| **Building Size:** | 27,282.2 SF Office<br>7,350.0 SF Warehouse<br>21,173.3 SF Warehouse/Garage<br>55,805.5 SF Total |
| **Year Built:** | 1992 |
| **Staff:** | 62 |
| **Parking:** | 106 (89 staff, 14 visitor, 3 accessible) |

- The Whitby Operations Centre is located on approximately 7.28 acres of land. The original site was 10.257 acres; however, 3 acres of land on the north end of the site was sold to the Town and has been severed.
- The building is 55,805 total SF with 27,282 SF of office on 2 floors, 7,350 SF of warehouse and 21,173 SF of warehouse/garage space.
- This location is used primarily as an Operations Centre with Operations, Metering, Warehouse and P&C staff. A portion of the office is occupied by Finance.




| | |
|---|---|
| Original Site: | 10.28 Acres |
| Severed Portion: | 3 Acres |
| Elexicon Site: | 7.28 Acres |

# 100 Taunton Road East, Whitby

- The ground floor is built out with a number of private offices and open workstations, together with support spaces such as meeting rooms, washrooms, etc.
- 26 Finance staff occupy space on the ground floor. The office is [redacted] Asset Management staff who work from this location periodically.
- The ground floor is being updated to include [redacted] will be self-sufficient with a supervisor office, kitchen and washroom.
- The existing lunch room (approx. 1,350 SF) is much larger than needed for the population currently in the building.
- The 2nd floor training room (approx. 1,460 SF) is used periodically for large training sessions for staff from other locations.
- Operations, P&C and Metering have a dedicated area; a large locker /washroom / shower / hanging room is provided.
- The warehouse is approximately 7,350 SF with approximately 16' clear height, 1 dock level and 1 drive-in door. Only 1 shipping door is currently utilized. In addition, there is approximately 2,400 SF of dedicated [redacted] storage and workspace.
- [redacted].
- The parking garage can accommodate 9 large trucks (buckets/diggers) and 7 smaller vehicles.
- The mechanics' shop consists of 2 bays equipped with hoists.
- 6 EV chargers are available to the public outside the fenced yard (4 on the west and 2 on the east side of the building).
- The exterior yard is approximately 3.8 acres with a small portion fenced off for a Substation.
- A small storage building is located at the north end to provide additional covered storage and coverage for some trucks.
- Overall, the storage yard appears to be underutilized. Increased capacity could be achieved through vertical storage of [redacted] as is done at other locations.

# 100 Taunton Road East, Whitby



- Parking is separated into 2 distinct areas.
- 32 employee parking spaces (including 2 accessible spaces) are provided on the north side of the building, adjacent to the parking garage.
- The front of the building provides 74 total spaces:  57 employee, 14 visitor and 3 accessible spaces.



North Lot - Employee Parking (30),
Accessible Parking (2) – Total 32 Spaces







Employee Parking (57), Visitor Parking (14), Accessible Parking (3) – Total 74 Spaces

# 1885 Clements Road, Unit 275, Pickering

- The Pickering location [redacted].
- It consists of a small condominium unit of approximately 1,254 SF in an industrial strip mall on Clements Road, purchased by Veridian approximately 13-14 years ago.
- There is no signage to identify Elexicon as the occupant.
- A/C is provided through a roof-top unit as well as 2 wall-mounted ductless units.
- A roof-top generator ensures uninterrupted power supply.
- [redacted]
- [redacted]

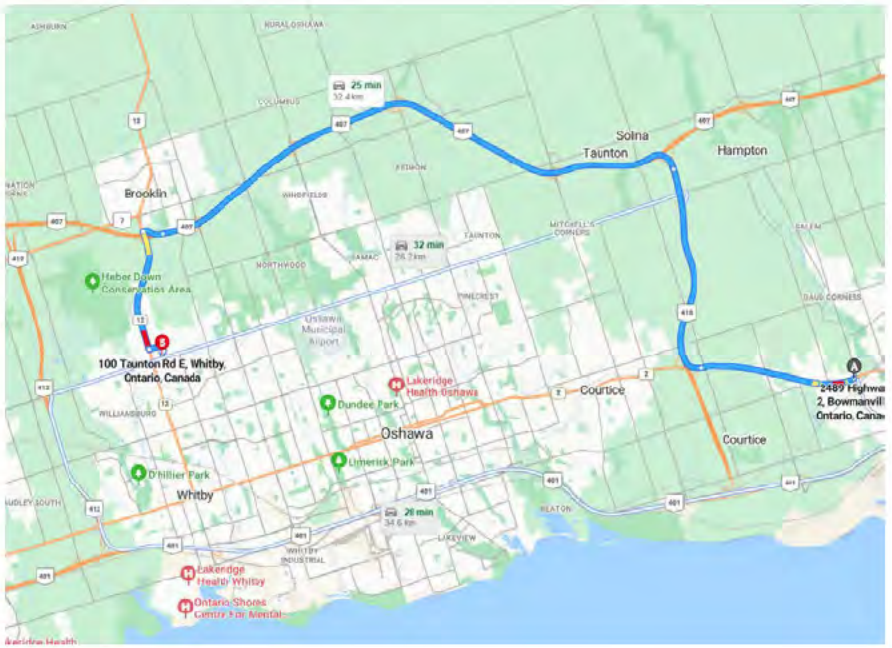
# Bowmanville - Overview

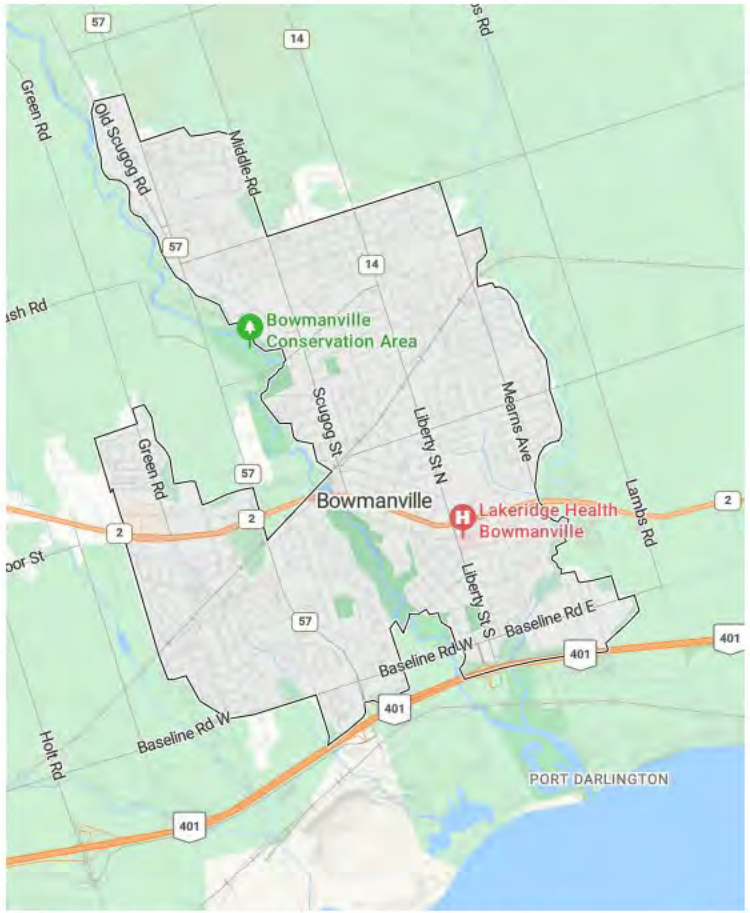
The Town of Bowmanville is located within the Municipality of Clarington, approximately 15 km east of Oshawa.

Population in Bowmanville has increased 16% from 48,919 to 56,742 between 2016 and 2021, outpacing the overall growth in Clarington which has been 10.2% over the same period.

Elexicon's facility in Bowmanville services the Municipality of Clarington as well as Port Hope.

The Bowmanville Operations Centre is located approximately 52 miles from Elexicon's Whitby Location at 100 Taunton Road East. Drive time is approximately 25 – 30 minutes based on use of 407 Highway.




**Clarington and Bowmanville Population Growth [1]**

| Population | 2016 | 2021 | 5 Year Growth | |
|---|---|---|---|---|
| Bowmanville | 48,929 | 56,742 | 7,813 | 16.0% |
| Clarington | 92,013 | 101,427 | 9,414 | 10.2% |

[1] Statistics Canada

# 2489 Highway #2, Bowmanville

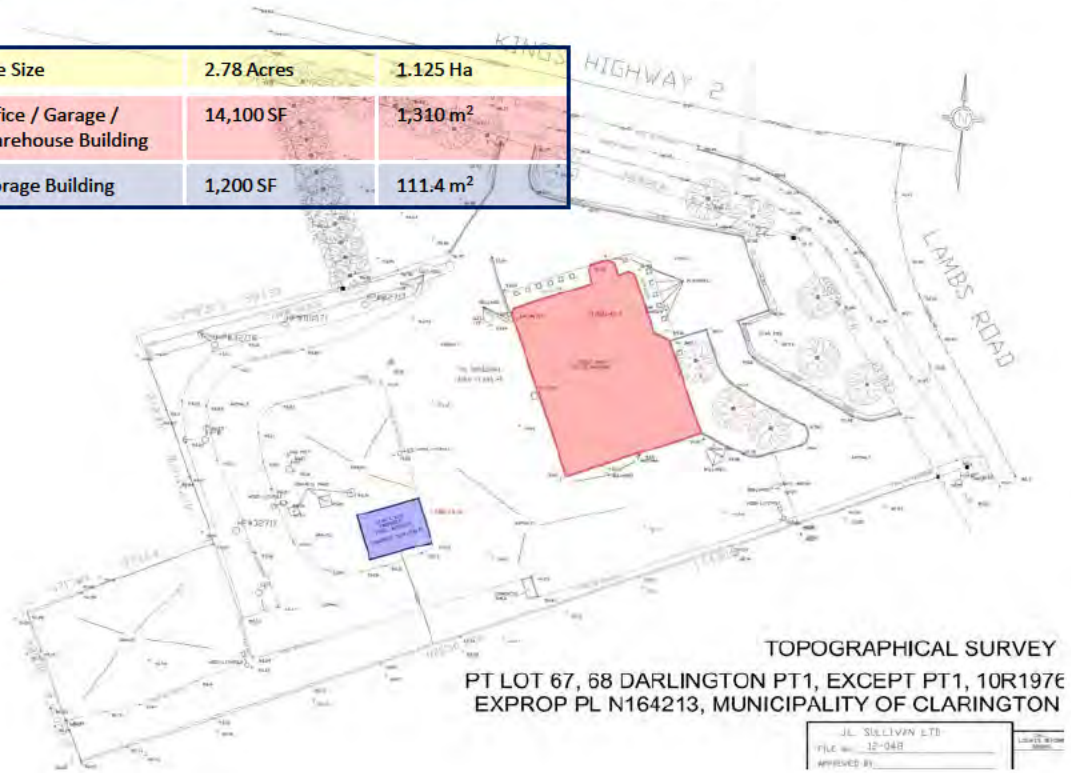
## 2489 Highway #2
Bowmanville, Ontario



| | |
|---|---|
| **Site Size:** | 2.78 Acres (1.125 Ha) |
| **Building Size (approx.):** | 7,268 SF (Office and Garage)<br>6,832 SF (Warehouse)<br>1,200 SF (Storage Building) |
| **Building Class:** | Industrial / Mixed Use |
| **Year Built:** | 1985 |
| **Staff:** | 16 (Including Substations who are relocating) |
| **Parking:** | Approx. 15 Outdoor Parking Spaces (Office)<br>Approx. 14 Parking Spaces (Inside Fenced Area) |

- Elexicon's Clarington Operations Centre is located at 2489 Highway #2, Bowmanville on a site of approximately 2.8 acres
- Buildings consist of a 4,000 SF office, 3,268 SF garage, 6,832 SF warehouse and a 1,200 SF storage building
- Operations staff are currently located here; an area previously occupied by the control room is being converted to accommodate the Substations team
- Limited visitor parking is available at the front of the building, together with an EV charger

| | | |
|---|---|---|
| Site Size | 2.78 Acres | 1.125 Ha |
| Office / Garage / Warehouse Building | 14,100 SF | 1,310 $m^2$ |
| Storage Building | 1,200 SF | 111.4 $m^2$ |

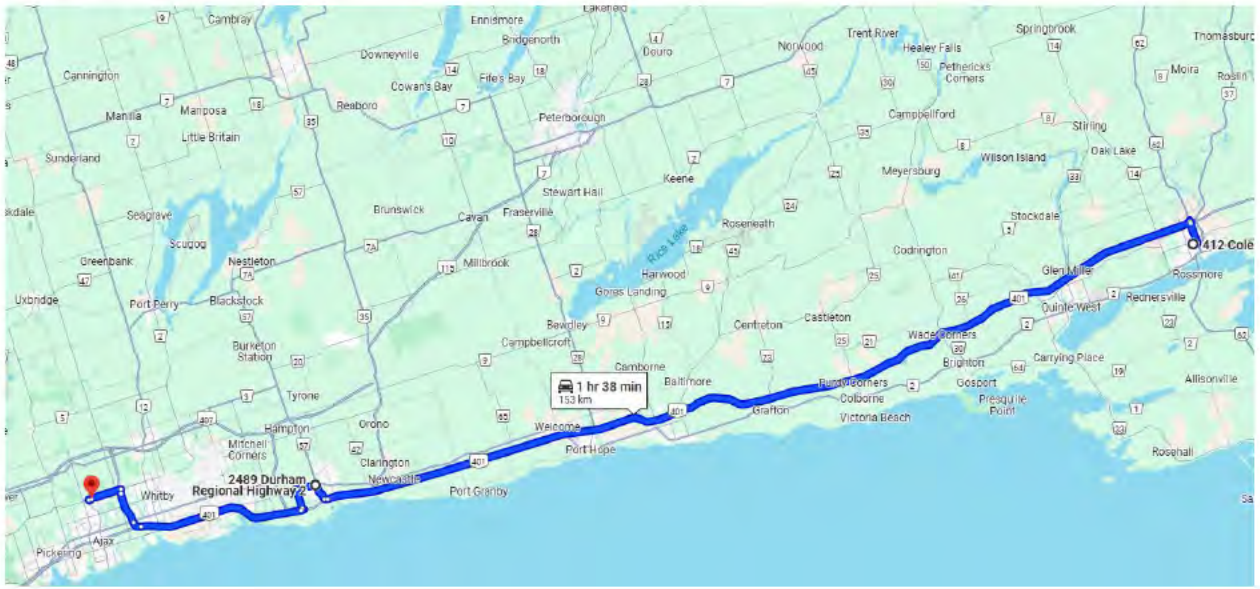


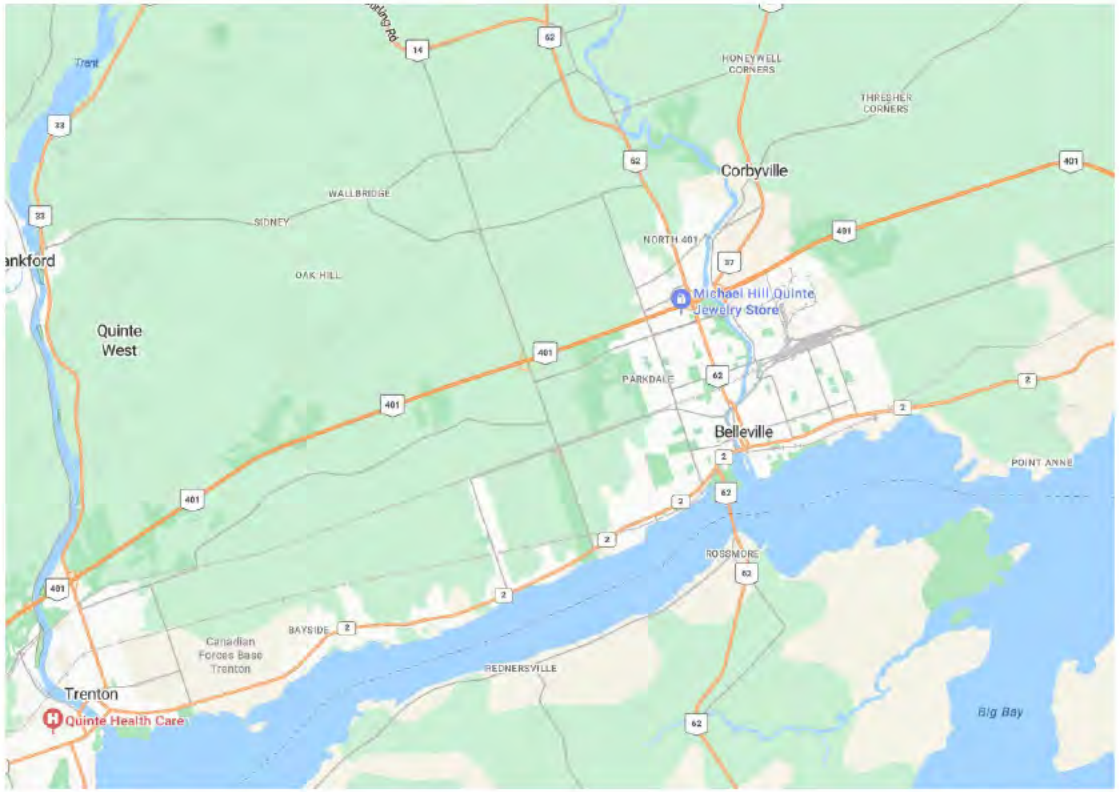
# 412 Coleman Street, Belleville

The City of Belleville is located within the geographic boundaries of Hastings County. Although Belleville is the "county seat" it is separate from the other municipalities that form part of Hastings County.

Belleville represents the eastern end of Elexicon's service territory and is located approximately 117 km from the Clarington Operations Centre and 149 km from the Head Office in Ajax. Drive time from Belleville to Clarington is approximately 1 hour 10 minutes, with an additional 30 minutes to Ajax.

Belleville has experienced 46% of the population growth ***within*** Hastings County over the period from 2001 to 2021 and it is estimated that 39% of Hastings County population will reside in Belleville by 2046. Growth is expected to continue over the next 20+ years at a gradually slowing pace.




**Belleville Historical and Projected Population Growth[1]**

| | 2001 | 2021 | 2026 | 2031 | 2036 | 2041 | 2046 | 2051 |
|---|---|---|---|---|---|---|---|---|
| Population | 48,330 | 56,550 | 60,580 | 64,270 | 67,810 | 70,820 | 73,140 | 75,190 |
| % Growth | N/A | 17.0% | 7.13% | 6.09% | 5.50% | 4.43% | 3.28% | 2.8% |

[1]Watson & Associates Economists Ltd., Population, Housing & Employment Growth Forecast Update, City of Belleville, December 21, 2022

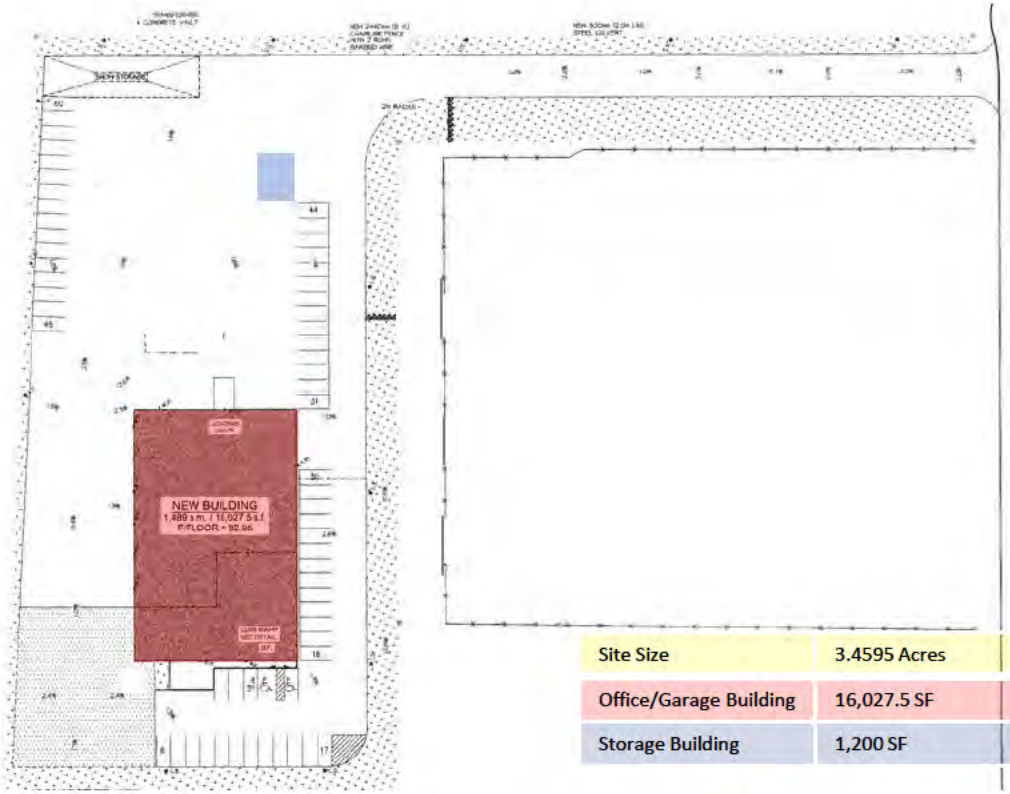
# 412 Coleman Street, Belleville

## 412 Coleman Street
Belleville, Ontario



| | |
|---|---|
| **Site Size:** | 3.4289 Acres (1.37 Ha) |
| **Building Size:** | 16,027.5 SF (Office/Garage Building)<br>1,200 SF (Storage Building) |
| **Building Class:** | Industrial /Mixed Use |
| **Year Built:** | 2021 |
| **Staff:** | 11 |
| **Parking:** | Approx. 62 Outdoor Parking Spaces |

- Elexicon's Belleville Operations Centre is located at 412 Coleman Street, on a 3.4 acre site in an industrial area adjacent to residential
- Buildings consist of a 16,000 SF office/garage and a 1,200 SF storage building
- Approximately 76,876 SF of the exterior is paved and 46,317 SF landscaped
- Operations, Metering, Engineering and GIS staff work out of Belleville




| | | |
|---|---|---|
| Site Size | 3.4595 Acres | 1.37 Hect. |
| Office/Garage Building | 16,027.5 SF | 1,489 $m^2$ |
| Storage Building | 1,200 SF | 111.5 $m^2$ |

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# 412 Coleman Street, Belleville

- The Belleville Operations Centre is a purpose-built facility, designed to Elexicon's specifications and constructed in 2021.
- The large lunch room / meeting room is typically used once a month for safety meetings. A touchdown/hoteling office is located adjacent to the meeting room.
- The building is not sprinklered (as permitted by Code).
- Staff includes Operations (Lines), Metering, Engineering (1) and GIS tech (1). A full size plotter is available to the engineering team.
- Support areas include men's and women's lockers, washrooms and laundry room.
- 2 Metering techs currently work out of the facility with access to a workshop/tool area as well as [redacted] storage space in the warehouse.
- Warehouse is approximately 20' high and provides adequate storage for reactive inventory. Some capital inventory [redacted] is kept on site. [redacted].
- Fleet includes 6 bucket trucks which are stored inside the 6-bay garage. Mechanics from Ajax attend to small repairs on site; major repairs are outsourced.
- Outside storage is fully paved except for a small portion at the back and provides adequate space for inventory which is stored on racks as well as pole storage.
- The outside storage building is used for [redacted] and other miscellaneous items as well as tension machines.
- A training yard accommodates 10 trainees per session.
- 2 EV charges are located inside the fence with 2 outside for customer use.
- Entire building is on backup generator.

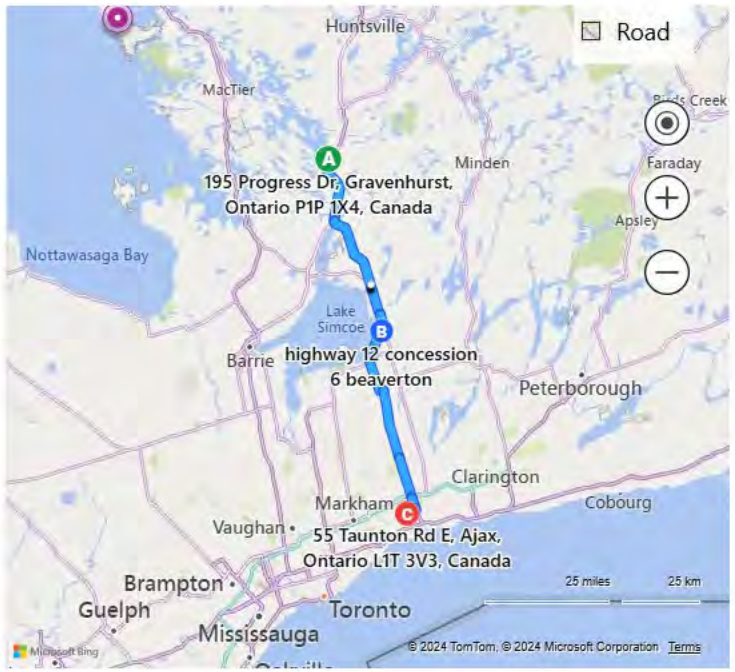
# Brock Township - Overview

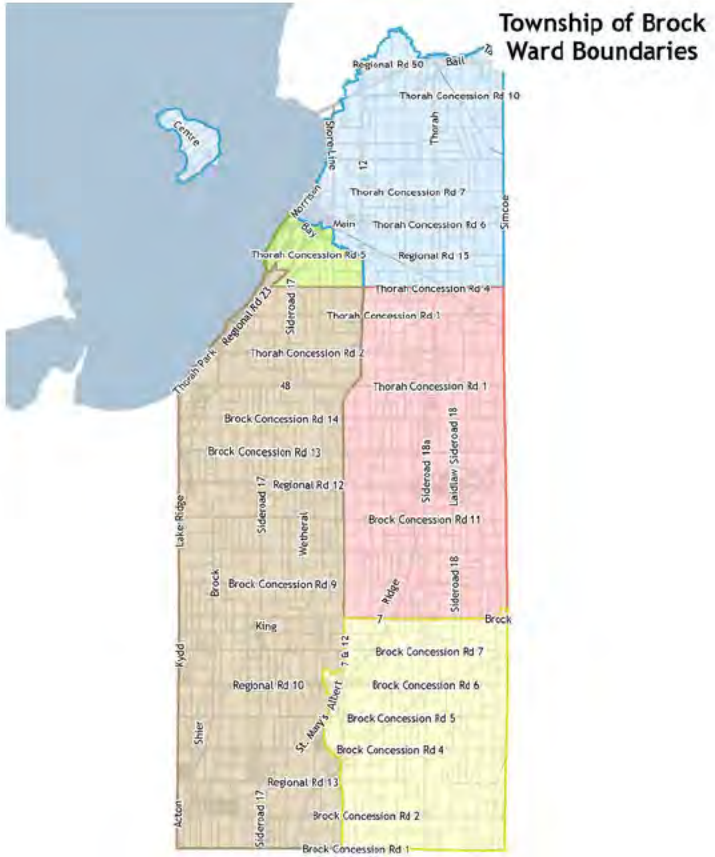
Brock Township, which is part of Durham Region, consists of the municipalities of Beaverton, Cannington and Sunderland. The entire area encompasses approximately 163.60 square miles.

Population in the Township was 12,525 in 2018 and is expected to grow to approximately 14,200 residents by 2028, representing a 13.37% growth rate over 10 years.

The Township is serviced by Elexicon's Operations Centre in Beaverton.

The Operations Centre for Brock Township is located approximately 52 miles from Elexicon's head office in Ajax and approximately 41 miles from the Gravenhurst Operations Centre. Drive times are approximately 1 hour 10 minutes to Ajax and 52 minutes to Gravenhurst.




**Brock Township – 10 Year Population Growth [1]**

| Population | 2018 | 2020 | 2022 | 2024 | 2026 | 2028 | 10 Year Growth | |
|---|---|---|---|---|---|---|---|---|
| Brock Township | 12,525 | 12,910 | 13,735 | 13,250 | 13,700 | 14,200 | 1,675 | 13.37% |

[1] Regional Municipality of Durham Information Report December 1,2023

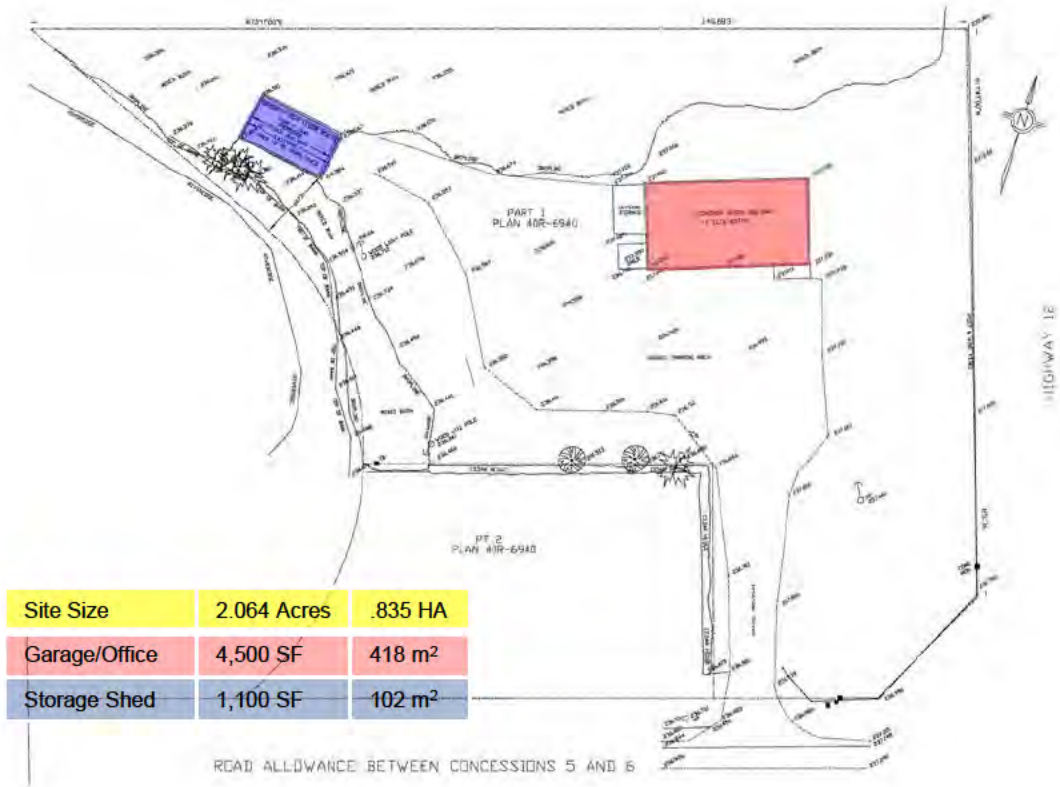
# 1395 Thorah Concession 6, Beaverton

## 1395 Thorah Concession 6
Beaverton, Ontario



| | |
|---|---|
| **Site Size:** | 2.064 Acres |
| **Building Size:** | 4,500 SF (Garage/Office)<br>1,100 SF (Storage Shed) |
| **Building Class:** | Industrial |
| **Year Built:** | 2001 (est) |
| **Staff:** | 5 Powerline Technicians |
| **Parking:** | Approx. 10-15 vehicle parking spaces |

- The Operations Centre for Brock is located on a 2 acre site at the corner of Highway 12 and Concession 6 in Beaverton
- Buildings consist of a 1,500 SF office with 3,000 SF of garage space and an 1,100 SF storage shed
- The site is fenced on three sides and backs onto a river
- 5 Powerline Techs work out of this location with regular visits by the Supervisor




| | | |
|---|---|---|
| Site Size | 2.064 Acres | .835 HA |
| Garage/Office | 4,500 SF | 418 m² |
| Storage Shed | 1,100 SF | 102 m² |

# 1395 Thorah Concession 6, Beaverton

- The garage/office building is approximately 4,500 SF with a small office component and 3 large truck bays.
- The yard is [redacted].
- Fleet includes 2 large bucket trucks, 1 digger and a small bucket truck.
- The site holds reactive inventory [redacted].
- The office component contains a small area for crews to gather, log time sheets and have lunch, with an office for the supervisor's use.
- There is no laundry/drying room at this site.
- The storage shed provides [redacted] as well as 1 truck.

# Gravenhurst - Overview

The Town of Gravenhurst, which is part of the District Municipality of Muskoka, is centrally located on Highway 11 and Highway 169 with good access to other major centres including Barrie, North Bay and Toronto.

The population of Gravenhurst has grown steadily over the years and now sits at approximately 13,000 permanent residents with 30% between the ages of 20 and 44 years. Growth is expected to continue with a projected population of 17,300 permanent residents by 2041[1].

In addition to its permanent residents, Gravenhurst hosts approximately 11,300 seasonal residents, which is expected to increase to 13,600 by 2041[1]. Population growth (permanent and seasonal) to 2041 is projected to be 6,600 (27.16%).

Gravenhurst currently represents approximately 17% of the total permanent and seasonal population of Muskoka; this proportion is expected to remain steady as growth throughout the Municipality continues.

The Gravenhurst Operations Centre is located approximately 121 miles from Elexicon's Head Office in Ajax, with an average drive time close to 2 hours.

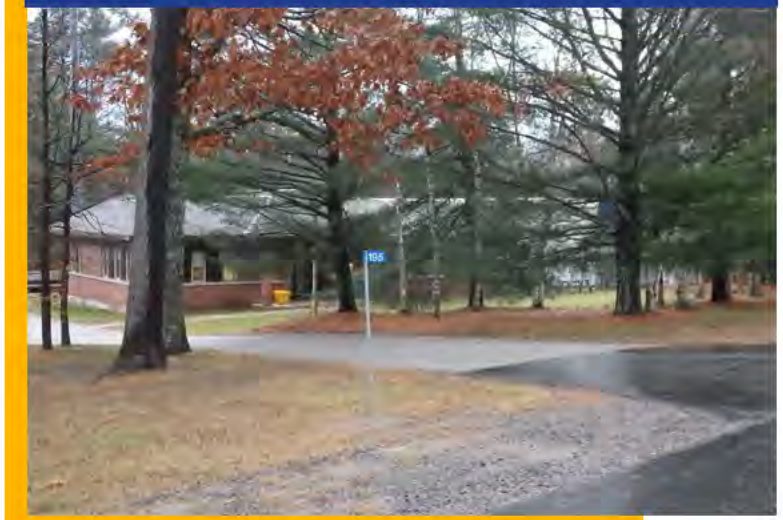
[1] Community Profile, Town of Gravenhurst




| Population | 2024 | | | 2041 | | | 17 Year Growth | |
|---|---|---|---|---|---|---|---|---|
| | Permanent | Seasonal | Total | Permanent | Seasonal | Total | Total | |
| Gravenhurst | 13,000 | 11,300 | 24,300 | 17,300 | 13,600 | 30,900 | 6,600 | 27.16% |
| Muskoka | 60,391 | 80,907 | 141,298 | 84,000 | 94,000 | 178,000 | 36,702 | 25.97% |

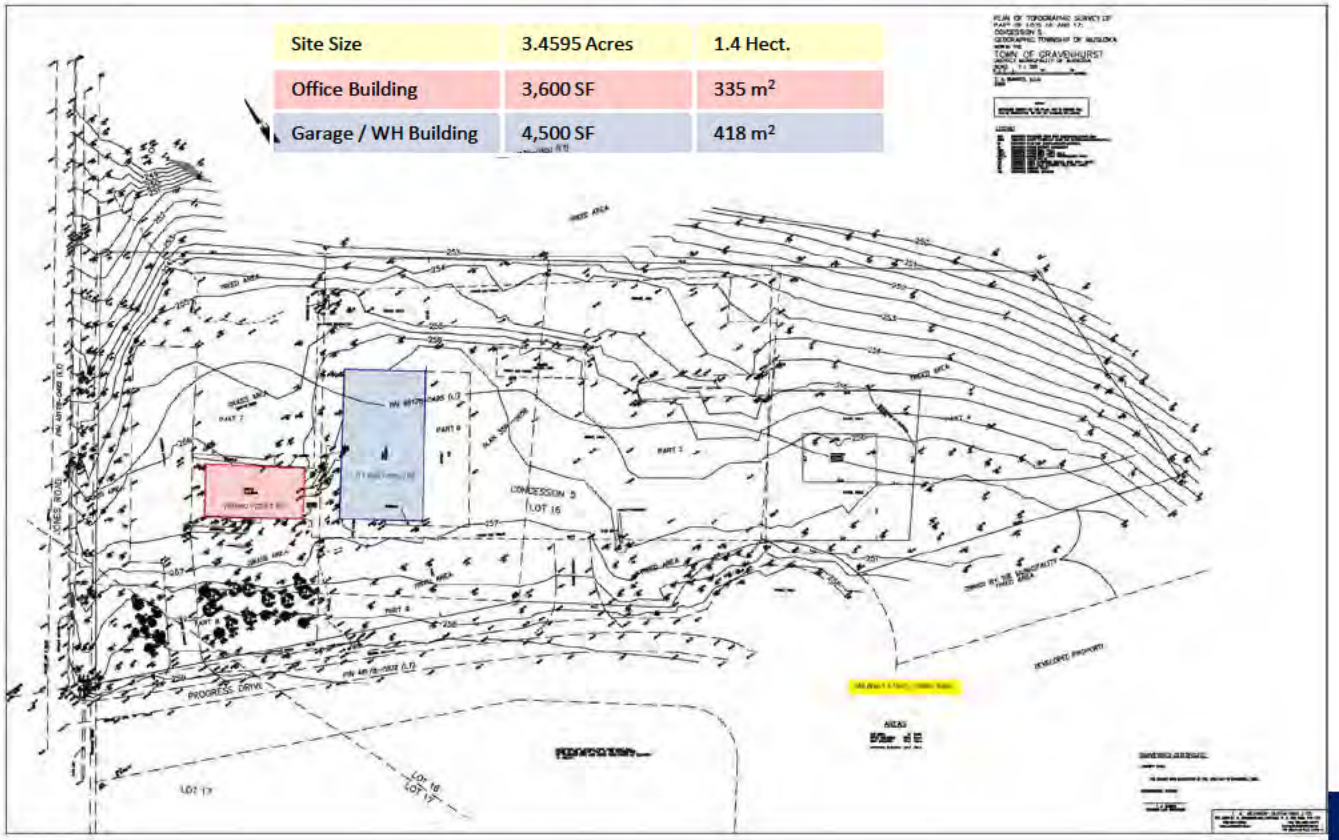
# 195 Progress Drive, Gravenhurst

## 195 Progress Drive
Gravenhurst, Ontario



| | |
|---|---|
| **Site Size:** | 3.4595 Acres (1.4 Ha) |
| **Building Size:** | 3,600 SF (Office)<br>4,500 SF (Garage/Warehouse Building) |
| **Building Class:** | Industrial / Mixed Use |
| **Year Built:** | 1994 |
| **Staff:** | 5 Powerline Technicians |
| **Parking:** | Approx. 12 Outdoor Parking Spaces (Office)<br>Approx. 7-8 Parking Spaces (Inside Fenced Area) |

- Elexicon's Operations Centre is located at 195 Progress Drive, on a 3.5 acre site in an industrial area
- Buildings consist of a 3,600 SF office and a 4,500 SF garage/ warehouse
- 5 Powerline Techs work out of this location with regular visits by the Supervisor



# 195 Progress Drive, Gravenhurst

- The shop/garage building is approximately 4,500 SF with 5 large truck bays.
- The yard is [redacted].
- Fleet includes 2 bucket trucks and 1 digger. Other specialty equipment includes 2 snowmobiles, 4 ATVs (2 current and 2 on order) and a small aluminum motor boat, all of which are required to service customers outside of the central town and on local islands.
- In order to service island customers, heavy equipment such as transformers is dropped via helicopter.
- The storage yard houses a variety of inventory including [redacted] and wood poles. Concrete poles, used in some areas, are not inventoried but are delivered directly to site when needed.
- Lines crews park their vehicles inside the secure portion of the site.
- [redacted].
- Site has a small backup generator.
- The office building is a single storey masonry building with full basement. This building has its own driveway entrance, [redacted] to the Operations Building
- Originally built as the office for Gravenhurst Hydro in 1994, the building [redacted].
- The building has been well maintained and is currently built out with a number of private offices and meeting rooms. The original main floor lunch room has been removed. Washrooms are barrier free.
- The basement is partially built out and contains a small kitchenette in the lunch room area. The remaining basement areas are unfinished space, previously used for file storage. The basement is dry; however there are small area of spalling on the foundation walls just above grade.
- The roof was replaced approximately 5 years ago.
- There are approximately 12 parking surface parking spaces associated with the office building.
- [redacted] supports this operation.




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# P2 FLEET

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost ($M): $7.78M | 2025-2026 Cost ($M): $3.74M | 2027-2031 Cost ($M): $17.85M |
| Primary Drivers: Capital/Maintenance Support | | |
| Secondary Drivers: Business Operations Efficiency | | |
| Outcomes: Operational Effectiveness – Reliability, Operational Effectiveness – Reliability, Environment, Financial Performance | | |
| Segments: Replacement of End-of-Life Vehicles, Vehicle Growth | | |

Investments in the Fleet category are for the maintenance and upgrading of aging and end of life fleet assets and the addition of new fleet assets for those additional staff required to execute the investment plan. Access to safe, well-functioning, and efficient vehicles are essential for operational staff to perform maintenance, respond to trouble calls, execute planned work.

Elexicon's fleet data demonstrates that these assets are aging and are at or nearing end of life and in need of replacement. Additionally, the utility is increasing the number of employees to be able to deliver the increased capital investments and continue to safely maintain the system. These employees will require new vehicles to be able to carry out their work. Investments in new vehicles have been timed to align with employee hiring.

Elexicon has historically looked to maintain and extend the life of fleet assets for as long as is economically justified, however many of these vehicles are now well beyond their useful life and need replacement.

Fleet investments are vital to Elexicon's customer service commitments. Reliability, for example, could be impacted if a vehicle is unavailable or breaks down when responding to an outage. Thus, regular maintenance and investment into fleet assets are crucial activities for Elexicon to meet its service obligations. Additionally, fleet vehicles allow staff to perform the capital and maintenance work necessary to improve, maintain, and construct the distribution system. In addition to ensuring staff have access to operational and safe vehicles, the provision of vehicles with newly added functionality can assist in ensuring work is performed safely and efficiently at Elexicon. For example, one recent addition of the Skylift ML53 Backyard Material Handler, demonstrates how specialized equipment enhances safety and

efficiency. Its ability to navigate through standard gates and beneath eaves allows crew to maintain hydro poles and equipment in the customers' backyard without compromising safety or accessibility.

Fleet investments are paramount to the operational efficiency and therefore financial performance of Elexicon's work. Any vehicle that experiences performance issues or breaks down in the field would increase the amount of work-hours required by staff. This is especially true for vehicles such as bucket trucks and Radial Boom Derricks "(RBDs") that contain many complex, moving components. As vehicle replacement costs are high, Elexicon makes prudent investment decisions in this area, including assessing refurbishment options when considering vehicle replacement. Vehicle refurbishment and replacements should be balanced as part of a fleet life-cycle management approach.

Elexicon's approach to fleet investments considers opportunities for newer technologies that can both reduce fuel cost and contribute to operational efficiencies. Elexicon plans to purchase and install two ePTOs (electronic power take-off) on select vehicles. This technology allows for the operation of the boom and bucket hydraulics via battery power as opposed to keeping the truck engine running continuously to operate these features of the truck. If these initial ePTOs installations perform as expected, Elexicon will consider expanding ePTO adoption across its fleet.

Elexicon's fleet investments fall into two investment categories: Replacement of End-of-Life Vehicles and Vehicle Additions. These investment categories are described in further detail in Section 2.

## 2. INVESTMENT DESCRIPTION

The Fleet Program (the "Program") is integral to supporting Elexicon's 24/7 operations and delivering capital and maintenance investment plans to ensure Elexicon continues to deliver the company mandate of a safe and reliable system. Investments in fleet are categorized as replacement or addition.

### 2.1 Replacement of End-of-Life Vehicles

Fleet vehicles are evaluated annually to identify required refurbishments and replacements. Assessments consider factors such as age, mileage, and overall condition to determine whether a vehicle requires further evaluation. When a vehicle is identified for replacement, it is inspected to assess the need for

investment. Vehicles are also added or upgraded in the fleet to address new changes in the system or if an operational need is fulfilled by a new vehicle purchase.

Elexicon's existing fleet consists of 201 vehicles and are summarized into 4 vehicle categories ("Heavy", "Light", "Trailers", and "Special Purpose", defined below. Table 1 shows the corresponding to age of each type of vehicle.

**Table 1: Existing Vehicle Type, Quantity & Age**

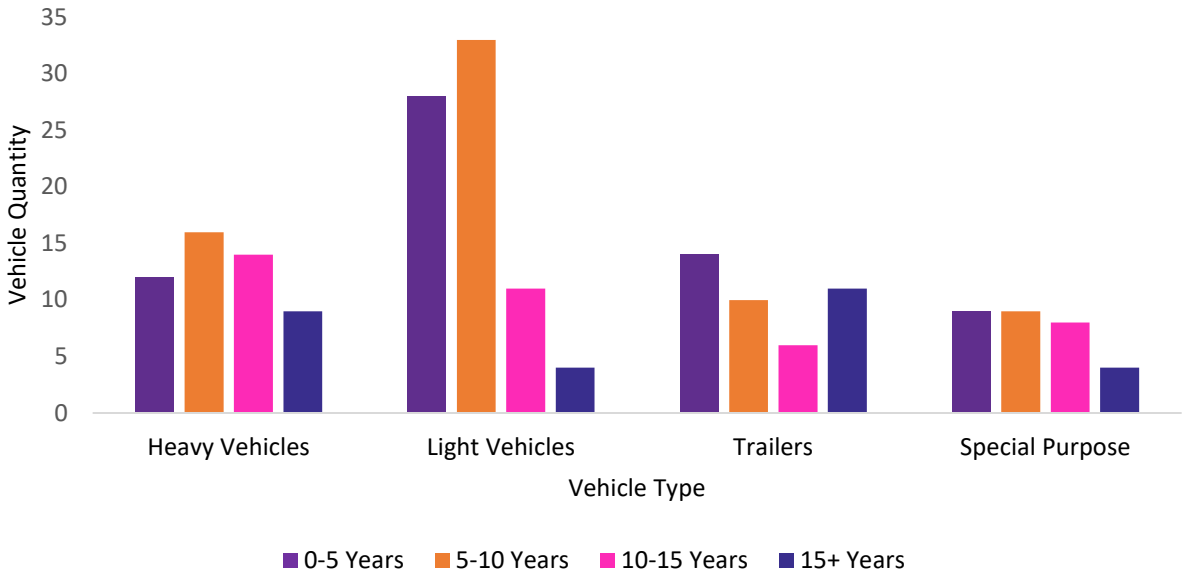
| Vehicle Type | 0-5 Years | 5-10 Years | 10-15 Years | 15+ Years | Total |
|---|---|---|---|---|---|
| Heavy Vehicles | 10 | 16 | 14 | 10 | 50 |
| Light Vehicles | 27 | 33 | 11 | 4 | 75 |
| Trailers | 14 | 10 | 6 | 10 | 40 |
| Special Purpose | 10 | 9 | 7 | 4 | 30 |

- **Heavy Vehicles** - these are predominantly bucket trucks used for overhead and line work.
- **Light Vehicles** – these vehicles include passenger and truck vehicles used to transport employees to worksites, customer locations.
- **Trailers** – are used to transport the more heavy-duty assets to locations. These trailers are designated specifically to transport cable reels, poles, transformers, and various other distribution equipment that cannot be housed on normal vehicles.
- **Special Purpose** - These vehicles are used for more specialized tasks such as pole digging, traversing through the snow with snowmobiles, boats to access more remote areas and pulling cable.

Elexicon uses various metrics to understand how fleet assets have been performing and if investments are needed. These metrics include:

- Vehicle age;
- Vehicle condition;
- Maintenance history and historical maintenance costs; and
- Vehicle utilization.

**Figure 1: Vehicle Quantity by Age and Type**




Elexicon has an aging fleet, with many vehicles reaching their end of life within the 2027-2031 period. To ensure Elexicon can deliver the capital and maintenance investment plans and respond to outages in a timely manner, Elexicon needs to replace many of the utility's vehicles. Elexicon's trigger for the assessment of vehicles that may require replacement are determined by two metrics, which are age and mileage. These thresholds are Elexicon thresholds that align with industry and manufacturer recommendations. At least one of these thresholds must be met before a detailed review is conducted to determine if replacement or refurbishment is required. Table 2 below outlines the thresholds by vehicle type.

**Table 2: Fleet Vehicle Assessment Thresholds by Category**

| Vehicle Category | Assessment Threshold | |
|---|---|---|
| | Age (Years) | Odometer |
| Heavy Vehicles | >10 | >200,000 |
| Light Vehicles | >7 | >150,000 |
| Trailers | >12 | N/A |
| Special Purposes | >15 | N/A |

Elexicon has identified 61 vehicles that are beyond the age threshold and 15 beyond the Odometer threshold. Table 3 and Table 4 outlines the number of vehicles that are either past the age and/or Odometer thresholds:

**Table 3: Fleet Age Threshold Analysis by Vehicle Category**

| Vehicle Category | Above Age Threshold | Below Age Threshold |
|---|---|---|
| Heavy Vehicles | 23 | 28 |
| Light Vehicles | 22 | 52 |
| Trailers | 14 | 32 |
| Special Purposes | 2 | 28 |
| Total | 61 | 140 |

**Table 4: Fleet Km Threshold Analysis by Vehicle Category**

| Vehicle Category | Above Km Threshold | Below Km Threshold |
|---|---|---|
| Heavy Vehicles | 0 | 51 |
| Light Vehicles | 15 | 59 |
| Total | 15 | 110 |

Following the identification of these vehicles, Elexicon carries out further review and assessment of options to determine whether the vehicle requires replacement, refurbishment, or can continue in service without intervention. Any vehicle that has triggered the thresholds outlined in Table 3 and Table 4 will likely need replacement in the near term. In some cases, where vehicles are less utilized or alternative coverage is available, replacements can be deferred.

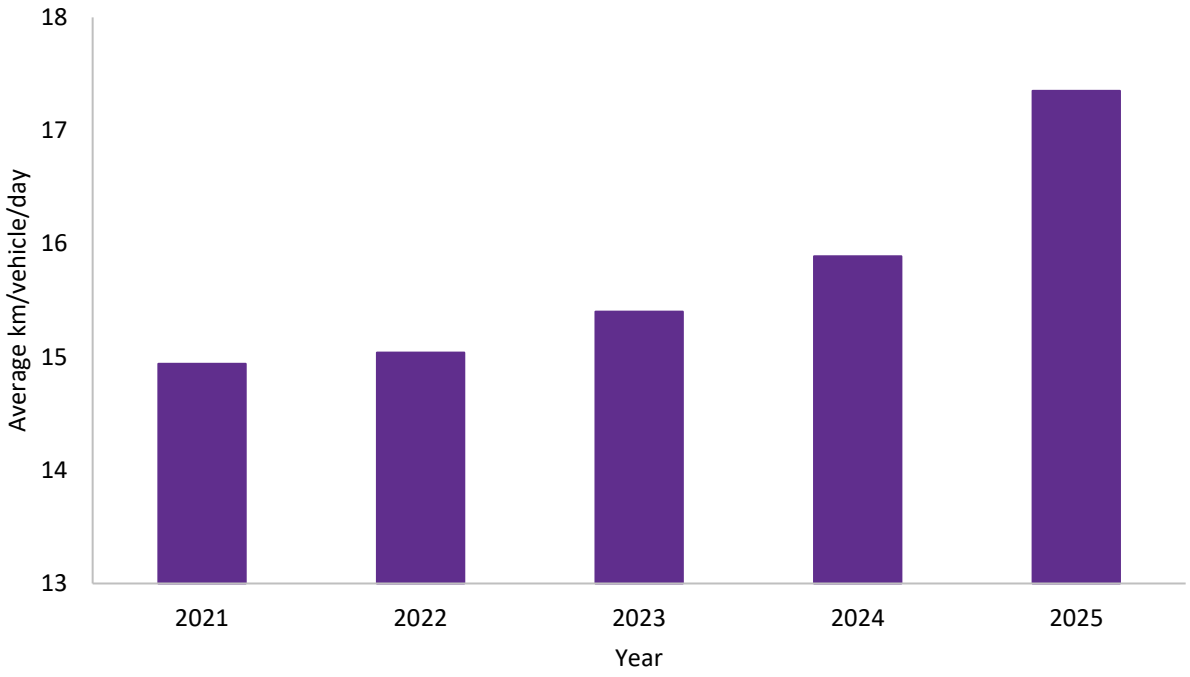
Fleet condition is assessed annually by the Fleet department. Elexicon first reviews each vehicle's mileage, age, and overall condition to determine if refurbishment or replacement is needed. If a vehicle exceeds a threshold in at least one of these categories, a condition assessment is performed. At the end of July each year, an overall summary of proposed fleet investments for the following fiscal year is prepared to support budget planning.

The key aspects of the vehicle that are assessed include the engine, drivetrain, chassis, tires, body, paint, condition of aerial device, hydraulic system controls and hoses, and general appearance. Comments, conditions, and costs of the refurbishment or replacement are provided on each fleet vehicle inspection

form. Mechanics maintain records of all vehicle inspections. Preventative maintenance scheduled by mechanics is based on engine-hours and odometer readings (mileage). Inspections include fluid replacements, tire inspection, and brake inspection. To maintain vehicles, Elexicon's workforce relies on standard operating procedures to document any known maintenance requirements. In addition to mechanic inspections, crews must perform and record pre-trip inspections. Each vehicle is subject to a circle check to complete the log requirements for each trip. Any defects are then brought to the attention of supervisors to determine vehicle safety and operability. Additionally, Elexicon expects that each year a number of vehicles will suffer issues that will require minor refurbishments and allocates a small portion of the fleet funding to address these unexpected needs.

Furthermore, Elexicon also considers the utilization of the utility's vehicles as a factor that influences replacement plans. As shown in Figure 2, the daily utilization rate of Elexicon's fleet on a per vehicle basis has increased by 16% over the course of the DSP period. Increased utilization further supports the need for increased investment in vehicles in the forecast years. Without timely replacement of fleet vehicles, Elexicon is at risk of experiencing unexpected failure at the same time the utilization of vehicles increases. As Elexicon investment program is growing for the 2027-2031 period, it is expected the utilization will continue to increase and it will be critical Elexicon has fleet of reliable vehicles to support both capital and maintenance plans.

**Figure 2: Average Historical Daily Vehicle Utilization for Elexicon Fleet**




Based on current condition, mileage, anticipated utilization, Elexicon has identified 47 vehicles that will require replacement over the 2027-2031 forecast period. The following table illustrates the vehicles being replaced, in which service area, for which department and the year for replacement:

**Table 5: Planned Fleet Replacements**

| Location | Department | Year for Replacement | Type | Replacement Details (Vehicle Number) | Vehicle Category |
|---|---|---|---|---|---|
| Brock | Operations | 2027 | Double Bucket Truck – 55’ | Replace (416) | Heavy |
| Ajax | Operations | 2027 | Double Bucket Truck – 55’ | Replace (413) | Heavy |
| Ajax | Operations | 2027 | Double Bucket Truck – 65’ | Replace (609) | Heavy |
| All | Operations | 2027 | Trailers | 1 Trailer replacement | Trailer |
| All | All | 2027 | Small Vehicles | 5 Small Vehicle replacements | Light |
| Whitby | Operations | 2027 | Dump Truck | Replace 2 | Heavy |
| Ajax | Operations | 2028 | Double Bucket Truck – 55’ | Replace (414) | Heavy |
| Ajax | Operations | 2028 | Double Bucket Truck – 65’ | Replace (608) | Heavy |
| Ajax | Operations | 2028 | Digger Derrick – 55’ | Replace (537) | Heavy |
| Ajax | Operations | 2028 | Dump Truck | Replace (306) | Heavy |
| All | Operations | 2028 | Trailers | 1 Trailer replacement | Trailer |
| All | All | 2028 | Small Vehicles | 5 Small Vehicle replacements | Light |
| All | Operations | 2029 | Trailers | 1 Trailer replacement | Trailer |
| All | All | 2029 | Small Vehicles | 5 Small Vehicle replacements | Light |

| Location | Department | Year for Replacement | Type | Replacement Details (Vehicle Number) | Vehicle Category |
|---|---|---|---|---|---|
| Gravenhurst | Operations | 2029 | Digger Derrick – 47’ | Replace (534) | Heavy |
| Whitby | Operations | 2029 | Double Bucket Truck – 55’ | Replace (17) | Heavy |
| Whitby | Operations | 2029 | Single Bucket Truck – 55’ | Replace (3) | Heavy |
| All | Operations | 2030 | Trailers | 1 Trailer replacement | Trailer |
| All | All | 2030 | Small Vehicles | 5 Small Vehicle replacements | Light |
| Belleville | Operations | 2030 | Single Bucket Truck – 40’ | Replace (443) | Heavy |
| Belleville | Operations | 2030 | Digger Derrick – 47’ | Replace (535) | Heavy |
| Clarington | Operations | 2030 | Double Bucket Truck – 55’ | Replace (444) | Heavy |
| All | Operations | 2031 | Trailers | 1 Trailer replacement | Trailer |
| All | All | 2031 | Small Vehicles | 5 Small Vehicle replacements | Light |
| Belleville | Operations | 2031 | Single Bucket Truck – 40’ | Replace (445) | Heavy |
| Belleville | Operations | 2031 | Single Bucket Truck – 40’ | Replace (446) | Heavy |
| Whitby | Operations | 2031 | Digger Derrick – 55’ | Replace (2) | Heavy |

These vehicles have reached their end of life and need replacement to ensure Elexicon staff can continue to carry out their duties safely and efficiently, enabling them to deliver on the capital and maintenance investment plan, and respond to outages and failures. Further details on the overall age and condition of Elexicon's fleet is described in Section 3.

## 2.2 Vehicle Additions

To enable Elexicon to continue to safely and reliability carry out operations and deliver the capital and maintenance plan, Elexicon is investing in 15 new vehicles for the planned new positions that would require a vehicle to perform the duties of the position. The following table shows the number of new positions by department that will require a vehicle. Further details on Elexicon workforce plans are described in Exhibit 4 - Tab 2 - Schedule 1.

**Table 6: New Employees Requiring Fleet Vehicles by Department**

| Department | No. of New Employees with Vehicle Requirements |
|---|---|
| Operations | 11 |
| Stations | 2 |
| Automation | 2 |
| Total | 15 |

Table 7 shows the new vehicles being purchased for new positions, in which year and for which Elexicon service area.

**Table 7: Planned Fleet Additions by Location and Year**

| Location | Department | Year | Type | Vehicle Category |
|---|---|---|---|---|
| Ajax | Operations | 2027 | ½ Ton Pickup | Light |
| Ajax | Operations | 2027 | Double Bucket Truck – Single Elevator | Heavy |
| Ajax | Operations | 2027 | Self Loading Reel Trainer | Trailer |
| Clarington | Operations | 2027 | Ford F550 - Altec 40' Truck | Heavy |
| Clarington | Automation | 2027 | 1 Ton Transit Regular Rear | Light |
| Brock | Operations | 2027 | Ford F550 - Altec 40' Truck | Heavy |
| Brock | Operations | 2027 | 1/2 Ton Pickup | Light |
| Gravenhurst | Operations | 2027 | Double Bucket Truck - Single Elevator | Heavy |
| Gravenhurst | Operations | 2027 | Small Boat | Special Purposes |
| Whitby | Operations | 2028 | Single Bucket Truck - 55’ | Heavy |
| Ajax | Operations | 2029 | Flat Deck Truck - with HIAB | Heavy |
| Belleville | Operations | 2029 | Double Bucket Truck - Single Elevator | Heavy |
| Clarington | Automation | 2030 | 1 Ton Transit Regular Rear | Light |
| Clarington | Stations | 2030 | 1 Ton Transit Dual Rear | Light |
| Clarington | Stations | 2031 | 1 Ton Transit Dual Rear | Light |

New vehicle purchases have been paced to ensure the vehicles are delivered in time to coincide with expected hiring dates for new roles. Elexicon's service territory spreads across multiple geographic locations, many of which are spread out. It is critical that employees performing work and attending customer premises have access to safe and reliable vehicles required to perform their work. This applies to all types of vehicles Elexicon has. Elexicon's workforce also needs to have access to the appropriate vehicle for the type of work to be performed. For example, to attend to customer premises on islands in the Gravenhurst region, Elexicon must have access to watercraft.

Elexicon's planned maintenance and capital work is projected to increase significantly across the 2027 to 2031, requiring additional heavy vehicles such as Bucket Trucks, Radial Boom Derricks and a flat deck material truck, to perform a higher volume of inspections.

## 2.3 Summary of Investment Outcomes and Benefits

**Table 8: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Operational Effectiveness – Safety & Reliability | Reliability<br>• As durations of outages are reduced by reactive crews, the increased risk of vehicle breakdown could jeopardize and impact SAIDI numbers substantially. Fleet investments are paced to support the desired level of system reliability.<br>Safety<br>• Safety is impacted by fleet investments as operational crews rely on fleet assets to transport material and people to work locations. If fleet assets are in deteriorating or poor condition, it poses a safety risk. Special vehicles such as bucket trucks serve additional purposes in housing tools and bucket capabilities for overhead workers. |
| Financial Performance | Contributes to Elexicon's financial performance objectives as measured by the total cost and efficiency measures by:<br>• Managing fleet and equipment assets to extend life as long as possible before replacing, and<br>• Enabling some mitigation of fuel expense by aiming to reduce fuel consumption through a combination of utilizing hybrid and electric vehicles where operationally possible. |
| Environment | • Newer vehicles have improved fuel efficiency compared to older and deteriorated vehicles. Whilst the majority of Elexicon fleet are traditional internal combustion engine vehicles, Elexicon currently owns two electric vehicles. Elexicon plans to purchase electric or hybrid vehicles when the existing SUVs in the fleet are due for replacement. Elexicon continues to monitor the market and other utility experiences for other electric vehicles, to understand if and when other types of electric vehicles may be suitable. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

Fleet investments are critical to Elexicon's 24/7 operations and ensuring the continued maintenance of a safe and reliable system. Fleet investments are driven by two drivers: Capital and Maintenance Support and Business Operations Efficiency.

## 3.2 Capital and Maintenance Support

The trigger driver for the Program is the need for safe and reliable vehicles that support the utility's capital work and system maintenance during the 2027-2031 rate period and beyond. The utility requires access to vehicles and equipment that meet current and future functional requirements to transport employees and materials to and from job sites, perform distribution work onsite, and provide shelter and working areas for workers on site. Vehicle uses on job sites include lifting and positioning material, storing material, preparing material for installation, acting as a planning station, and serving as shelter. Fleet vehicles must be available to support these work functions in a safe, reliable, and operationally efficient manner.

Elexicon's fleet consists of several vehicle types that are designed to meet the utility's evolving portfolio of requirements and support other investment programs and the utility's distribution work. These are described in section 2.1. Without these vehicles in good working order, Elexicon would not be able to meet the obligations of delivering capital and maintenance investment plans, as well as efficiently respond to outages and failures.

## 3.3 Business Operations Efficiency

The secondary trigger is to enable efficiency in Elexicon's operations. The majority of Elexicon's fleet vehicles are used on a daily basis by crew members to either carry out capital and maintenance work or to respond to outages and failures. Through Elexicon's fleet investments Elexicon will be replacing old and inefficient vehicles with newer vehicles. New vehicles tend to have greater fuel efficiency and tend to require less maintenance or repairs, which will further help Elexicon operate fleet assets efficiently.

Figure 3 shows the average annual maintenance costs of Elexicon's fleet over the last five years. Yearly maintenance has increased from approximately $1,000,000 in 2020, to an average of $1,430,000 since 2021. Without carrying out the proposed pacing and replacement of existing vehicles, these maintenance costs are expected to continue to increase.

**Figure 3: Vehicle Maintenance Cost by Year**

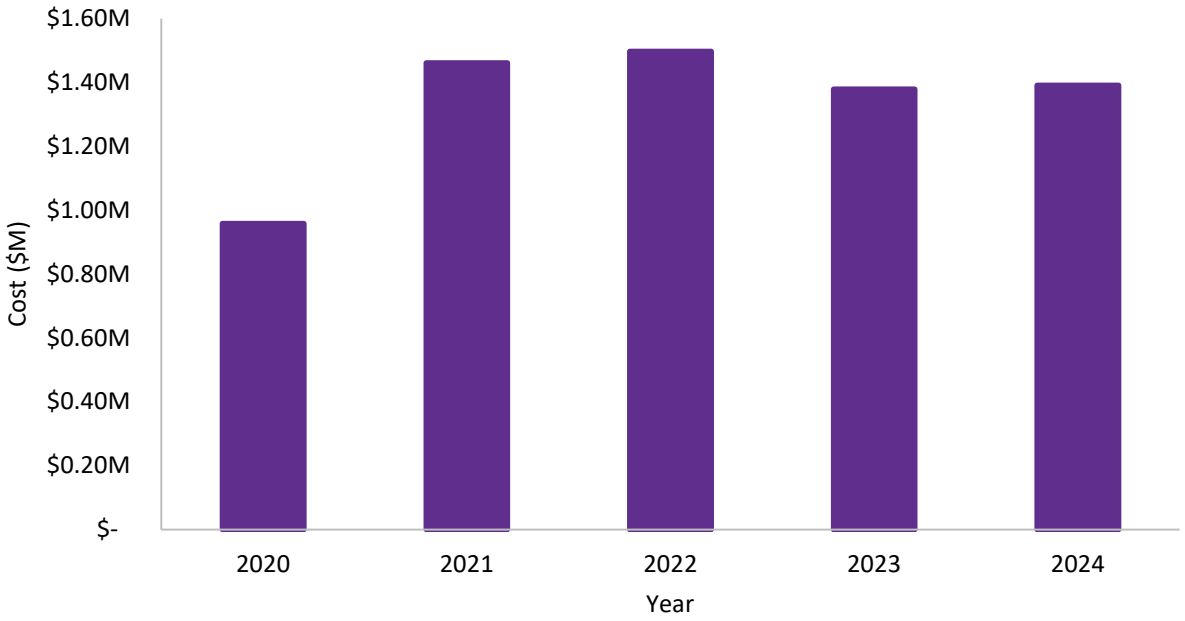



Table 9 shows the average annual maintenance cost of the vehicles that are being proposed to be replaced in the 2027-2031 period:

**Table 9: Average Annual Maintenance Cost by Vehicle Category**

| Vehicle Category | Average Historical Annual Maintenance Cost |
|---|---|
| HT | $ 14,883.16 |
| LT | $ 2,132.78 |
| Special Purpose | $ 1,319.61 |
| Trailers | $ 1,339.61 |

Elexicon also utilizes in-vehicle and/or portable computing devices to improve the ability to manage vehicle fleet assets. The types of data that are recorded include:

- Vehicle speed;
- Vehicle idle time;
- Average fuel usage;
- Average driving times for routine trouble calls; and
- Vehicle or equipment limits being exceeded.

The data is utilized to manage assets, provide long-term work planning, and support budgeting and asset allocation for the fleet inventory. This is crucial in ensuring the longevity and maintenance of fleet vehicles.

## 4. INVESTMENT TIMING & PACING

### 4.1 Summary of Expenditures

**Table 10: Summary of Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.80 | 1.63 | 2.33 | 1.79 | 1.24 | 2.00 | 1.74 | 3.97 | 3.37 | 4.64 | 2.96 | 2.91 |
| Total (Net) | 0.80 | 1.63 | 2.33 | 1.79 | 1.24 | 2.00 | 1.74 | 3.97 | 3.37 | 4.64 | 2.96 | 2.91 |

For purchases of vehicles to equip new staff, the forecasted budget has been paced to ensure that new vehicles arrive in the year the new position is projected to be filled. This will ensure that a vehicle is available to allow employees to carry out duties effectively. For costs associated with replacement of existing vehicles, Elexicon has adopted a paced approach to replacement. This balances the anticipated operability of the vehicle with the lead time required to replace it. This ensures that Elexicon can plan to order the vehicles in advance, especially for vehicles which can take over twelve months to deliver from the manufacturer. Table 11 and Table 12 below show the number of vehicles in each vehicle category Elexicon will replace and new vehicles for new employees. Additional details on which types and year is outlined in Section 2.1 and 2.2 of this narrative.

As can be seen from the two tables below, Elexicon is planning on replacing and purchasing new vehicles however, forecast costs are higher than the historical period due to two main factors

- Average cost of vehicle has increased. The average cost for vehicles in the forecast period compared to the historical period has increased based on supplier information. Figure 4 and Figure 5 below show the Historical average cost of a Heavy and Light vehicle are compared to the forecast average cost. For Heavy vehicles, Elexicon is expecting to see the average cost to be approximately $128,000 more than the 2020-2024 period. For Light vehicles, Elexicon is expecting the average cost to be approximately $55,000 more than the 2020-2024 period.
- The number of vehicles classes as Heavy and Light are significantly more than the historical period, with these vehicles typically costing on average more than special purpose and trailers. Compared to the 2020-2024 period, Elexicon expects to replace 9 more heavy vehicles and 2 more light vehicles.

**Figure 4: Average HT Cost (Historical Vs. Forecast)**

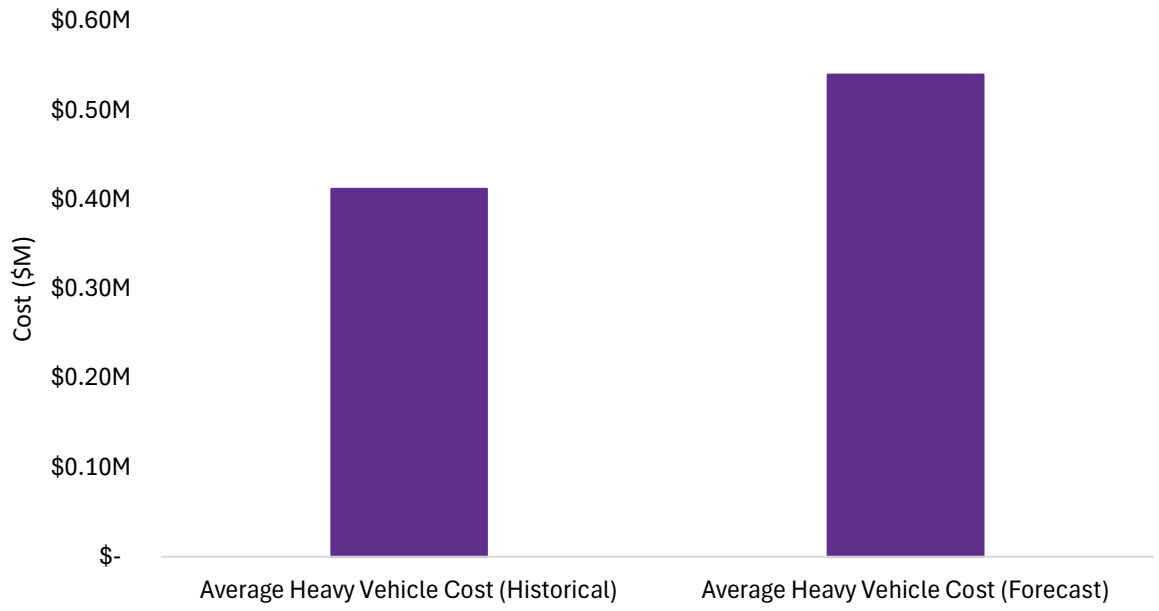
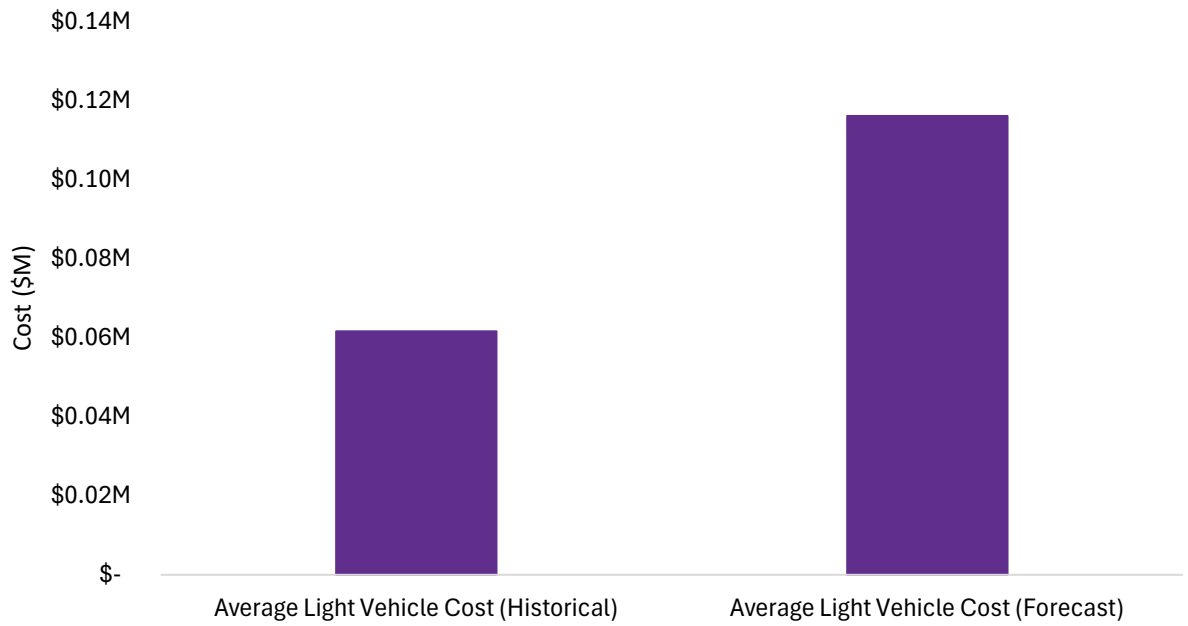


**Figure 5: Average LT Costs (Historical Vs. Forecast)**




### 4.1.1 Vehicle Replacement Plan

Table 11 summarizes historical and forecasted fleet vehicle replacements by category and year. The data reflects Elexicon's paced approach to fleet management, balancing operational requirements with procurement lead times. Heavy vehicles show intermittent replacement cycles, with higher volumes in years such as 2021 and 2027, aligning with anticipated lifecycle expirations. Light vehicles represent the largest category, with consistent annual replacements to maintain reliability and support field operations. Trailer replacements occur less frequently, reflecting their longer service life. Overall, the forecast ensures proactive planning for vehicles with extended delivery timelines, enabling Elexicon to sustain operational efficiency while managing costs effectively.

**Table 11: Historical and Forecasted Fleet Vehicle Replacements by Category and Year**

| Vehicle Category | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heavy Vehicles | 1 | 4 | 2 | 1 | - | 3 | - | 4 | 4 | 3 | 3 | 3 |
| Light Vehicles | 2 | 3 | 6 | 3 | 9 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Trailers | 1 | - | 3 | 2 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Total | 4 | 7 | 11 | 6 | 9 | 9 | 6 | 10 | 10 | 9 | 9 | 9 |

### 4.1.2 Planned Vehicle Additions

Table 12 presents historical and forecasted fleet vehicle additions by category and year. These additions are primarily driven by staffing growth and operational requirements, ensuring that new employees have the necessary resources to perform their duties effectively. Light vehicles account for the majority of additions, reflecting their essential role in supporting field operations. Heavy vehicle additions occur less frequently but show notable increases in years such as 2027, aligning with planned expansions and specialized work needs. Trailer and special-purpose vehicle additions are minimal and occur intermittently, consistent with their longer service life and specialized application. Overall, the forecasted additions demonstrate Elexicon's proactive approach to aligning fleet capacity with workforce growth and operational demands.

**Table 12: Historical and Forecasted Fleet Vehicle Additions by Category and Year**

| Vehicle Category | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heavy Vehicles | - | - | 2 | 2 | - | 1 | 1 | 5 | 1 | 2 | - | - |
| Light Vehicles | 3 | 1 | 2 | 5 | 1 | 1 | 1 | 3 | - | - | 2 | 1 |
| Trailers | - | - | 2 | 1 | 2 | - | - | - | - | - | - | - |
| Special Purposes | - | 2 | 1 | 2 | 1 | - | - | 1 | - | - | - | - |
| Total | 3 | 3 | 7 | 10 | 4 | 2 | 2 | 9 | 1 | 2 | 2 | 1 |

The forecasted budget includes replacement of existing vehicles and investment related to vehicle additions (i.e., new vehicles for new positions to be staffed). The majority of the spend in the 2027-2031 period will be on replacing existing vehicles. Details on the number of vehicles, vehicle category and year for purchase can be found in Section 2.1 and 2.2 of this narrative.

## 4.2 Investment Pacing and Prioritization

The pacing of investments is determined by the operational need and intended purpose of the vehicle being acquired or replaced.

- Addition of new positions – the pacing of purchasing new vehicles is aligned with the timing of when the new employees, who require a vehicle, will start. Table 6 in Section 2.2 outlines the years the new vehicles are required.
- Sustained replacement of vehicles at end of life and in need to replacement – this takes into the age and condition of vehicles and expected utilization. Detail on how Elexicon evaluates the condition and forecasts replacement needs are provided in Section 2.1.

These two drivers, as well as timing of delivery of vehicles with longer lead times, are used to determined the proposed pacing in the Fleet program.

When purchasing new vehicles, Elexicon provides vehicle specifications to the supplier and assesses multiple proposals for the supply of vehicles and select supplier that best suits the needs and timings of Elexicon. These vehicle specifications apply to pickup trucks, bucket trucks, RBDs, and passenger vehicles. The bid assessment for all vehicles considers price, safety ratings, lifetime operating cost (including fuel usage), functionality, and ergonomics.

## 4.3 Procurement Approach

Elexicon maintains strong relationships and communication with vehicle suppliers. With sufficient long-term planning, Elexicon can work with suppliers to ensure timely delivery. Elexicon works with fleet suppliers to understand changes in lead times to enable Elexicon to place orders for vehicles at optimal periods. This is especially important when ordering heavy vehicles, such as a bucket truck, as these typically have a lead time of 1-2 years.

# 5. OPTIONS ANALYSIS

## 5.1 Options Analysis

No options analysis has been considered by Elexicon, with the plan proposed the fleet investment Elexicon requires to meet the obligations of delivering safe and reliable electricity on a 24/7 basis.

# 6. EXECUTION RISKS & MITIGATION

Execution of Elexicon's Fleet Plan is subject to several risks that could impact both operational readiness and financial performance. These include market and supply chain volatility affecting vehicle availability and costs, resource and maintenance capacity constraints, and uncertainties associated with emerging fleet technologies such as electrification.

Additionally, delayed fleet replacements can increase OM&A expenditures and risk vehicle reliability, directly affecting field productivity and the timely delivery of capital projects. To mitigate these risks, Elexicon maintains a rolling fleet replacement forecast, monitors supplier performance, and evaluates asset condition and utilization metrics to ensure optimal lifecycle management.

Elexicon's five-year forecast for vehicle replacements is based on age, mileage and utilization as well as general condition; however, there is a risk that some vehicles may deteriorate sooner than projected, leading to unexpected failures that could disrupt operations and increase costs. To manage this risk, Elexicon implements several proactive measures: annual condition assessments, routine maintenance, crew inspections, and utilization monitoring to identify issues early. Additionally, an annual budget allocation is reserved for emergency repairs, ensuring the utility can respond quickly to unforeseen failures and minimize service impacts.

Elexicon has strong relationships with vehicle suppliers. This includes ensuring Elexicon has early notice of any changes to lead times for vehicles. Should lead times change, Elexicon will assess the fleet program investments and make adjustments as required. This could include placing orders earlier for vehicles that have extended lead times.

# P3 IT SYSTEMS

## 1. OVERVIEW IT SYSTEMS

| | | |
|---|---|---|
| 2020-2024 Cost: $15.62M | 2025-2026 Plan: $2.77M | 2027-2031 Forecast: $10.25M |
| Primary Drivers: Operational Efficiency, Cyber Security & Compliance. | | |
| Secondary Drivers: Data-Driven Decision Making, Customer Experience and Digital Enablement, Reliability and Operational Effectiveness | | |
| Outcomes: Customer Focus, Operational Effectiveness, Public Policy Responsiveness | | |
| Segments: Network Additions and Enhancements, Printers & Copiers, End User Hardware Enhancements, Endpoint Device Refresh, Data Centre Enhancements, Cyber Security | | |

Capital investment in information technology ("IT") is essential to delivering safe, reliable, and efficient electricity distribution services that meet evolving customer expectations. Modern IT systems enable automation, real-time monitoring, data-driven decision-making, and improved cyber security—capabilities that directly support service reliability, faster outage response, accurate billing, and enhanced customer communication. As customer needs grow more complex and digital, sustained IT investment ensures that Elexicon remains responsive, resilient, and capable of providing high-quality service while maintaining regulatory compliance and cost-effectiveness over the long term.

Outdated hardware limits scalability and innovation, creating bottlenecks that hinder Elexicon's ability to support new business requirements, automation, and digital transformation efforts. As workloads grow, older infrastructure struggles to meet performance demands, increasing the likelihood of service delays, inefficiencies, and errors. Investing in timely hardware replacements ensures that Elexicon maintains reliable operations, mitigates risk, and avoids the costly consequences of system failures and reactive maintenance. Deferring these investments may provide short-term cost savings, but ultimately, it introduces long-term financial and operational challenges that could outweigh any initial benefit.

Historically, IT related capital expenditures were higher due to the reliance of on-premises infrastructure and hardware-intensive solutions. This trend has shifted as utilities increasingly adopt cloud-based solutions. This transition is leading to a reclassification of IT spend with a growing proportion falling under operating expenses (OM&A) rather than IT systems. As a result of this, overall capital investment for IT

systems will decrease over the 2027-2031 period. Annual IT spending continues to vary based on equipment lifecycle stages, refresh schedules and evolving operational needs. For example, end point devices, network infrastructure, and data center components follow multi-year replacement cycles, which causes fluctuations in investment levels. Timing and pacing of IT investments are therefore closely aligned with asset condition assessments, technology roadmaps, and strategic priorities. Section 2 outlines for each program segment the investments proposed by year for the 2027-2031 period.

Capital investment in the technology is essential for Elexicon to ensure grid reliability, cyber security resilience, and operational efficiency. As technology evolves, upgrades to aging infrastructure, advanced grid automation, and enhanced cyber security defenses are necessary to protect against outages, cyber threats, and regulatory non-compliance. These investments support real-time monitoring and predictive maintenance, ultimately improving service reliability and safety for customers.

The investments are split into five categories:

- Printers & Copiers
- Endpoint Device Refresh, End User Hardware (HW) Enhancements
- Data Centre Enhancements
- Network Additions and Enhancements
- Cyber Security

## 2. INVESTMENT DESCRIPTION IT SYSTEMS

The IT Systems program (the "Program") is integral to supporting all aspects of the company's operations. The infrastructure, cyber security controls, and business applications provided by this Program enable efficient operations and play a critical role in achieving the company’s mandate to deliver safe and reliable electricity.

This Program encompasses the deployment, operation, maintenance, and lifecycle management of the company’s technology and controls, specifically:

- **IT Hardware:** Core back-end infrastructure assets (e.g., servers, storage systems, backup architecture, networks, and data centers), cyber security components, and endpoint devices (e.g., desktop computers, laptops, printers, smartphones, and tablets) essential to day-to-day operations and core systems.
- **IT Software:** Software, including cyber security systems, databases, middleware, and enterprise applications.
- **Communication Assets:** Assets critical to distribution communication infrastructure, including fiber-optic networks, and wireless Supervisory Control.

The lifecycle planning of IT equipment such as servers, network switches, firewalls, and other related hardware is essential for maintaining an efficient and secure IT infrastructure. Table 1 below outlines Elexicon's lifecycle guidelines based on industry and manufacturer information.

**Table 1: Elexicon Lifecycle Guidelines for Core IT Equipment**

| IT Equipment | Recommended Lifecycle | Key Considerations |
|---|---|---|
| Servers | 3-5 years | Performance degradation, warranty expiration, increased failure rates, and support for new applications. |
| Network Switches | 5-7 years | Technological advancements, increased bandwidth requirements, security updates, and support limitations. |
| Firewalls | 3-5 years | Evolving security threats, performance needs, ability to update software, and end-of-support from vendors. |
| Routers | 5-7 years | Bandwidth and performance requirements, support for new protocols, and end-of-life notices from vendors. |
| Storage Systems | 3-5 years | Capacity needs, performance, warranty, and end-of-support for critical firmware and software updates. |
| UPS (Uninterruptible Power Supply) | 5-7 years | Battery life, maintenance requirements, and end-of-support for monitoring software. |
| Desktop Computers | 3-5 years | Performance needs, software compatibility, warranty, and user productivity. |
| Laptops | 3-4 years | Portability requirements, performance, battery life, and warranty. |
| Printers/Scanners | 5-7 years | Technological advancements, maintenance requirements, and total cost of ownership. |
| Wireless Access Points | 3-5 years | Technological advancements, increased bandwidth requirements, and security updates. |

IT initiatives play a critical role in ensuring systems remain secure, reliable, and aligned with modern technology standards. During the upcoming rate period (2027 and 2031), IT capital investments are necessary, as an example, 62% of Elexicon's IT infrastructure assets (switches, routers, servers) and 88% of Elexicon's OT infrastructure assets will reach the end of their refresh lifecycle. As Elexicon makes significant OM&A investments in modern business applications it is critical that the hardware on which such applications run is compatible and secure (see Exhibit 4 - Tab 1 - Schedule 1). Insufficient device management and under investment will undermine Elexicon's ability to utilize and optimize cloud-computing in Dx NEXT and Modern Workplace (see Exhibit 4 - Tab 1 - Schedule 6).

The Program delivers essential capabilities that directly support service reliability, operational resilience, and customer trust. These functions underpin the safe and efficient operation of our electricity distribution system and enable the organization to adapt to emerging customer and grid needs through strategic alignment and modernization, infrastructure support and reliability, operational efficiency, technology evaluation and integration, and cyber security and enterprise risk management.

The Program is comprised of five key initiatives designed to maintain a secure, reliable, and high-performing technology environment. These initiatives include:

- Printers and Copiers
- Endpoint Device Refresh and End User Hardware Enhancements
- Data Centre Enhancements
- Network Additions and Enhancements
- Cyber Security

The following sections provide further detail on each initiative.

## 2.1 Printers & Copiers

Elexicon has adopted a five to seven-year lifecycle plan for printers and copiers, which aligns with industry standards, ensuring Elexicon maintains reliable, cost-effective, and secure document management while minimizing operational disruptions. Printers and copiers are essential for field operations, customer

communications, regulatory reporting, and administrative tasks. As these devices age, they become more prone to hardware failures, increased maintenance costs, and inefficiencies, leading to potential workflow disruptions and higher long-term expenses.

This lifecycle reflects the period during which devices typically remain cost-effective to operate and are supported by vendor maintenance, firmware updates, and security patches. Beyond this timeframe, maintenance costs may rise (as maintenance contracts become more costly to support older equipment), component failure rates can increase (causing downtime) and cyber security vulnerabilities may emerge due to discontinued software support.

A structured five-to-seven-year refresh cycle also allows for planned investments, reducing unexpected failures and the need for costly emergency replacements.

Cyber security is another key concern, with newer devices offering enhanced security features, such as user authentication, encrypted printing, modern protocols, and remote monitoring, helping to protect sensitive utility and customer information.

Additionally, modern printers and copiers offer greater energy efficiency, reduced paper waste, and improved integration with digital workflows, supporting Elexicon's commitment to sustainability and operational efficiency. A five-to-seven-year lifecycle plan ensures that Elexicon's print infrastructure remains reliable, secure, and cost-effective, while also keeping pace with technological advancements that improve overall business operations.

Planned for replacement during the 2027 – 2031 period include:

- Canon CW3500 and Canon CW500 plotter
- Canon CW3600 plotter
- Canon TM300 Plotter/Scanner

These devices will be at or near end-of-life at the time of replacement.

## 2.2 Endpoint Device Refresh and End User Hardware (HW) Enhancements

The Program provides for a systematic replacement of end user devices (such as PCs, tablets, and mobile phones) according to a defined 3-year lifecycle plan. This includes conducting an updated inventory of existing devices, assessing their performance and compatibility with current software/operating systems, and developing a rollout strategy for the new devices. The project encompasses procurement of new hardware, configuration and setup of devices to meet organizational standards, migration of user data and settings, and disposal or recycling of old equipment in accordance with environmental regulations.

Ongoing investment during the upcoming rate period is focused on updated end user devices and hardware essential to maintain productivity, cyber security, and operational efficiency as Elexicon's workforce and technology demands grow. Aging devices increase the risk of failure, data loss, and cyber vulnerabilities due to missing security patches and outdated operating systems. A disciplined lifecycle management program will ensure that desktops, laptops, and mobile devices are refreshed on a regular schedule, maintaining compatibility with modern business applications and security controls. These updates also enable Elexicon to leverage new collaboration tools, for example, through the Modern Workplace initiative transition from legacy systems such as traditional file shares and on-premises SharePoint to a modern, cloud-based environment leveraging tools like SharePoint Online, Microsoft Purview, the Power Platform, and other Microsoft 365 capabilities), and cloud-based platforms that improve automation.

As Elexicon's workforce is anticipated to expand, proactive planning for device procurement and licensing helps control costs, avoid unplanned expenditures, and ensure consistent technology standards across the organization. Together, these investments sustain a secure, efficient, and future-ready work environment that supports reliable service delivery.

Rationale to support this project includes:

- **Security & Cyber Risk Reduction** – Older devices lack security updates, increasing vulnerability and thus attack surface.

- **Operational Efficiency** – Slow devices reduce productivity; new hardware helps to ensure smooth performance.
- **Cost-Effectiveness** – Proactive replacement prevents high maintenance and emergency costs.
- **Support for Modern Applications** – Legacy devices may not support evolving software and cloud tools.
- **Reliability & Downtime Reduction** – Failure rates of internal components increase after three years, disrupting operations.
- **Employee Experience** – Modern devices support enhanced productivity, collaboration, and job satisfaction.

A structured refresh cycle promotes security, efficiency, and cost savings while ensuring reliable day-to-day operations. In addition to the planned end-user equipment refresh, staffing levels are expected to increase over the 2027–2031 planning period. Corresponding investments in end-user devices and hardware have been included in the budget to accommodate this growth. Further details on projected staffing levels and associated resource requirements are provided in Exhibit 4 - Tab 2 - Schedule 1, included within this application.

The following Table 2 outlines the forecasted equipment refresh plan for laptops and mobile devices, aligned with current active warranty cycles and lifecycle management practices. It includes in brackets how many of the devices are for the additional headcount that will be added to Elexicon workforce over the 2027-2031 period (Exhibit 4 - Tab 2 - Schedule 1).

**Table 2: Forecasted Equipment Plan**

| Number of Devices Forecasted for Replacement/Additions for New Staff | **2027** | **2028** | **2029** | **2030** | **2031** |
|---|---|---|---|---|---|
| Laptops/Toughbooks | 151 (21 for new staff) | 151 (21 for new staff) | 141 (11 for new staff) | 156 (5 for new staff) | 156 (5 for new staff) |
| Mobile Phones | 107 (21 for new staff) | 107 (21 for new staff) | 98 (11 for new staff) | 92 (5 for new staff) | 92 (5 for new staff) |

At the time of this application, the average current capital IT costs per new staff member is $5,395.67. This cost includes IT equipment such as laptops, monitors, docking stations and mobile phones.

This initiative ensures that Elexicon's workforce is equipped with secure, modern, and high-performing tools that support reliable service delivery, align with evolving technology standards, and scale with organizational growth.

## 2.3 Data Centre Enhancements

Elexicon follows a proactive six-year lifecycle plan for server infrastructure, aligned with industry standards and manufacturer guidance. Proactive server infrastructure renewal in accordance with a defined six-year lifecycle plan. This approach balances performance, reliability, and compatibility with modern software while minimizing maintenance and cyber security risks. This initiative ensures that server assets are regularly evaluated and refreshed to maintain optimal performance, reliability, and security. Activities include maintaining an up-to-date inventory, assessing hardware against evolving software and operating system requirements, and executing a structured replacement strategy. The process encompasses the procurement, configuration, and deployment of new servers aligned with organizational standards, seamless migration of applications and data, and the secure decommissioning and environmentally responsible disposal of end-of-life equipment. All actions are guided by the lifecycle plan to support long-term IT sustainability and operational continuity.

During the six-year planning cycle, the following data center hardware is scheduled for replacement:

**Table 3: Elexicon IT Infrastructure Lifestyle Plan (2027-2031)**

| **Elexicon IT Infrastructure Lifecycle Plan** | | | | | | |
|---|---|---|---|---|---|---|
| | | **2027** | **2028** | **2029** | **2030** | **2031** |
| **Server** | | | | | | |
| | [Redacted] | | | | | |
| | [Redacted] | [Redacted] | [Redacted] | | [Redacted] | [Redacted] |
| | [Redacted] | | | | | |
| | [Redacted] | [Redacted] | [Redacted] | | [Redacted] | [Redacted] |
| | [Redacted] | | | | | |
| | [Redacted] | | | [Redacted] | | |

Elexicon's Information Technology (IT) and Operational Technology (OT) programs are closely interconnected, working together to ensure the safe, reliable, and secure operation of the electrical distribution network. While the OT environment manages grid-facing systems such as SCADA, ADMS, and DERMS, the IT program provides and maintains the underlying infrastructure that supports them—including servers, databases, network configurations, and cybersecurity controls. IT ensures that OT systems remain stable, patched, and protected from cyber threats, while OT teams focus on real-time grid operations and field system performance. Under Elexicon's operating model, capital costs related to OT infrastructure refresh are included within the IT capital budget, as IT is responsible for the lifecycle management and refresh of all technology assets once they are placed into service. This integrated model ensures consistent cybersecurity oversight, standardized asset management practices, and coordinated system reliability across both IT and OT environments. By aligning these functions, Elexicon maintains continuous visibility and control of grid assets, protects critical operational data, and advances grid modernization in a manner that enhances operational resilience and safeguards both the Utility's assets and its customers.

**Table 4: Operational Technology Infrastructure Lifecycle Plan (2027–2031)**

| **Elexicon Operational Technology Infrastructure Lifecycle Plan** | | | | | |
|---|---|---|---|---|---|
| | **2027** | **2028** | **2029** | **2030** | **2031** |
| **Servers** | | | | | |
| [Redacted] | | | | | |
| [Redacted] | | | [Redacted] | | |
| [Redacted] | | | | | |
| [Redacted] | [Redacted] | | | | |
| [Redacted] | | | | | |
| [Redacted] | | [Redacted] | | | |

## 2.4 Network Additions and Enhancements

Lifecycle-based renewal of network infrastructure is critical to maintaining the reliability, security, and regulatory compliance of Elexicon's digital environment. Network equipment such as switches, routers, firewalls, and wireless access points operate as the backbone of all operational and customer systems, and failure to replace them at the end of their support lifecycle can expose Elexicon to significant risks. Once

vendors discontinue security patches and firmware updates, legacy devices become increasingly vulnerable to cyber threats, compatibility issues, and performance degradation, potentially leading to service interruptions or loss of compliance with cyber security standards. A six- to seven-year replacement schedule ensures these risks are mitigated by keeping infrastructure within manufacturer-supported lifecycles and aligned with evolving security and capacity requirements.

The initiative includes maintaining a detailed asset inventory, assessing equipment against current standards, and implementing a strategic upgrade roadmap that supports seamless integration, scalability, and resiliency. By proactively renewing network infrastructure, Elexicon ensures sustained operational reliability, continued cyber security compliance, and a secure, high-performing foundation for future technology and grid modernization initiatives.

Table 5 outlines the planned enhancements to IT network infrastructure for the 2027-2031 period. Key upgrades include [Redacted], aligned with a 7-year lifecycle. [Redacted], following a 6-year lifecycle. [Redacted], ensuring continued cyber security compliance. These upgrades are part of a structured lifecycle strategy to maintain a secure, scalable, and high-performing network environment.

**Table 5: IT Network Infrastructure Lifestyle Plan (2027-2031)**

| Elexicon IT Infrastructure Lifecycle Plan | | | | | | |
|---|---|---|---|---|---|---|
| | | **2027** | **2028** | **2029** | **2030** | **2031** |
| **Network** | | | | | | |
| | [Redacted] | | | | | |
| | [Redacted] | | | | [Redacted] | |
| | [Redacted] | | | | [Redacted] | |
| | [Redacted] | | | | [Redacted] | |
| | [Redacted] | | | | | |
| | [Redacted] | | | [Redacted] | | |
| | [Redacted] | | | | | |
| | [Redacted] | [Redacted] | | | | |
| | [Redacted] | [Redacted] | | | | |
| | [Redacted] | | | | | |
| | [Redacted] | | | [Redacted] | | |

As described above, this Program includes some OT infrastructure. The following enhancements are planned for OT (Operational Technology) assets within the 2027 – 2031 period. Table 6 outlines the planned lifecycle-based upgrades to Elexicon's OT network infrastructure. These include SCADA and ADMS switch replacements aligned with a six-year lifecycle, as well as router and firewall upgrades on an eight-year cycle. These investments are essential to maintaining secure, reliable, and standard-compliant grid facing systems that support real-time operations and cyber resilience.

**Table 6: OT Network Infrastructure Lifecycle Plan (2027–2031)**

| Elexicon Operational Technology Infrastructure Lifecycle Plan | | | | | |
|---|---|---|---|---|---|
| | **2027** | **2028** | **2029** | **2030** | **2031** |
| **Servers** | | | | | |
| [Redacted] | | | | | |
| [Redacted] | | | [Redacted] | | |
| [Redacted] | | | | | |
| [Redacted] | [Redacted] | | | | |
| [Redacted] | | | | | |
| [Redacted] | | [Redacted] | | | |
| [Redacted] | | [Redacted] | | | |

## 2.5 Cyber Security

Cyber security threats are constantly evolving, with threat actors becoming more sophisticated and leveraging new technologies to exploit vulnerabilities. As a result, utilities must remain agile and responsive to emerging risks. This makes it difficult to precisely forecast future cyber security investments, as needs will continue to shift in response to the threat landscape, regulatory changes and technological advancements.

While Elexicon has already made investments to address current cyber security requirements in the current rate period, additional initiatives are anticipated over the 2027-2031 planning period as new requirements are outlined by the industry and the OEB. It should be noted, that many cyber security related costs are being treated as OM&A (Operating, Maintenance & Administrative expenses) due to the shift to cloud computing, but there will still be capital related investment required.

The forecasted budget for the upcoming rate period for the Cyber Security project will remain steady throughout following historical spending patterns. Capital costs in this area have been forecasted based on previous spend, and the overall shift of cloud computing costs to OM&A (See Exhibit 4 - Tab 1 - Schedule 1).

The following section outlines why the 2027-2031 Cyber Security investments cannot be fully identified today:

- **Evolving Threat Landscape:** Cybercriminals continuously develop new attack methods, including AI-driven threats, zero-day vulnerabilities, and advanced persistent threats (APTs). Security solutions that are effective today may become obsolete in just a few years, requiring new investments to stay ahead of emerging risks.
- **Regulatory and Compliance Changes**: Cyber security regulations are frequently updated to address new risks and ensure critical infrastructure protection. Future compliance requirements (e.g., OEB RRR compliance and data privacy laws) may require additional security investments that cannot be anticipated today.
- **Advancements in Technology**: As Elexicon continues on a digital transformation, new technologies such as cloud computing, smart grid systems, and AI-driven analytics will require new security frameworks, tools, and expertise. These evolving needs cannot always be predicted in advance.
- **Incident Response and Threat Mitigation**: A reactive component to cyber security investment is essential funding must be available to quickly address vulnerabilities, respond to cyber incidents, and deploy urgent security patches when unforeseen threats emerge.
- **Increased IT-OT Convergence**: As IT and Operational Technology (OT) become more integrated, new risks will emerge that require additional security layers, network segmentation, and specialized monitoring tools to protect the grid.

Rationale for Ongoing Cyber Security Investment:

- **Growing Cyber Threats**: Utilities are frequent targets of ransomware, phishing, and hacking attempts. Without strong security measures, attacks could disrupt power delivery, compromise data, or result in costly system downtime.
- **Responsive Compliance**: Compliance with OEB and data protection laws requires ongoing investment in modern security tools, monitoring systems, and governance protocols to meet increasingly stringent reporting and audit obligations. Incremental reporting includes regular attestation of cyber security readiness, incident response documentation, data privacy impact assessments, and evidence of adherence to standards such as the Ontario Cyber security Framework, NIST, and privacy legislation. These activities require continuous monitoring, log

retention, and system audits to demonstrate compliance and transparency to regulators. Falling behind on these obligations can result in fines, penalties, and heightened regulatory scrutiny, but more importantly, it exposes Elexicon to operational and reputational risk. Sustained investment in compliance capabilities ensures that Elexicon can proactively meet evolving regulatory expectations, maintain system integrity, protect customer data, and maintain public trust.

- **Financial Risk Mitigation**: Cyberattacks can cost millions in ransom payments, recovery efforts, and legal liabilities. Proactive investment in firewalls, security monitoring, and data protection reduces these risks.
- **Protecting Operational Technology (OT):** With more IT-OT integration, critical grid systems (like SCADA and outage management) need stronger security to prevent unauthorized access and system failures.
- **Ensuring Business Continuity**: Cyber incidents can shut down operations, leading to extended outages and financial losses. Investments in secure backups, disaster recovery, and threat detection help ensure quick recovery.

Cyber security is not optional—it is essential for grid reliability, data protection, and regulatory compliance. Delaying investments increases risks of cyberattacks, financial losses, and service disruptions. Proactively investing in cyber security ensures a secure and resilient energy system for both Elexicon and customers.

## 2.6 Summary of Investment Outcomes and Benefits

Elexicon's planned IT investments are designed to address immediate infrastructure needs but also deliver benefits that support both the operational performance and objectives. The following table outlines the key outcomes of these investments, along with their associated benefits and objectives.

**Table 7: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Financial Performance | Elexicon's IT infrastructure investments enhance productivity and security by modernizing systems, improving reliability, and strengthening cyber resilience:<br>• Process Automation and Cost Efficiency: Modern ERP and IT systems automate manual processes across finance, HR, and supply chain—reducing administrative burden and lowering long-term operating costs.<br>• Reduced Risk of Costly Downtime: Proactive cyber security measures protect against ransomware and system outages, avoiding costly disruptions to billing, operations, and customer service platforms.<br>• Data-Driven Capital Planning: IT systems support better asset investment planning through integrated data, enabling more efficient capital allocation and improved ROI on infrastructure investments. |
| Customer Focus | Service Quality<br>By maintaining a secure, resilient, and customer-centric IT infrastructure, the Program directly supports Elexicon's commitment to reliability, accessibility, and proactive customer engagement.<br><br>The Program ensures Reliable Customer Service Infrastructure by:<br>• Maintaining and supporting IT assets that underpin customer-service and communication systems, including email, telephony, and the Customer Information System (CIS).<br>• Ensuring these systems remain operational, reducing downtime and improving responsiveness to customer inquiries.<br>• Enhancing Customer Engagement & Accessibility through maintained IT systems and platforms. |

| Outcome | Investment Benefits and Objectives |
|---|---|
| | Satisfaction<br>The Program contributes to meeting Elexicon's customer satisfaction objectives by maintaining the integrity and availability of key external customer-facing applications, such as:<br>• Customer Self-Serve Web Portal, enabling customers to manage their accounts efficiently<br>• Elexicon Energy's Website, ensuring access to critical information and services<br>• Customer Outage Map, providing real-time updates on outages, affected areas, and estimated restoration times, improving transparency and trust |
| Operational Effectiveness | Reliability<br>The Program contributes to meeting Elexicon's reliability objectives (SAIDI & SAIFI) with the following tools:<br>• Faster Outage Detection and Restoration: Integrated IT/OT platforms (e.g., OMS, AMI, and SCADA) help detect outages more quickly, communicate accurate information to crews and customers, and speed up service restoration. |
| Public Policy Responsiveness | Contributes to meeting Elexicon's public policy responsiveness objectives by:<br>• Ensuring compliance with the OEB's Cyber Security Framework.<br>• Supports transparency, audit readiness, and public trust through robust governance and reporting. |

## 3. INVESTMENT DRIVERS & NEED

### 3.1 Reducing risks associated with unsupported and aged IT assets

Much of the proposed investment in this program is related to device lifecycles and/or lack of manufacturer support for IT hardware and components. In many cases, extended support or warranty is not available or is more costly than replacement as hardware may not be able to keep up with software demands and technology advancements (e.g., on end user devices MS requires specific hardware to run

their systems). Manufacturers also have a defined support cycle for hardware with a limited number of years. This results in a lack of parts availability and lack of extended support from manufacturers. Elexicon, as with many LDCs, follows defined hardware lifecycle plans for laptops, servers, and network equipment due to:

#### 3.1.1 Performance Degradation

Over time, hardware performance diminishes. Even if a device is technically still operational, older hardware can't keep up with modern software demands, security updates, or system integrations. For example:

- Laptops may become slow or incompatible with newer operating systems
- Servers may lag in processing power, affecting application performance or increasing downtime risk
- Network equipment may struggle with higher bandwidth, newer protocols, or modern security standards.

#### 3.1.2 Increased Risk of Failure

As hardware ages, the risk of failure increases significantly—especially beyond the manufacturer's recommended lifespan. This leads to:

- Unplanned outages
- Higher maintenance costs
- Disruption to business operations

Even with extended warranties, downtime caused by hardware failures can be costly and may not be addressed quickly enough by support service level agreements.

#### 3.1.3 Limited Support and Compatibility

Vendors often end support for legacy equipment, meaning:

- No new firmware updates or security patches
- Limited availability of replacement parts

- Compatibility issues with new software, applications, or other systems

This is especially problematic for security and compliance, where unpatched equipment can create significant vulnerabilities.

#### 3.1.4 Higher Long-Term Costs

Keeping hardware for longer than its anticipated lifecycle, and/or past the point of available support/warranty, or pursuing extended support does not mitigate risks and performance deficiencies, such as:

- Older hardware consumes more energy and may require more cooling,
- Risk of device failures increases, requiring more ad-hoc repairs and support costs over time,
- IT staff spend more time troubleshooting aging systems, reducing productivity,

A lifecycle approach ensures Elexicon has proactively budgeted and planned for replacements instead of reacting to failures.

#### 3.1.5 Innovation and Modernization

Following a defined lifecycle enables Elexicon to:

- Take advantage of new features, efficiency gains, and security enhancements,
- Maintain vendor support and leverage newer architectures
- Support modern digital transformation initiatives

While extending warranties might be viable in limited, low-risk scenarios, a defined lifecycle approach ensures performance, security, reliability, and cost-efficiency over time. It allows Elexicon to plan proactively, avoid disruptive failures, and maintain a modern, supportable technology environment.

The following table outlines the primary and secondary drivers for the Program. Further details on each driver are provided in the sections 3.2 to 3.3.

**Table 8: Investment Driver**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| **Primary Driver -** Operational Effectiveness | Strategic IT investments enhance operational effectiveness by modernizing aging infrastructure, supporting ERP deployment, and integrating operational technologies. These upgrades improve system reliability, scalability, and cybersecurity, enabling accurate billing, faster outage response, and better customer service. Proactive lifecycle management and cyber resilience reduce the risk of service disruptions, financial losses, and reputational damage, while aligning with OEB performance outcomes in cost efficiency, reliability, and customer focus. |
| **Primary Driver -** Cyber security & Compliance | Outdated IT systems often lack modern security features, resulting in vulnerabilities and are more susceptible to cyberattacks, putting customer data, system operations, and compliance at risk. Delaying investment increases exposure to evolving threats and may result in regulatory non-compliance with cyber security standards<br>Without adequate hardware, Elexicon will not be able to make investments in updated platforms (e.g., CIS, portals, mobile tools), customers may face delays, errors, or limited self-service options—lowering satisfaction and failing to meet modern expectations for digital utility services.<br>Older hardware may reach end-of-life with no further updates or support from vendors, increasing the risk of unplanned failures and system incompatibility with newer tools—forcing costly emergency fixes rather than planned investments. |

## 3.2 Operational Effectiveness

Elexicon's IT systems program is a foundational enabler of operational effectiveness, supporting the modernization of utility operations through strategic investments in infrastructure, cybersecurity, and system integration. The program plays a critical role in supporting the successful implementation of the Elexicon's Enterprise Resource Planning (ERP) system through targeted capital investments in infrastructure, integration, and cyber security. These investments ensure that the new ERP platform is

deployed on a stable, secure, and scalable foundation capable of supporting core business functions. IT capital spending enables system configuration, data migration, user access management, and the integration of third-party applications, while maintaining compliance with cyber security and reliability standards. Through these activities, IT ensures that the ERP system operates efficiently, securely, and with minimal disruption. Without investment in updated platforms (e.g., CIS, portals, mobile tools), customers experience delays, errors, or limited self-service options, impacting their satisfaction.

These outcomes align with OEB's Operational Effectiveness – Cost Efficiency and Reliability, Customer Focus, and Financial Performance measures, reinforcing the strategic important of data as a foundation for utility modernization.

Elexicon's IT infrastructure investments are designed to strengthen system reliability, improve operational efficiency, and reduce cost. As customer counts and service demands grow, aging IT systems increasingly lack the scalability and performance needed to support modern utility operations which impacts billing accuracy, outage response, and customer communications.

- **Server and Storage Lifecycle Management:** Many core servers and storage systems are beyond their optimal lifecycle, resulting in degraded performance and increased risk of failure. Proactive replacement ensures that critical platforms remain stable, secure, and responsive, minimizing the likelihood of service disruptions and emergency repairs.
- **Network Modernization:** Legacy network switches and routers are unable to support the bandwidth and security requirements of modern applications. Upgrading to high-performance, secure networking equipment enables faster data transmission, improved system integration, and enhanced cyber resilience.
- **Cybersecurity Enhancements:** Older systems lack support for current security protocols, leaving Elexicon vulnerable to breaches. Investments in modern firewalls, endpoint protection, and intrusion detection systems will close existing gaps and align with industry best practices, reducing the risk of costly incidents.
- **Operational Technology Integration:** Integration of IT systems with operational platforms such as SCADA and outage management tools allows for real-time data sharing and faster incident

response. This reduces outage durations, improves customer notifications, and supports data-driven decision-making.

- **Customer Impact Mitigation:** Failure of IT systems can affect all customer classes, including critical infrastructure clients. Investments will reduce the frequency and duration of service interruptions, improve billing, and enhance customer satisfaction.
- **Consequences of Inaction:** Without investment, Elexicon faces rising OM&A costs, increased cybersecurity risks, and declining system reliability. A single major IT failure could impact many customers and result in substantial recovery costs, reputational damage, and operational disruption.

Prudent IT planning and investment indirectly strengthen system reliability by ensuring that Elexicon's core platforms, infrastructure, and cyber security safeguards remain modern, secure, and fully supported. Proactive lifecycle management of servers, networks, and storage systems minimizes the risk of unexpected failures that could disrupt billing, outage management, or customer communications. Careful sequencing of capital projects ensures that new technologies are introduced in a controlled manner, avoiding service interruptions and reducing the likelihood of costly rework. By investing in robust IT systems and integrating them with operational technology, Elexicon enhances the company's ability to detect, respond to, and recover from incidents more quickly by improving outage response times, maintaining service continuity, and protecting customer data. In this way, disciplined IT spending delivers measurable improvements in reliability outcomes that benefit all customers, directly supporting the OEB's Operational Effectiveness – Safety and Reliability performance outcome.

Refer to Section 2 in this document for a breakdown of infrastructure assets scheduled for replacement during the upcoming rate period. Elexicon plans on investing in refreshing these assets through a disciplined lifecycle plan described within this document, to proactively replace aging hardware, software, and network infrastructure before they reach end-of-support, reducing the risk of system failures, performance degradation, and escalating maintenance costs. This planned approach sustains operational continuity, minimizes downtime, and supports efficient service delivery. At the same time, ongoing cyber

security investments—including enhanced monitoring, endpoint protection, access controls, and threat detection—safeguard both IT and OT environments from evolving cyber threats.

Together, these initiatives strengthen the integrity and resilience of Elexicon's digital ecosystem, ensuring the secure and dependable operation of systems that support billing, outage management, and customer service.

### 3.3 Cyber Security & Compliance

A primary driver of Elexicon's IT cyber security investment is the need to strengthen cyber security posture and ensure ongoing compliance with Ontario Energy Board's Cyber security framework. This initiative is essential to protecting the critical infrastructure, safeguarding sensitive customer data, and maintaining reliability throughout the electrical distribution system.

In addition to software and network protection, the program addresses hardware-related risk, recognizing that using outdated or end-of-life equipment creates technological constraints that limit the ability to run current, vendor-supported software and security tools. For example, newer operating systems such as Windows 11 require a Trusted Platform Module (TPM) to support advanced hardware-based encryption and secure boot capabilities. Older computers that lack a TPM cannot run Windows 11, preventing deployment of modern security features and leaving systems more exposed to cyber threats. Similarly, unsupported hardware often cannot accommodate current firmware updates, encryption protocols, or system monitoring capabilities, which weakens the overall cybersecurity posture and increases vulnerability to external threats. Proactively replacing legacy hardware ensures compatibility with up-to-date software, enables the deployment of advanced defense mechanisms such as endpoint detection, zero-trust access controls, and threat analytics, and provides a stable, secure foundation for the Utility's future digital operations.

As Elexicon continues to modernize the company's technology and increase system connectivity, the risk of cyberattacks and data breaches rises. Delaying investment in infrastructure renewal and security tools increases exposure to evolving threats and may result in costly emergency fixes, reputational damage and non-compliance with cyber security standards.

### 3.3.1 Cyber Security Framework Compliance

A key driver of the Elexicon's cyber security investment is the obligation to remain aligned with the Ontario Energy Board's Cyber Security Framework. This framework establishes requirements for utilities to maintain up-to-date safeguards that protect critical infrastructure, sensitive customer data, and the reliability of electricity distribution. Ongoing investment is necessary to address evolving threats, close identified gaps, and ensure that Elexicon can demonstrate compliance with the Framework's expectations. By proactively keeping pace with these requirements, Elexicon supports Customer Focus by safeguarding personal information, strengthens Operational Effectiveness – Safety and Reliability by protecting critical systems from disruption, and advances Financial Performance by reducing the risk of costly breaches, penalties, or remediation expenses.

### 3.3.2 Evolving Cyber Security Threats

The nature of the electricity distribution sector requires continuous vigilance against evolving cyber threats. As utilities increasingly rely on digital platforms, cloud solutions, and integrated IT/OT systems, the attack surface expands, and adversaries adopt more sophisticated tactics. Threats that were once isolated to corporate IT environments now extend to operational systems, with potential consequences for grid reliability and customer service. To safeguard against these risks, Elexicon must continually update the company's defenses, invest in modern security tools, and adapt practices in step with the changing threat landscape. By proactively addressing these challenges, Elexicon supports Customer Focus by protecting sensitive information, ensures Operational Effectiveness – Safety and Reliability by safeguarding critical infrastructure from disruption, and enhances Financial Performance by mitigating the potential costs of cyber incidents, penalties, and recovery efforts.

To address these challenges and meet regulatory expectations, Elexicon will deploy a multi-layered cyber security strategy that includes deployment of advanced firewalls, endpoint detection and response systems, and multi-factor authentication protocols. These measures will be supported by continuous monitoring across IT and OT environments. Elexicon will align the company's practices with industry standards such as NIST and CIS controls and strengthen vendor accountability.

Through these investments, Elexicon will replace outdated systems with secure platforms that can support centralized monitoring and automated threat detection. This modernization of identity and access management will reduce risk of unauthorized access, while improved network visibility will enhance Elexicon's ability to detect and respond to threats proactively. By strengthening cyber security and compliance capabilities, Elexicon will be better equipped to protect customer data, maintain the reliability and safety of critical systems, and avoid the financial and operational consequences of security breaches or regulatory non-compliance.

## 4. INVESTMENT TIMING & PACING

### 4.1 Summary of Expenditures

**Table 9: Summary of Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 4.23 | 2.71 | 3.30 | 3.03 | 2.35 | 1.44 | 1.33 | 2.64 | 2.12 | 1.95 | 2.04 | 1.49 |
| Capital (Net) | 4.23 | 2.71 | 3.30 | 3.03 | 2.35 | 1.44 | 1.33 | 2.64 | 2.12 | 1.95 | 2.04 | 1.49 |

Table 9 summarizes the total investments associated with the IT systems program, covering the actual expenditures from historical period from 2020 to 2024, the budgets for the bridge period from 2025 to 2026, and the forecasted investments for the 2027–2031 period. Elexicon's planned investments in this program reflects a phased and prioritized approach that will balance immediate needs with long term modernization objectives. Over 2027-2031 forecast period, the total spending is $10.24M. The planned capital investments from 2027 to 2031 support a range of IT hardware and components, including network additions and enhancements, printers and copiers, end-user hardware enhancements, endpoint device refresh, data center enhancements, and cyber security.

Table 10 outlines Elexicon's forecasted investments across key IT systems program initiatives over a five-year period from 2027-2031. Further details on exact investments occurring in each year for each segment is provided in section 2.1 to 2.5 of this narrative.

**Table 10: IT Systems Program Segment Forecast (2027-2031)**

| | Forecast ($M) | | | | |
|---|---|---|---|---|---|
| IT Program Segment | **2027** | **2028** | **2029** | **2030** | **2031** |
| Network Additions and Enhancements | 0.76 | 0.42 | 0.93 | 0.30 | 0.08 |
| Printers and Copiers | 0.06 | 0.01 | 0.01 | 0.06 | 0.03 |
| End User HW & SW Enhancements & Endpoint Device Refresh | 0.68 | 0.63 | 0.49 | 0.61 | 0.58 |
| Data Center Enhancements | 0.84 | 0.77 | 0.24 | 0.77 | 0.48 |
| Cyber Security | 0.30 | 0.29 | 0.29 | 0.30 | 0.31 |

4.1.1 Printers & Copiers

**Table 11: Printers & Copiers Historical & Future Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.05 | 0.03 | 0.06 | 0.01 | 0.01 | 0.05 | 0.03 | 0.06 | 0.01 | 0.01 | 0.06 | 0.03 |
| Capital (Net) | 0.05 | 0.03 | 0.06 | 0.01 | 0.01 | 0.05 | 0.03 | 0.06 | 0.01 | 0.01 | 0.06 | 0.03 |

Table 11 summarizes historical and forecasted expenditures on printers and copiers. Between 2020 and 2026, capital investments historically supported the purchase and installation of devices essential for operational use. These expenditures included equipment costs, installation and configuration, network integration, and any required accessories or software licenses to ensure full functionality and compliance with organizational IT standards.

Looking ahead, Elexicon plans to invest approximately $173,000 between 2027 and 2031 to continue a structured lifecycle replacement plan. This plan is designed to replace devices that are projected to reach end-of-life during the forecast period, based on manufacturer support timelines and internal asset tracking. Devices scheduled for replacement have been identified through lifecycle management that consider age, usage patterns, support status, and performance reliability.

By forecasting when specific devices will reach end-of-life, Elexicon can proactively allocate budget to avoid unplanned downtime, escalating repair costs, and cybersecurity vulnerabilities particularly for printers and copiers that may lose access to critical security updates once out of support. Amounts budgeted in this

category include the purchase, installation and configuration of printers and copiers, including network integration, and any accessories or software licenses required for full functionality.

#### 4.1.2 Endpoint Device Refresh & End User Hardware Enhancements

The subprogram costs have been split into two categories with the Endpoint Device Refresh a new category Elexicon has introduced.

**Table 12: Endpoint Device Refresh Historical & Future Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | - | - | - | - | - | - | - | 0.49 | 0.44 | 0.35 | 0.51 | 0.48 |
| Capital (Net) | - | - | - | - | - | - | - | 0.49 | 0.44 | 0.35 | 0.51 | 0.48 |

Table 12 summarizes forecasted capital investments in the Endpoint Device Refresh program, highlighting planned expenditures from 2020 through 2031 to support lifecycle replacement and modernization of end-user computing devices. As this is a new initiative, there are no historical expenditures. The program was established to address aging hardware and evolving operational requirements through a structured 3-year lifecycle.

To develop the forecast, Elexicon conducted a comprehensive inventory assessment of all end-user devices, including PCs, tablets, and mobile phones. Devices were categorized based on age, asset condition, and support status. This assessment informed the timing and value of future investments by identifying which devices would reach end-of-life within the forecast period and require replacement to maintain performance standards and software compatibility.

The Endpoint Device Refresh initiative includes rollout planning, procurement of new hardware, configuration to organizational standards, migration of user data and settings, and environmentally responsible disposal and recycling of outdated equipment. Ongoing support mechanisms are also in place to address post-deployment issues. By proactively replacing aging devices, the program mitigates security vulnerabilities associated with outdated hardware and firmware, supports compliance with regulatory

requirements, and aligns technology investments with organizational goals, ultimately fostering a sustainable and resilient IT infrastructure.

The following table and description outline the end user HW and SW expenditures as part of this sub-program.

**Table 13: End User Hardware Enhancements Historical & Future Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.22 | 0.46 | 0.55 | 0.26 | 0.06 | 0.12 | 0.07 | 0.19 | 0.19 | 0.13 | 0.10 | 0.10 |
| Capital (Net) | 0.22 | 0.46 | 0.55 | 0.26 | 0.06 | 0.12 | 0.07 | 0.19 | 0.19 | 0.13 | 0.10 | 0.10 |

Table 13 summarizes historical, bridge period and forecasted capital investments in the End User Hardware Enhancements program, highlighting planned expenditures from 2020 through 2031 to support workforce growth, remote work enablement, and replacement of damaged equipment and peripherals. This program includes investments in monitors, keyboards, mice, computers, phones, and related accessories, aligned with cybersecurity and operational requirements. Capital costs in this area grew slightly between 2020 and 2022, driven by increased workforce demands and the need to support remote work during the COVID-19 pandemic.

Forecasted investment levels were developed using a combination of historical spending trends and projected workforce growth, based on HR estimates. Elexicon conducted an inventory assessment of existing end-user hardware and peripherals, identifying devices requiring replacement due to damage, obsolescence, or incompatibility with current cybersecurity standards. The forecast reflects both net new equipment required to support anticipated employee growth and replacements for aging or damaged assets.

This approach ensures that staff are equipped with reliable, secure, and up-to-date technology that supports efficient operations and aligns with organizational IT standards. Investments in this category also contribute to reducing downtime, improving user productivity, and maintaining compliance with cybersecurity protocols.

### 4.1.3 Data Centre Enhancements

**Table 14: Data Center Enhancements Historical & Future Expenditure**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.61 | 0.94 | 1.45 | 0.60 | 1.03 | 0.35 | 0.39 | 0.84 | 0.77 | 0.24 | 0.77 | 0.48 |
| Capital (Net) | 0.61 | 0.94 | 1.45 | 0.60 | 1.03 | 0.35 | 0.39 | 0.84 | 0.77 | 0.24 | 0.77 | 0.48 |

Table 14 summarizes historical, bridge period, and forecasted capital investments in the Data Centre Enhancements program, covering expenditures from 2020 through 2031. Historical investments have included upgrades to racks, structured cabling, uninterrupted power supply (UPS) systems, core switches, routers, firewalls, and backup appliances. These enhancements have supported increased capacity, optimized performance, and strengthened security across Elexicon's IT infrastructure.

Forecasted investment amounts were developed through an infrastructure assessment and lifecycle analysis. Elexicon reviewed all major data centre components and categorized them based on age, asset condition, support status, and performance reliability. Equipment nearing end-of-life or approaching manufacturer support expiry was flagged for replacement within the forecast period. This includes critical systems such as UPS units, firewalls, and backup appliances that require timely upgrades to maintain operational continuity and cybersecurity compliance. Overall Elexicon is forecasting lower expenditure in 2027-2031 than in 2020-2024, primarily due to the lifecycle of the existing infrastructure.

The planned investments reflect the need to modernize aging infrastructure, integrate advanced technologies, and enhance disaster recovery capabilities. These include redundant power and cooling systems, automated failover processes, off-site and cloud-based data replication, and real-time backup verification. The forecast also accounts for anticipated growth in data processing demands and aligns with Elexicon's broader IT strategy to support scalability, resilience, and regulatory compliance.

Ongoing monitoring, testing, and documentation will continue to inform future investment pacing, ensuring that enhancements remain aligned with operational needs and industry best practices.

### 4.1.4 Network Additions and Enhancements

**Table 15: Network Additions and Enhancements Historical & Future Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.02 | 0.02 | 0.05 | 0.46 | 0.09 | 0.10 | 0.10 | 0.76 | 0.42 | 0.93 | 0.30 | 0.08 |
| Capital (Net) | 0.02 | 0.02 | 0.05 | 0.46 | 0.09 | 0.10 | 0.10 | 0.76 | 0.42 | 0.93 | 0.30 | 0.08 |

Investment in network additions and enhancements includes network architecture design and implementation, software upgrades, network hardware and cabling to support organizational growth, hardware replacements aligned with lifecycle plans, and configuration and optimization of the network infrastructure.

To address growing demands on Elexicon's network and telecom infrastructure, planned investments aim to ensure the network can support increased data traffic, advanced applications, and a greater number of connected devices while maintaining high performance, reliability, and security. As the organization expands and technology evolves, legacy networks may become bottlenecks, leading to degraded performance, increased downtime, and heightened security risks. Upgrading the network ensures scalability for future growth, compliance with industry standards, and protection against emerging threats, ultimately supporting improved operational efficiency and business continuity.

Forecasted investment amounts were developed through a combination of historical spending analysis and a forward-looking infrastructure assessment. Elexicon reviewed existing network assets including switches, routers, cabling, and firewalls and categorized them based on age, asset condition, and support status. Equipment identified as nearing end-of-life or requiring upgrades to meet current performance and security standards was scheduled for replacement within the forecast period. Additionally, anticipated organizational growth and increased digital service demands were factored in, using internal projections and strategic IT planning inputs.

This forecasting approach ensures that investments are paced according to actual infrastructure needs and lifecycle milestones, while also supporting scalability and resilience across the network environment. Details of exact investments by year are described in Section 2.4.

### 4.1.5 Cyber Security Historical & Future Expenditures

**Table 16: Cyber Security Historical & Future Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.20 | 0.40 | 0.29 | 0.90 | 0.60 | 0.28 | 0.28 | 0.30 | 0.29 | 0.29 | 0.30 | 0.31 |
| Capital (Net) | 0.20 | 0.40 | 0.29 | 0.90 | 0.60 | 0.28 | 0.28 | 0.30 | 0.29 | 0.29 | 0.30 | 0.31 |

Between 2020 and 2024, Elexicon made a series of targeted IT infrastructure investments to enhance reliability, security, and business continuity, and ensure regulatory compliance with OEB cyber security standards. These initiatives included strengthening remote work capabilities through upgrades to the VPN environment and customer service phone systems, enabling staff to work securely and efficiently from home. Investments in server and backup storage upgrades improved system availability, data integrity, and recovery capabilities. The modernization of Elexicon's voice communication platform through a VoIP system upgrade enabled secure, network-based calling that supports field coordination and operational resilience. Strategic upgrades to network firewalls in key locations further enhanced cybersecurity defenses and safeguarded both customer and operational data.

The forecasted budget for cybersecurity initiatives during the upcoming rate period is anticipated to remain steady around $300,000 per year. As discussed in Section 2.5, it is difficult to identify the exact cyber investments required due to the evolving needs, as was observed in the historical period. Elexicon expects that there will be refinements to standards and new requirements across the forecast period that will require capital investments. Forecasted capital costs were developed based on historical spending trends from previous years, adjusted to reflect the ongoing shift of certain IT expenditures, particularly cloud computing to OM&A budget. This shift is consistent with industry trends and Elexicon's evolving IT strategy.

To determine future investment levels, Elexicon reviewed past cybersecurity expenditures and identified recurring cost categories, such as hardware refreshes, firewall upgrades, and secure access infrastructure. These were then projected forward, factoring in expected technology refresh cycles and anticipated organizational needs. While specific solutions cannot always be identified years in advance due to the

rapidly evolving nature of cybersecurity threats, the forecast includes flexible allocations that allow the organization to respond to emerging risks in-year.

This approach ensures that Elexicon can maintain a robust cybersecurity posture, adapt to new threat vectors, and implement best practices as they evolve, while maintaining fiscal responsibility and alignment with regulatory expectations.

## 4.2 Investment Pacing and Prioritization IT Systems

Elexicon takes a disciplined approach to prioritizing IT capital expenditures to ensure investments are prudent, customer-focused, and aligned with long-term operational needs. A significant portion of the timing is also tied to lifecycle refresh periods and is dependant on the year the IT equipment reaches it end of life criteria, as outlined in section 2. Projects are ranked using a tiered prioritization framework which is explained below:

Top priority is first given to projects that address critical risks—such as replacing unsupported systems, closing cyber security gaps, and maintaining core business continuity—where deferral would expose customers to higher costs, reliability concerns or regulatory non-compliance. As an example, the planned replacement of endpoint devices mitigates security vulnerabilities and ensures computability with current software.

The next level of prioritization focuses on investments that deliver measurable efficiency and productivity gains. This includes system integrations and automation initiatives which reduce future OM&A costs, avoid manual workarounds, and reallocate staff time to strategic activities. Finally, strategic investments are phased in to build future capability, including advanced analytics and digital tools that enhance customer choice and service quality. This structured prioritization approach balances near-term reliability with long-term modernization, ensuring that IT investments deliver maximum value while protecting ratepayers from unnecessary cost escalation.

## 4.3 Execution Approach

Elexicon takes a prudent and disciplined approach to prioritizing IT capital spending to ensure investments deliver the greatest value to customers while maintaining system reliability, cyber security, and compliance. As part of this process, the IT department actively participates in the Elexicon's Finance and Asset Management capital planning cycle, preparing project scope and scoring documentation to support the evaluation, approval, and prioritization of initiatives. These submissions ensure IT projects are assessed consistently alongside other corporate capital investments.

1. Risk Mitigation

   Capital projects are first prioritized based on risk mitigation—addressing unsupported systems, cyber security vulnerabilities, or technology components nearing end-of-life where deferral would increase operational or regulatory risk.

2. Efficiencies

   The next level of prioritization focuses on efficiency and productivity gains, such as automation, system integration, and lifecycle renewal, and improve service delivery.

3. Strategic Investment

   Finally, Elexicon evaluates strategic investments and technologies that enable future capabilities—such as data analytics and digital customer engagement—ensuring readiness for evolving grid and business needs.

The program conducts multi-year capital forecasting, phased implementation, and cross-functional governance, ensuring that projects are sequenced logically and resourced appropriately. Investments are supported by business cases, and are aligned with recognized frameworks (e.g., Ontario Cyber security Framework, NIST, ITIL, and COSO). This ensures that budgets are spent on capital that is justified, measured, and directed toward enhancing reliability, cost efficiency, and long-term value for ratepayers.

The following table demonstrates that IT capital investments carry significant operational and financial risks, but with clear, proactive mitigations in place, Elexicon can deliver projects responsibly, safeguarding customers and ensuring alignment with OEB outcomes.

**Table 17: IT Risks and Mitigation Strategies for Critical Capital Investments**

| Risk Area | Potential Impact | Mitigation Strategy | Link to OEB Outcomes |
|---|---|---|---|
| Cyber security Threats | Breach of sensitive customer or operational data; regulatory non-compliance; reputational harm | Deploy multi-layered security (firewalls, EDR, MFA); align with NIST/CIS controls; continuous monitoring; vendor accountability | Operational Effectiveness – Safety & Reliability (protects grid operations), Customer Focus (safeguards customer data), Public Policy Responsiveness (ensures compliance with cyber security frameworks) |
| Integration Complexity | System interoperability failures causing delays, rework, or loss of functionality | Phased implementation with robust testing; middleware solutions; engage business process owners in UAT | Operational Effectiveness – Reliability (ensures systems function cohesively), Financial Performance (avoids costly rework) |
| Data Migration Challenges | Data corruption or loss impacting billing accuracy, regulatory reporting, and financial integrity | Data cleansing; trial migrations; rollback strategies; independent validation | Customer Focus (accurate bills), Financial Performance (protects revenue collection), Operational Effectiveness – Cost Efficiency (avoids rework) |
| Vendor Dependence | Over-reliance on vendor performance may cause cost overruns or schedule slippage | Strong SLAs; multiple vendor engagement; independent oversight and performance tracking | Financial Performance (manages costs), Operational Effectiveness – Reliability (ensures delivery continuity) |
| Supply Chain Delays | Late delivery of IT hardware (servers, storage, networking) impacting timelines | Early procurement; multiple supplier agreements; buffer stock for long-lead items | Operational Effectiveness – Reliability (ensures projects stay on track), Financial Performance (avoids cost escalation) |
| Regulatory & Compliance Requirements | Failure to meet OEB, or privacy regulations, leading to penalties or rework | Early alignment with standards; compliance reviews; external audit support | Public Policy Responsiveness (alignment with policy), Financial Performance (avoids penalties) |
| Cost Escalation | Scope creep or external pressures drive higher capital spend | Contingency budgeting; phased execution; cost reviews; value engineering | Financial Performance (prudent capital spending), Operational Effectiveness – Cost Efficiency (controlled scope delivery) |
| System Downtime | Service interruptions affecting billing, outage response, or internal operations | Staggered cutovers; parallel system runs; contingency planning; customer communication | Customer Focus (minimizes service disruption), Operational Effectiveness – Reliability (ensures stable operations) |
| Pricing Control | Increased costs for goods | Compliance with Elexicon's procurement policy, obtain multiple quotes where possible, bulk purchasing, provide early lead time on equipment orders | Operational Effectiveness – Cost Efficiency & Reliability (ensures projects remain on schedule and cost-controlled) |

## 5. OPTIONS ANALYSIS

Elexicon considered two primary approaches for managing the company's technology infrastructure assets:

- Extending support and warranties on existing hardware,
- Replacing hardware on a defined lifecycle schedule.

After evaluating both options, Elexicon determined that a structured lifecycle replacement strategy is the most appropriate and cost-effective approach.

While extending warranties or support contracts may appear to offer short-term savings, this strategy introduces significant operational, cybersecurity, and financial risks. In many cases, extended support is either unavailable or more costly than replacement, and aging hardware often fails to keep pace with evolving software demands and technology standards. For example, Microsoft operating systems require specific hardware capabilities that older devices may not support, rendering them incompatible with essential applications. Manufacturers also enforce defined support cycles, typically spanning only a few years, after which firmware updates, security patches, and replacement parts are no longer available. This lack of support increases the risk of system failures, unplanned outages, and costly emergency repairs.

Performance degradation is another critical factor. Even if hardware remains technically operational, its ability to support modern workloads diminishes over time. Laptops may become sluggish or unstable, servers may struggle with processing demands, and network equipment may fail to meet bandwidth and security requirements. These limitations can disrupt business operations, reduce productivity, and increase IT support burdens. Additionally, older hardware consumes more energy, requires more cooling, and demands more frequent maintenance, leading to higher long-term costs.

From a cybersecurity perspective, outdated infrastructure poses serious risks. Unsupported devices cannot receive the latest security updates, leaving systems vulnerable to cyber threats, data breaches, and compliance violations. Without modern hardware, Elexicon cannot effectively implement advanced security measures such as endpoint protection, encryption, and network segmentation. As cybersecurity

regulations continue to evolve, maintaining current infrastructure is essential to meeting compliance obligations and protecting customer and operational data.

The lifecycle replacement strategy also supports innovation and scalability. By regularly refreshing hardware, Elexicon can adopt new technologies, improve efficiency, and support digital transformation initiatives. This is particularly important for end-user devices, where a three-year refresh cycle ensures employees have reliable tools to perform critical tasks such as grid operations, customer service, and fieldwork. Outdated devices can lead to slow performance, frequent crashes, and costly downtime, while newer hardware supports modern applications and enhances productivity.

# P4 TOOLS AND EQUIPMENT

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost ($M): $1.58M | 2025-2026 Cost ($M): $0.67M | 2027-2031 Cost ($M): $5.41M |
| Primary Drivers: System Maintenance and Capital Investment Support | | |
| Secondary Drivers: Safety Risk | | |
| Outcomes: Operational Effectiveness – Safety & Reliability, Financial Performance | | |
| Segments: Tools & Equipment | | |

This category of investments covers projects that invest in tools and equipment used by various operational departments at Elexicon. The departments involved in the procurement of tools and equipment include Lines, Substations, Fleet, as well as the health and safety group. Tools and equipment are essential for crews to work safely, efficiently, and perform complex tasks such as construction, maintenance, and testing needed in the field.

This program focuses solely on the purchase of tools and equipment themselves, excluding any labor or installation costs. Annual budgets are set for the Lines, Substations, and Fleet departments for tools and equipment expenditures. The primary objective of the program is to purchase the tools and equipment necessary for Elexicon's operation teams to safely manage their day-to-day activities, including supporting maintenance activities, and ensuring crew have tools to maintain existing assets.

Elexicon allocates annual budgets for tools and equipment purchases in three main categories, with over 60% of the spend in the forecast period being assigned to tools and equipment associated with the Fleet.

- **Lines:** This category covers tools and equipment used for building, maintaining, and repairing overhead and underground distribution lines. Investments here ensure safe and efficient power delivery to customers and support system reliability.
- **Substations:** Budgets in this area focus on specialized tools for substation operations, including installation, testing, and maintenance of critical assets like transformers, breakers, and protection systems. These tools help maintain grid stability and operational safety.
- **Fleet:** This category funds the purchase of tools and equipment stored in service vehicles to support field crews during construction, maintenance, and emergency response work. It excludes

the vehicles themselves and focuses on ensuring crews have the right tools on hand for efficient operations.

## 2. INVESTMENT DESCRIPTION

Tools and equipment investments are made annually by Elexicon to renew and revitalize the existing portfolio to assist operational staff. As tools become worn out or lose functionality, expenditures are made to replace if necessary. Additionally, as new operational capabilities are required, such as tools to support emerging technologies, regulatory compliance, or advanced grid maintenance, Elexicon evaluates and invests in equipment that supports these capabilities. Furthermore, if new vehicles are purchased and require additional tools to be fitted, these costs are forecasted and budgeted accordingly. When investing in new tools and equipment, Elexicon first considers the operational need, followed by the operational efficiency, safety, and ergonomic impacts of the purchase.

The tools and equipment portfolio addresses various metrics either indirectly or directly. Tools provide essential functions for completing operations, maintenance, and capital work. This allows Elexicon to satisfy various service quality requirements, including connections of new services and decreasing outage frequency and duration. New and existing tools also provide operations with safe limits of approach and an ability to perform work away from the line; operations benefit from a safer environment of work. Elexicon places high importance on safety and is committed to ensuring a safe workplace free from injuries. Better tools provide greater safety margins for workers and reduce the index of accidents for workers. Elexicon is committed to achieving zero injuries now and into the future.

The current tools and equipment investment program at Elexicon consists mainly of three operational departments which include Substations, Lines, and Fleet.

**Tools and Equipment Investment Specifics:**

Within the tools and equipment portfolio for Elexicon, investments are separated into three program buckets. The first two buckets are annual budget allocations for the purchase of tools each department requires. The exact tools required to be purchased vary on a year-to-year basis and are primarily replaced when a new tool is required or an existing tool no longer functions.

**1) Tools and Equipment for Lines**

Throughout the DSP period, investments for Lines will be geared towards the renewal and introduction of tools and equipment for overhead and underground crews at Elexicon. These tools and equipment replacements will include the purchasing of hot sticks, power tools, gloves, etc. The exact tools and equipment by year are not known, and the budget is an annual allocation that is used to purchase and replace tools when they no longer function.

**2) Tools and Equipment for Substations**

The Substation department has an annual budget of tools and equipment regarding work performed on Substations. These tools can assist station staff in protection, instrument transformer, circuit breaker/switchgear, and grounding system testing. The exact tools and equipment by year are not known, and the budget is an annual allocation that is used to purchase and replace tools when they no longer function.

**3) Tools and Equipment for Fleet**

This category is split into two types of tools:

- Mechanics Tools - which is for the purchase of tools and equipment used by the mechanics to service the Fleet vehicles.
- Truck Tools - which are to allows for the outfitting of new vehicles with new tools and equipment for use in the field.

Tools and equipment are typically utilized until signs of poor condition or end-of-life are present. New tools are then purchased to replace the tools that had become obsolete. When evaluating replacements, Elexicon prioritizes operation needs and ergonomics, while also considering operational efficiency and safety impacts. Visual inspections of the tools are also utilized to understand if the equipment or tools can remain functional and useful. Elexicon usually runs the tools to failure unless something is notably wrong with the tool. Power tools do not have regular maintenance practices or calibration work done on them. Instead, they are used until they are no longer functional.

Certification data on specific tools are evaluated year over year to determine recertification requirements. Any tools deemed operationally broken or fail certified tests are disposed of correctly. Safety standards are evaluated to ensure the safety of all workers. Recertification of equipment at Elexicon is an operational expenditure, but replacing the tool becomes a capital expenditure.

In addition to replacing worn or obsolete tools, Elexicon plans to invest in outfitting new fleet vehicles with a comprehensive set of tools and equipment to support overhead, underground, and substation work. This fleet portion represents approximately 60% of the total investment in this category. Each vehicle is equipped to function as a mobile workstation, carrying essential tools across multiple categories, including traffic protection devices, lifting and rigging gear, hydraulic and battery-powered tools, live-line safety equipment, grounding systems, and precision testing instruments. These tools enable crews to perform complex field operations safely and efficiently, maintain compliance with regulatory standards, and respond effectively to outages and emergencies.

For example, outfitting includes traffic control signage and cones for worksite safety, web and chain hoists for handling heavy components, and specialized grips and slings for conductor and transformer installation. Hydraulic tampers, drills, and presses, along with advanced battery-operated tools, provide the power and flexibility needed for construction and maintenance. Live-line tools and rubber cover-up equipment ensure compliance with safe limits of approach, while grounding kits and jumpers protect workers during energized work. Precision testing instruments—such as voltage meters, phasing sticks, and cable locators—support accurate diagnostics and system reliability. Additional outfitting includes hand tools, rescue equipment, and confined-space safety systems to address a wide range of operational scenarios.

These investments are essential to maintain Elexicon's commitment to safety, reliability, and service quality. By standardizing outfitting practices across its fleet, Elexicon ensures that crews have the right tools at the right time, reducing downtime, improving response capability, and supporting compliance with industry and regulatory standards.

## 2.1 Summary of Investment Outcomes and Benefits

| Outcome | Investment Benefits and Objectives |
|---|---|
| Operational Effectiveness – Safety | Safety would be stagnant if the existing tools and equipment continue to be utilized in the future. Improvements to new tools and equipment can increase the safety of operational staff. Aging tools can fail under stress, increasing the risk of accidents, injuries, and service interruptions. Investing in modern tools and equipment enhances worker protection by incorporating improved insulation, ergonomic designs, and advanced safety features that reduce exposure to energized components and minimize manual handling risks. These improvements not only safeguard operational staff but also support Elexicon's commitment to achieving zero injuries and maintaining compliance with industry safety standards. |
| Operational Effectiveness – Reliability | Reliability will be negatively impacted if Elexicon does not sufficiently invest in tools and equipment, including replacements and new tools where required. Field crews depend on these tools to perform critical work such as emergency power restoration, scheduled maintenance, and capital projects. Without proper tools, outages could take longer to resolve, installations may be delayed, and system integrity could be compromised. For example, inadequate or worn tools can lead to poor connections, increasing the risk of equipment failure and service interruptions. By pacing investments in alignment with operational needs and fleet outfitting plans, Elexicon ensures crews have the right tools at the right time, supporting timely restoration and reducing outage duration. The pacing of this program supports Elexicon's SAIDI performance going forward, reinforcing Elexicon's commitment to delivering safe and dependable service to customers. |
| Financial Performance | The budgeted expenditures for tools and equipment serve to improve operational efficiency and cost effectiveness, by reducing downtime, minimizing repair costs, and ensuring staff have the right resources to perform tasks accurately and quickly, while not over-investing in this area. In addition, legacy equipment will need to be replaced when it is more cost-effective to invest in modern equipment that is easier and less expensive to maintain than to continue repairing outdated assets. |

# 3. INVESTMENT DRIVERS & NEED

## 3.1 Purpose

Having the correct set of working tools and equipment is critical to Elexicon's 24/7 operations. Tools and equipment ensure that Elexicon can continue to maintain a safe and reliable system by enabling staff to carry out the maintenance and capital investment. Tools and equipment investments are driven by two drivers: (1) System Maintenance and Capital Investment Support and (2) Safety Risk. These drivers are described in more detail in section 3.2 and 3.3 respectively. Table 1 below describes the reasoning and investment benefits for each driver.

**Table 1: Investment Drivers and Associated Benefits for Tools and Equipment Program**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| System Maintenance & Capital Investment Support | Elexicon staff require the correct tools and equipment to be able to carry out the proposed maintenance and capital plans. Without sufficient tools and equipment, Elexicon will not be able to perform necessary work to ensure the safety and reliability of the electrical distribution system. Improper tools and equipment could lead to complications with installations which would potentially affect Elexicon's reliability performance and ability to connect new services for customers. For instance, improper connectors that are crimped poorly would disrupt the connections and service of many customers. |
| Safety Risk | Safety would be impacted if the existing tools and equipment continue to be utilized in the future and the appropriate investment into replacing existing tools and purchasing new tools is not carried out. Improvements to new tools and equipment can increase the safety of operational staff alongside indices that are measured for Elexicon. |

## 3.2 System Maintenance & Capital Investment Support

The primary driver for the program is the need to have the correct tools and equipment in place for Elexicon operations to execute the proposed maintenance and capital investment plans. These

investments include annual allocations for tools and equipment, which are generally replaced when they reach end-of-life or fail, ensuring crews can work safely and efficiently.

Elexicon routinely must replace equipment that is either at end of life or has failed. Without the replacement of this equipment and tools, Elexicon would not be able to safely and timely perform maintenance and carry out capital work. Other than the fleet outfitting, which represents a significant one-time investment accounting for 60% of the capital investment, the remaining tools and equipment are part of ongoing annual allocations.

Furthermore, as Elexicon is proposing an increased capital and maintenance plan for the 2027-2031 period, Elexicon's workforce is increasing, as well as the number of new vehicles being purchased. These vehicles are fundamental to ensure Elexicon can carry out work. Elexicon is proposing to purchase an additional 22 trucks that will require to be outfitted with the tools and equipment required for staff to carry out their work. The timing of these fleet purchases is aligned with workforce growth, ensuring vehicles are available when new employees who require them start. In addition, Elexicon maintains a program for replacing vehicles at end-of-life based on age, condition, and expected utilization. This approach ensures that both new and replacement vehicles are introduced in a planned, cost-effective manner. Fleet investments represent over half of the total budget for this category, primarily due to the high cost of comprehensive outfitting required to support overhead, underground, and substation work. For more details on fleet planning and evaluation (See Exhibit 2B - Tab 4 - Schedule 3 - Appendix M). Without these trucks and the tools and equipment associated with them, Elexicon would be negatively impacting is work execution and comprising reliability.

### 3.3 Safety Risk

The secondary trigger is safety risk if tools and equipment are not replaced in a timely manner. If the existing tools and equipment continue to be utilized in the future, this could impact safety as some of this equipment become unsafe to use. It could also create a situation where the tool or equipment fail, leaving staff unable to carry out their work. Improvements to new tools and equipment can increase the safety of

operational staff and enable Elexicon to perform necessary work to ensure the safety and reliability of the system.

Furthermore, sufficient tools and equipment are required to operate a resilient grid. Storm response requires high deployment of field crews to ensure safety of the public and restore power quickly. These field crews need access to the safe, working and reliable tools and equipment needed to complete the work.

## 4. INVESTMENT TIMING & PACING

### 4.1 Summary of Expenditures

**Table 2: Summary of Expenditures**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.16 | 0.17 | 0.46 | 0.43 | 0.36 | 0.48 | 0.19 | 1.13 | 1.26 | 1.35 | 0.84 | 0.83 |
| Contributions | - | - | - | - | - | - | - | - | - | - | - | - |
| Total (Net) | 0.16 | 0.17 | 0.46 | 0.43 | 0.36 | 0.48 | 0.19 | 1.13 | 1.26 | 1.35 | 0.84 | 0.83 |

The forecasted budget has been paced to ensure that investments are paced across the rate period, and investments are made to ensure that Elexicon departments have the tools and equipment when they need them to carry out critical maintenance and capital work. Each year Elexicon reviews the company's budgets and adjusts as required to ensure the right tools and equipment are being procured to meet the current needs. As Elexicon is purchasing new large vehicles over the forecast period, cost to outfit these with the correct tools to be used in the field have been allocated according to the current Fleet investment plan.

Historical costs are lower than the forecast period, primarily due to Elexicon deferring many investments in purchasing new vehicles, and therefore not requiring the expense of outfitting these with the correct tools and equipment. Furthermore, some tools and equipment are continuing to work as required and therefore are being operated beyond there typical useful life, which has allowed Elexicon to defer replacement. As discussed in this narrative, approximately 60% of the capital investment in this category is related to the cost of outfitting the new vehicles being purchased with the correct tools and equipment to allow the staff to carry out the maintenance and capital investment required.

Elexicon forecasts tools and equipment expenditures based on operational needs and planned fleet investments (See Exhibit 2B - Tab 4 - Schedule 3 - Appendix M). Each year, the company evaluates the number of new vehicles scheduled for purchase or replacement and identifies the tools required to outfit these vehicles for safe and efficient field operations. By understanding these requirements in advance, Elexicon engages vendors early to obtain pricing and delivery commitments, ensuring accurate cost estimates for budgeting purposes.

In addition to fleet outfitting, Elexicon reviews the condition of existing tools and equipment across its Lines, Substations, and Fleet departments to determine replacements for worn or obsolete items. Certification data and safety standards are assessed annually to identify tools that require recertification or replacement. These evaluations allow Elexicon to forecast capital expenditures for new tools while maintaining compliance with regulatory requirements and supporting operational efficiency. Other than fleet investments, budgets for Lines and Substation tools are annual allocations, with no specific investments identified in advance. These allocations provide flexibility for departments to purchase or replace tools as needed throughout the year. For the 2027–2031 period, the forecast represents annual allocations informed by historical spending patterns. This proactive approach ensures that the tools and equipment portfolio remain aligned with Elexicon's safety objectives, reliability targets, and modernization initiatives.

## 4.2 Investment Pacing and Prioritization

Overall, Elexicon has looked to pace investments such that they are completed over a sustained period but also focused to deliver when Elexicon requires these tools and equipment to be replaced, or new tools purchased to align with the purchasing of the new large vehicles.

The table in section 4.1 outlines the pacing of the investments. The main variation in spending pacing is the alignment with the Fleet plan. The pacing of tools and equipment investments is closely tied to Elexicon's Fleet plan, as the number of vehicles scheduled for replacement or purchase directly impacts the volume of outfitting required. These figures are derived from the Fleet Material narrative, which outlines the planned vehicle acquisitions over the 2027–2031 period (Exhibit 2B - Tab 4 - Schedule 3 -

Appendix M). The pacing of investments is determined by the operational need and intended purpose of the vehicle being acquired or replaced.

- Addition of new positions – the pacing of purchasing new vehicles is aligned with the timing of when the new employees, who require a vehicle, will start.
- Sustained replacement of vehicles at end of life and in need to replacement – this takes into the age and condition of vehicles and expected utilization.

By leveraging this information, Elexicon can accurately forecast the tools and equipment needed for each new vehicle and engage vendors early to secure pricing and delivery commitments. Table 3 shows the number of vehicles that will require outfitting with new tools and equipment over the 2027-2031 period:

**Table 3: Trucks Requiring New Tools and Equipment**

| | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|
| Number of Trucks requiring new tools and equipment | 7 | 1 | 2 | 2 | 1 |

As can be seen, the pacing of investment will be heavily loaded in 2027 to align to the increase in maintenance and capital projects and level off for the remaining years. Investments in tools and equipment in the other areas remain fairly levelized across the 2027-2031 period.

## 4.3 Execution Approach

Elexicon maintains strong relationships and communication with suppliers. Elexicon has a proposed plan that will ensure investments are carried out in time for renewal of tools and equipment that is at end of life, as well as purchasing of new tools for new Fleet vehicles as they are purchased per the Fleet plan. Furthermore, annually Elexicon revisit the company's budgets and adjusts based on any new information on condition of existing tools, and any changes in Fleet or other investment plans.

### *4.3.1* Execution Risks & Mitigation

The program is vulnerable to several risks that could affect the planning and timing of proposed investments, including:

- Increased deterioration of existing tools and equipment presents a risk to the planned pacing. If more severe deterioration is found in tools and equipment utilized by a group, Elexicon will invest more into one year and budget less for future years. Additional outcomes include increasing the budget for operational tools in the future if advanced degradation is discovered.
- The rising costs of material and labour are an ongoing issue in the post-COVID market. Supply chain disruptions have become an ongoing issue across many industries as well and have continued to pose a risk. Elexicon has close relationships with suppliers and will continue to engage them closely as the company executes the investment plan.

## 5. OPTIONS ANALYSIS

The following sections outline the options considered by Elexicon for investments in tools and equipment:

**Option 1: Proposed Pacing**

This option provides an optimized investment plan that allows Elexicon to replace tools that are at end of life, as well as purchase new tools to be fitted to new vehicles to allow Elexicon to carry out capital and maintenance work safely and reliability. Optimizing the budget ensures a balanced approach to ensuring there is adequate supply of tools and equipment, with funding for strategic investment in advancements that clearly demonstrate a positive cost benefit ratio.

**Option 2: Accelerated Pacing**

This option entails Elexicon increasing the pacing of investment into tools and equipment. Whilst this option may allow Elexicon to increase the number of new tools or replace tools at a faster pace, it does not necessarily translate into program benefits. I.e., it does not mean expedited capital or maintenance jobs, as the pace of these projects are already set. Investment above the proposed pacing (Option 1) could result in surplus tools and equipment that that run the risk of becoming out of compliance with current standards before their useful end of life.

**Option 3: Slower Pacing**

This option entails Elexicon decreasing the pacing of investment into tools and equipment. Whilst this would be a lower cost, slower replacement tools and equipment has the potential to negatively impact

the pace of capital and OM&A work if suboptimal tools are being used, or replacement stock is not available on hand during the course of work. Furthermore, slower pace of investment increases the risk of a tool or equipment shortage. If staff are left with an inadequate supply of tools or equipment and need to share, less jobs can be completed annually, increasing the risk of backlogs over time. This option would negatively impact workforce health and productivity, safety, service continuity, and service quality.

# P5 OT SYSTEMS

## 1. OVERVIEW

| | | |
|---|---|---|
| 2020-2024 Cost ($M): $4.57M | 2025-2026 Plan ($M): $3.35M | 2027-2031 Forecast ($M): $17.52M |
| Primary Driver: Maintenance Support | | |
| Secondary Drivers: Cyber Security Risks, Customer Experience and Service Quality, Operational Efficiency, Reliability | | |
| Outcomes: Customer Focus, Operational Effectiveness, Public Policy Responsiveness, Financial Performance | | |
| Segments: OT Systems Upgrade/Enhancements, ADMS/DERMS Systems Upgrade and Enhancements, Grid Modernization | | |

Elexicon's Operational Technology (OT) Systems Program is a strategic investment in OT systems modernization, ADMS/DERMS enhancements, and grid modernization to support reliability, cybersecurity resilience, outage response, and efficient operations. By upgrading and standardizing OT platforms, Elexicon aims to improve system resilience, reduce manual interventions, and enable more proactive asset management.

The OT Program is fundamental to efficient operations and encompasses the deployment, operation, and maintenance of the company's technology and controls, specifically across OT platforms, advanced distribution systems, and grid modernization efforts. The OT Systems Program is a strategic investment in OT systems modernization, advanced distribution and energy resource management system (ADMS/DERMS) enhancements, and grid modernization initiatives. These investments permit advanced grid monitoring, automated switching, and outage management tools—provide real-time visibility and control over the distribution network. These technologies support system maintenance by facilitating the reduction of outage frequency and duration, enhancing worker and public safety, and enabling faster restoration during emergencies. These investments are designed to support system reliability, cyber security resilience, outage response, and operational efficiency. They also lay the foundation for future grid technologies, and the evolution towards a more decentralized energy system with greater customer participation in the energy system.

This program is primarily driven by the need to modernize grid control and introduce grid automation capabilities while also improving maintenance support across aging infrastructure. Elexicon's current OT environment includes some siloed legacy systems with limited integration and automation, which can hinder fault detection, delay restoration, and increase operational risk. These legacy systems only have basic outage management functionality, and without updating them, there would be limited advanced functionality enabled. Together, advanced ADMS and DERMS integration will form the cornerstone of a modern, data-driven distribution system which enable automation, improve reliability, and optimize energy delivery. Upgrades and enhancements to Elexicon's ADMS and DERMS platforms will facilitate the seamless integration of distributed energy resources (DERs) and electric vehicles (EVs) by delivering real-time visibility, control, and analytics across the distribution network.

In 2025, Elexicon commenced its grid modernization journey with the upgrading of the current SCADA system to a newer version, and the implementation of new ADMS, which enables access to additional functionality in the future. Dubbed the "Whitby Smart Grid Project ", Elexicon's ICM-funded investments (See Exhibit 2A - Tab 6 - Schedule 1) were foundational for Elexicon's grid modernization strategy, and its OT investment program. This involved the deployment of advanced technologies to enhance distribution system performance.

Through this investment Elexicon acquired the foundational technologies to enable:

- Faster fault detection and isolation
- Automated restoration of service through FLISR
- Improved voltage regulation and power quality
- Enhanced visibility and control of distributed energy resources (DERs)
- Better support for customer technologies such as rooftop solar and electric vehicles
- More efficient outage response and crew coordination

The WSG components were a critical step towards advancing Elexicon's Grid Modernization objectives. Elexicon's Operational Technology (OT) Systems Program is a strategic investment in modernizing OT platforms, enhancing ADMS/DERMS capabilities, and advancing grid modernization to support reliability,

cybersecurity resilience, and efficient operations. While foundational systems were deployed under the Whitby Smart Grid Project, rapid changes in technology, growing cybersecurity threats, and the need to integrate distributed energy resources (DERs) and electric vehicles (EVs) mean these platforms require upgrades to remain secure, scalable, and interoperable. In the 2027–2031 forecast period, Elexicon will continue to build on the foundation and scale its modernization efforts across the broader distribution network, with a focus on the deployment of field hardware such as FLISR, as outlined in its Grid Enhancement investment program (see Exhibit 2B - Tab 4 - Schedule 3 - Appendix J).

This program is a critical component of Elexicon's Grid Modernization Plan. Enhanced OT systems will enable advanced data analytics, improved situational awareness, and adaptive grid operations, essential for meeting rising energy demands and supporting customer energy initiatives. Enhanced data systems and communication technologies will also support faster outage response and benefit all customer segments as energy needs grow. Further details on Elexicon's Grid Modernization plan can be found in Exhibit 2B - Tab 3 - Schedule 2 - Appendix A.

The OT Systems program will be executed over 2027-2031 forecast period, with pacing determined by end-of-life systems, cyber security vulnerabilities and alignment with broader grid modernization initiatives. Investments are prioritized based on risk, impact, and readiness, and implemented in phases to ensure continuity of service and efficient resource deployment.

The program has three segments:

- OT System Upgrades and Enhancements
- ADMS/DERMS System Upgrades and Enhancements
- OT Grid Modernization

This program forms a key component of Elexicon's long-term strategy to modernize the company's operational infrastructure. By investing in secure, scalable, and interoperable technologies, Elexicon will enhance system resilience, support future energy needs, and deliver improved service outcomes for customers.

# 2. INVESTMENT DESCRIPTION

## 2.1 OT Systems Upgrades and Enhancements

The OT Systems Upgrades and Enhancements segment focuses on deploying advanced sensors, fault indicators, and predictive analytics tools to optimize infrastructure performance, and extend asset life. These OT investments permit cost-effective asset management, risk mitigation, and long-term reliability planning. Investments in this segment included upgrades to essential systems and enhancements to technologies that are outlined in sections below.

### 2.1.1 OT System Upgrades

To ensure continued compliance with both vendor support requirements and the Ontario Cyber Security Framework, Elexicon must upgrade several core operations technology (OT) systems. The OEB's framework mandates robust cybersecurity governance, risk management, and technical safeguards, which modern OT systems are better equipped to support. Upgrading these systems will enable the implementation of advanced security controls, maintain system integrity, and demonstrate due diligence in protecting critical infrastructure, thereby aligning with both regulatory expectations and industry best practices.

Between the forecasting period 2027-2031, Elexicon will invest in upgrading the following foundational OT systems:

- **Geographic Information System (GIS):** Upgrades will improve spatial data accuracy and asset mapping, enable better outage response, field crew coordination, and long-term planning.
- **Supervisory Control and Data Acquisition (SCADA):** SCADA upgrades will expand remote monitoring and control capabilities, reduce manual switching, and improve fault isolation. These enhancements will also support increased automation and real-time data analytics.
- **Backhaul Communication System:** Investments will replace aging, end of life fiber and wireless infrastructure to support higher bandwidth, lower latency, and more secure data transmission between substations and control centres.

- **Radio Communication Technology:** Upgrades will improve field crew connectivity, reduce communication delays during outages, and support mobile access to OT systems for diagnostics and control.
- **Database Technologies:** Modernizing databases will improve data integrity, enable faster query performance, and support integration across OT platforms, enhancing decision-making and reporting.
- **Middleware Technology:** Middleware upgrades will streamline data exchange between systems, reduce integration complexity, and support scalable architecture for future OT applications.

These upgrades are necessary to maintain the reliability, security and interoperability of Elexicon's operational infrastructure. They also lay the groundwork for future enhancement in grid automation, distributed energy resource management, and maintenance.

### 2.1.2 OT System Enhancements

Investments in OT Systems enhancements focus on improving the functionality, integration, and cyber security posture of Elexicon's existing platforms. These enhancements are designed to support more efficient operations, enable advanced grid capabilities, and ensure long-term system resilience. This segment targets specific upgrades that unlock new features, improve interoperability, and extend the useful life of existing infrastructure.

Key enhancements planned between 2027-2031 include:

- **Migration from Oracle to Windows-based Database (GIS) – 2027/2028:** This transition enables tighter integration with enterprise systems such as SAP S/4HANA (which is being implemented through the DxNEXT project, (see Exhibit 4 - Tab 1 - Schedule 6) and ADMS, reducing data redundancy and improving workflow efficiency. A large percentage of Elexicon's databases are Microsoft SQL-based (i.e., Windows-based), and aligning GIS with this standard promotes consistency across platforms. Additionally, Oracle licensing costs have been rising, making long-term support less financially sustainable. By moving to Microsoft SQL, Elexicon can leverage internal expertise, as the organization is primarily built around Microsoft solutions. This shift

enhances cybersecurity, as Microsoft's unified patching and endpoint protection ecosystem allows for consistent and timely application of security updates across the enterprise.

- **Implementation of ESRI Unified Network (GIS) – 2027/2028:** This enhancement consolidates asset, spatial, and network data into a single digital model. It enables field crews and control room operators to access real-time, validated information on asset location, connectivity, and condition. Benefits include faster and safer outage restoration, improved planning and design workflows and enhanced data quality. The platform supports DER management, voltage regulation and load forecasting. Proving a scalable foundation to support future grid modernization.
- **Expansion of the [Redacted] and SCADA Radio Head-End System – 2029/2030:** These upgrades expand Elexicon's secure private cellular network and radio infrastructure to support additional SCADA hardware such as reclosers, fault indication, and voltage sensors. This improves real-time visibility and control over a larger portion of the distribution network and supports advanced OT systems like ADMS, DERMS, and voltage optimization tools.
- **Expansion of [Redacted] Network – 2029/2030:** As the number of intelligent field devices grow, the existing communications network must scale to support increased automation, monitoring, and control. This investment ensures reliable connectivity for SCADA controllers, voltage sensors, and reclosers, which are essential for modern grid operations.
- **Lifecycle Refresh of Radio Consoles and Field Radios – 2030/2031:** These devices, installed in 2024, will reach end-of-life within a 5-8 year cycle. Refreshing this equipment ensures continued voice clarity, coverage and redundancy which is critical for coordinating crews during outages, switching, and emergency response. Upgraded systems also improve cybersecurity and compatibility with modern OT networks.
- **Implementation of Enterprise Service Bus – 2028/2029:** This enhancement introduces a secure, standardized integration framework that enables seamless data exchange between OT systems (SCADA, ADMS, DERMS, GIS) and enterprise applications (SAP S/4HANA, CIS). By replacing custom point-to-point connections with a centralized integration layer, the Enterprise Service Bus improves cyber security, enhances data integrity, and reduces operational complexity.

Together, these enhancements support Elexicon's broader Grid Modernization strategy by improving system interoperability, enabling real-time decision-making, and preparing the infrastructure for future energy demands. They also contribute to more efficient workflows, reduce operational risk, and improved service reliability for customers.

## 2.2 ADMS/DERMS Systems Upgrades and Enhancements

Investments in the Advanced Distribution Management System (ADMS) and Distributed Energy Resource Management System (DERMS) capabilities will enable advanced grid functions such as load forecasting, voltage regulation, fault isolation, and automated restoration (FLISR). These systems will also enhance visibility and control of distributed energy resources (DERs) and electric vehicles (EVs), which are becoming increasingly prevalent across Elexicon's service territory.

A key component of these upgrades is the transition to the latest vendor-supported versions of ADMS and DERMS. This ensures continued compatibility, access to new features, and alignment with cybersecurity and performance standards. Staying current with vendor-supported releases also reduces the risk of functional obsolescence and supports long-term system reliability.

Upgrades will integrate data from grid monitoring assets, such as voltage sensors and communicating fault current indicators (CFCIs), to provide real-time insights that optimize grid performance. As the number of customer-owned generation sources and connected devices grow, ADMS and DERMS will allow for automated coordination and control of distributed assets, ensuring safe, reliable, and efficient operations.

For customers, these investments translate into supporting reliability with faster outage response, and better accommodation of emerging technologies like rooftop solar and EVs.

### 2.2.1 Advanced Distribution Management System (ADMS)

ADMS is Elexicon's centralized digital control platform for monitoring and managing the distribution network. It integrates real-time data from field devices (via SCADA), smart meters (AMI), and GIS to provide situational awareness, manage outages, and support crew dispatch.

**Current Use and Limitations**

At present, Elexicon uses ADMS primarily for basic outage management, AMI integrations, and trouble ticket dispatch. While these core functions support day-to-day reliability, they provide only a limited, reactive view of system performance. The system lacks predictive analytics, advanced fault isolation, and voltage optimization capabilities. As customer demand, distributed energy resources (DERs), and electric vehicle (EV) adoption grow, this limited functionality constrains the Elexicon's ability to proactively manage grid conditions and automatically restore service.

**Planned Enhancements and Work to Be Done (2027-2031)**

The ADMS upgrade will involve both software enhancements and system reconfiguration to enable enhanced grid functions. Specific activities will include:

- Installation of new software modules to support:
    - **Load Forecasting** - Enables predictive modelling of energy demand to support better system planning and real-time operational decisions.
    - **Voltage Regulation** – Automates control of voltage levels, improving efficiency, reducing losses, and supporting integration of DERs and EV loads.
    - **Fault Location, Isolation, and Service Restoration (FLISR)** – Automatically detects and isolates faults, rerouting power to unaffected areas and reducing outage duration and customer impact.
    - **Integration of Alarms and Grid Monitoring Data** – Incorporates data from voltage sensors, capacitor banks, and fault circuit indicators (FCIs) to enhance situational awareness and grid responsiveness.

### 2.2.2 Distributed Energy Resource Management System (DERMS)

DERMS is a critical platform for managing customer-connected generation and emerging technologies such as solar photovoltaic (PV), battery storage, and electric vehicle (EV) charging. It enables coordination between these distributed assets and the broader grid to maintain system balance, reliability and voltage stability.

**Current Use and Limitations**

Currently, Elexicon's DERMS capabilities are limited, with minimal real-time visibility into the location, capacity, and performance of customer-owned DERs. Without advanced DERMS integration, Elexicon cannot fully assess or manage the aggregate impact of DERs and EVs on voltage, load balancing, or feeder capacity—introducing potential reliability and power-quality risks as these technologies proliferate.

**Planned Enhancements (2027-2031)**

The DERMS upgrade will involve both software deployment and system integration activities to enable advanced monitoring and control of distributed assets. Specific activities include:

- Deployment of DERMS software modules that support:
  - **Real-Time DER and EV Visibility –** Integration of data from smart inverters, EV chargers, and battery systems to provide situational awareness at the grid edge.
  - **Automated DER Control** – Coordination of distributed assets to optimize voltage, frequency, and load balancing across feeders.
  - **Forecasting and Load Impact Modelling** – Predictive analytics to assess the impact of DERs and EVs on system performance.
- Integration with ADMS and GIS platforms to provide a unified operational view for dispatchers and planners, aligning DER operations with broader grid control functions.
- Configuration of communication pathways to enable secure data exchange between DERMS and field devices, including voltage sensors, capacitor banks, and fault indicators.

Together, advanced ADMS and DERMS integration will form the cornerstone of a modern, data-driven distribution system which enable automation, improve reliability, and optimize energy delivery. Upgrades and enhancements to Elexicon's ADMS and DERMS platforms will facilitate the seamless integration of distributed energy resources (DERs) and electric vehicles (EVs) by delivering real-time visibility, control, and analytics across the distribution network.

With advanced capabilities such as load forecasting, voltage regulation, fault isolation, and distributed resource management, ADMS will dynamically balance supply and demand to optimize grid performance under varying operating conditions. These enhancements will enable Elexicon to anticipate and mitigate grid instabilities caused by fluctuating DER outputs and the increasing electrification of transportation and heating.

As the volume of connected devices and customer-owned generation grows, the upgraded systems will allow for automated coordination and control of distributed assets—ensuring safe, reliable, and efficient grid operation. These investments will enhance reliability, improve power quality, and support the integration of customer-driven technologies, aligning with the Ontario Energy Board's Operational Effectiveness – Reliability and Public Policy Responsiveness outcomes, while advancing Ontario's broader energy transition objectives.

## 2.3 OT Grid Modernization

Elexicon's Grid Modernization Program is a strategic investment in advanced Operational Technology (OT) systems and infrastructure designed to enhance system visibility, automate control functions, and prepare the distribution network for the evolving energy landscape. These investments are essential to meet the Ontario Energy Board's (OEB) expectations for improved reliability, particularly in relation to SAIDI and SAIFI performance targets, and to manage increasing system complexity as customer energy needs change.

**Planned Enhancements (2027-2031)**

Key activities within the Grid Modernization segment include:

- **Enhancements to SCADA**: Elexicon is upgrading its SCADA system to support the integration of a broader range of field assets that are being deployed under the Grid Enhancements program, including reclosers, fault indicators, voltage sensors, and capacitor banks. These enhancements involve the addition of new modules and protocols that enable seamless communication with new modern field devices. By expanding SCADA's capabilities, Elexicon will improve real-time monitoring, fault detection, and automated switching—reducing outage durations and improving

restoration times. These devices will be tightly integrated with both SCADA and ADMS platforms to support dynamic grid operations and enhance situational awareness across the distribution network.

- **Enhancements to Backhaul Communication Systems:** Elexicon is upgrading its backhaul communication infrastructure, including fiber, cellular, and radio systems, to support high-speed, secure data exchange between field devices and control centres. These enhancements include the adoption of next-generation communication protocols and hardware that increase data throughput, reduce latency, and improve cybersecurity. As the number of connected assets continues to grow, these upgrades are essential for enabling real-time visibility, control, and responsiveness across the distribution network.
- **Expansion of IT Infrastructure:** Elexicon is investing in servers, storage, and networking equipment to support the growing data and processing demands of advanced Operational Technology (OT) platforms, including ADMS, DERMS, and AI-based applications. A key focus of this investment is to build the capacity required to integrate an increasing number of field devices—such as reclosers, fault indicators, and voltage sensors—into the OT environment. These upgrades ensure that the infrastructure can support real-time data exchange, scalable device connectivity, and secure system operations as the grid becomes more automated and distributed.
- **Implementation of Artificial Intelligence (AI) Use Cases:** Deployment of AI tools for predictive asset failure analysis, load forecasting, outage prediction, vegetation management (e.g., tree trimming), and data quality assurance. These capabilities will improve operational efficiency and reduce risks associated with equipment failure and extreme weather events.
- **Integration with Market Platforms:** Procurement and integration of systems that enable participation in emerging energy markets, allowing customers to monetize DERs and flexible loads, and supporting broader grid flexibility.

These Grid Modernization investments are aligned with Elexicon's enterprise architecture and cybersecurity objectives. Systems will be integrated with existing platforms such as SAP S/4HANA, GIS, ADMS, and DERMS, ensuring consistency, interoperability, and compliance with the OEB's Cyber Security

Framework. The program also supports Elexicon's commitment to innovation, unlocking customer participation and sustainable energy delivery.

The Grid Modernization investments are designed to deliver a wide range of benefits across customer service, asset management, safety, and regulatory compliance. For customers, these upgrades will result in improved reliability, faster outage restoration, and greater flexibility in how they consume and produce electricity, particularly as technologies like electric vehicles, rooftop solar, and smart buildings become more prevalent. From an asset management perspective, enhanced visibility and control of grid assets will enable predictive maintenance, optimize asset utilization, and reduce operational costs through automation and data-driven decision-making. These investments also support safer operations by reducing manual field interventions and improving situational awareness for crews. Importantly, the program aligns with the Ontario Energy Board's expectations for improved reliability performance enabling a more resilient, flexible, and future-ready distribution system.

Grid Modernization is a foundational component of Elexicon's immediate objectives of restored reliability performance as well as its longer-term strategy to build a modern, flexible, and customer-centric distribution system. These investments will enable Elexicon to meet future energy demands, and deliver enhanced value to customers through smarter, more responsive infrastructure. More information on Grid Modernization is available in Exhibit 2B - Tab 3 - Schedule 2 - Appendix A.

## 2.4 Summary of Investment Outcomes and Benefits

**Table 1: Summary of Investment Outcomes and Benefits**

| Outcome | Investment Benefits and Objectives |
|---|---|
| Financial Performance | Contributes to meeting Elexicon's financial performance objectives by:<br>• Grid automation and remote fault location/isolation capabilities support the reduced duration and scope of outages. This minimizes restoration costs (e.g., truck rolls, overtime labour) and improves system reliability performance.<br>• Reduces the need for manual intervention through automation (e.g., remote switching, load balancing), lowering field crew time and operational overhead. Over time, these efficiencies contribute to more cost-effective service delivery and rate stability. |
| Customer Focus | This program directly supports Elexicon's commitment to reliability, through:<br>• Improved outage management and faster restoration through upgraded OT systems like SCADA and OMS, enabling quicker fault detection, isolation, and restoration to reduce outage duration and improve reliability.<br>• Proactive maintenance and power quality monitoring using real-time analytics to identify deteriorating assets and voltage issues before they impact customers, ensuring a stable and consistent service experience.<br>• Better customer communication during outages with integrated OT platforms providing accurate, real-time outage updates and |

| Outcome | Investment Benefits and Objectives |
|---|---|
| | restoration times, enhancing transparency and customer satisfaction. |
| Operational Effectiveness – Reliability | Contributes to meeting Elexicon's reliability objectives (SAIDI & SAIFI) with the following tools:<br>• Advanced Distribution Management Systems (ADMS) – Optimizes real-time grid operations, supporting reduced outage frequency and duration and increased grid resiliency.<br>• SCADA Monitoring – Provides real-time asset health insights to prevent unexpected failures and improve system uptime.<br>• Enabling a More Efficient and Smarter Grid: OT systems like SCADA (Supervisory Control and Data Acquisition), advanced distribution management systems (ADMS), and grid automation improve real-time control and system efficiency. By optimizing voltage levels and load flow, these tools reduce energy losses across the grid<br>• Integration of Clean and Distributed Energy Resources: OT platforms provide the monitoring, control, and interoperability needed to integrate distributed energy resources (DERs) such as rooftop solar, battery storage, and electric vehicle chargers safely and effectively.<br>• Improved Asset Health and Lifecycle Management: OT systems help monitor equipment performance in real time, facilitating condition-based maintenance.<br>• Support for Electrification and Demand Flexibility: OT enables dynamic load management, time-of-use pricing, and demand |

| Outcome | Investment Benefits and Objectives |
|---|---|
| | response programs—empowering customers to shift consumption toward lower-peak periods and supporting broader electrification strategies in transportation and heating. |
| Safety | The segment contributes to Elexicon's safety objectives by:<br>• Real-Time SCADA– Continuous monitoring of substations, transformers, and grid assets detects potential failures before they lead to hazardous incidents.<br>• Two-way field radios with built-in redundancy provide real-time, reliable communication directly to the control room, ensuring the safety of Elexicon's team during field work, and in case of emergency.<br>OT Security & Network Segmentation – Prevents cyber threats from compromising critical infrastructure (e.g., preventing remote tampering with control systems and potential safety issues). |
| Public Policy Responsiveness | Contributes to meeting Elexicon's public policy responsiveness objectives by:<br>• Supports building electrification and the adoption of EVs - OT ensures the distribution system can accommodate increased demand without compromising reliability. Technologies like transformer loading monitors and dynamic voltage control enable smarter, more adaptive grid operations.<br>• Facilitating Data Transparency and Access: OT provides the data backbone needed for regulatory reporting, open data initiatives, |

| Outcome | Investment Benefits and Objectives |
|---|---|
| | and customer access to usage and performance information—key enablers of transparency and public accountability.<br>• Strengthening Cyber security and Grid Resilience: Robust OT systems support compliance with evolving cyber security and critical infrastructure protection standards, (such as the Ontario Cyber Security Framework) ensuring that utilities meet public policy expectations for secure, resilient energy systems. |

## 3. INVESTMENT DRIVERS & NEED

### 3.1 Purpose

Investments in Operational Technology (OT) infrastructure targets risks to service reliability, cybersecurity, operational efficiency, and customer experience. As technology continues to advance, utilities must invest in modern, secure, and scalable systems to support their growing operational needs. The OT Systems program addresses higher long-term costs, service disruptions, and increased risks to grid stability and customer data security.

Deferring capital investments in OT infrastructure introduces operational, financial, and cybersecurity risks that can negatively impact customers. Without timely upgrades, Elexicon may face service interruptions, rising costs, security vulnerabilities, and an inability to meet future demands. Proactive OT investment ensures a resilient, secure, and customer-focused energy system that supports long-term reliability and efficiency.

**Table 2: Investment Driver and Reasoning**

| Investment Driver | Reasoning & Investment Benefits |
|---|---|
| System Support Maintenance | Ensures critical OT platforms like SCADA, GIS, ADMS, and DERMS remain secure, reliable, and fully supported. Prevents obsolescence, reduces |

| | |
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| | operational risk, and enables integration with emerging technologies. Supports proactive maintenance, improves data accuracy, and enhances decision-making through modern tools and analytics—ultimately strengthening reliability, cyber security, and operational continuity. |
| Cyber security & Compliance | Older OT systems may no longer receive critical security updates, making them highly vulnerable to cyberattacks, ransomware, and data breaches. A cybersecurity incident could result in operational disruptions, unauthorized access to customer data, and financial losses, eroding public trust and increasing regulatory scrutiny. Upgrading systems ensures compliance with evolving cyber security standards and protects against growing cyber threats. |
| Reliability | Aging OT infrastructure, including grid control systems, SCADA, and outage management platforms, become more prone to failures and inefficiencies over time. Without timely investments, Elexicon may experience more frequent system failures, longer outage response times, and reduced reliability, directly impacting customers through increased service disruptions and power quality issues. |
| Customer Experience and Service Quality | OT investments directly enhance customer experience and service quality by enabling faster, more reliable, and data-driven grid operations. Modern OT systems—such as advanced distribution management, field automation, and real-time monitoring—improve outage detection, fault isolation, and restoration times, resulting in fewer and shorter interruptions for customers. Enhanced data integration and visibility across systems also allow customers to receive |

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| | timely, accurate information about outages, energy usage, and restoration progress. By strengthening the digital foundation of the distribution system, OT modernization enables Elexicon to deliver more reliable, responsive, and transparent service. |

## 3.2 System Support Maintenance

System Support and Maintenance is a main driver of investment within Elexicon's Operational Technology (OT) program, ensuring that critical software platforms remain reliable, secure, and fully supported throughout their lifecycle. As operational systems such as SCADA, Geographic Information Systems (GIS), Advanced Distribution Management Systems (ADMS), and Distributed Energy Resource Management Systems (DERMS) evolve, ongoing investment is necessary to maintain vendor support, apply security patches, and implement functionality upgrades. These efforts prevent obsolescence, reduce operational risk, and ensure compatibility with emerging technologies and regulatory standards.

Sustained system support also enables Elexicon to leverage the latest capabilities in automation, analytics, and data integration which enhances grid visibility, outage response, and coordination across control systems. By maintaining a proactive and structured approach to system maintenance, Elexicon strengthens reliability, cyber security resilience, and operational continuity.

System maintenance and lifecycle support are foundational drivers of Elexicon's OT investment program. Many of the planned initiatives focus on sustaining the systems and data that underpin safe, reliable, and efficient network operations. These are essential modernization measures that ensure continued accuracy, supportability, and performance of Elexicon's operational platforms.

A key example is the implementation of a modern Geographic Information System (GIS). This new platform replaces fragmented, outdated tools that can no longer be effectively maintained, and provides the capability to accurately store, retrieve, and manage network asset data. Modern GIS solutions ensure consistent and reliable access to asset information across departments, allowing engineering, operations, and field teams to work from a single validated data source.

Equally important is the deployment of systems that capture and maintain asset condition data. These tools support asset maintenance and lifecycle planning by providing visibility into the health and performance of distribution assets. Access to reliable asset condition data helps Elexicon's Asset Management Process to plan and prioritize capital and maintenance investment activities with informed decision making ensuring that risks are addressed proactively.

Newer GIS platforms also offer built-in reporting and analytics capabilities that transform raw data into actionable insights. This empowers staff to monitor asset performance trends, identify emerging issues, and make evidence-based decisions about repair, replacement, or investment priorities—directly improving operational effectiveness and cost efficiency.

Additionally, modern GIS tools simplify the extraction and modification of schematic data as assets transition from "as-designed" to "as-built." This ensures digital records accurately reflect field conditions following construction or maintenance activities. Maintaining alignment between physical and digital systems reduces safety risks, prevents data discrepancies, and improves efficiency in future maintenance and outage response.

Collectively, these OT investments demonstrate that system maintenance and support are core drivers of modernization. By sustaining accurate, reliable, and up-to-date systems, Elexicon strengthens the ability to manage a growing distribution network, maintain safety and reliability, and deliver prudent, value-driven outcomes for customers.

### 3.3 Cyber Security & Compliance

Cyber Security is the primary driver for Elexicon's Operational Technology (OT) investment program. As Elexicon's reliance on digital infrastructure grows, so too does the need to protect critical systems from evolving cyber threats. Elexicon's OT environment which includes SCADA, ADMS, GIS, and DERMS platforms—must comply with the Ontario Cyber Security Framework, which is based on industry standards such as NIST and CIS Controls. These standards require robust identity management, network segmentation, continuous monitoring, and vulnerability management practices.

Many legacy OT systems are reaching the end of their vendor-supported lifecycle and no longer receive timely security updates, making them increasingly vulnerable to ransomware, data breaches, and unauthorized access. Delaying upgrades increases the risk of system failures during critical operations, such as outage restoration or voltage regulation. Timely investment is essential to maintain system reliability and ensure continued compliance with evolving cybersecurity standards. A cyber security incident could result in operational disruptions, compromise customer data, and lead to financial losses and reputational damage. These risks are compounded by the growing number of connected devices and distributed energy resources (DERs), which increase the attack surface and complexity of the grid.

To mitigate these risks, Elexicon is investing in system upgrades that enhance cybersecurity resilience. Key initiatives include the implementation of the ESRI Unified Network to improve data accuracy and security within GIS, the expansion of the [Redacted] to securely support additional SCADA hardware, and the deployment of an Enterprise Service Bus (ESB) to enable secure integration between OT and enterprise systems. These investments ensure compliance with regulatory standards, strengthen system defenses, and protect the confidentiality, integrity, and availability of operational data.

- **ESRI Unified Network (GIS):** This initiative consolidates asset, spatial, and network data into a unified digital model, significantly improving data accuracy and minimizing inconsistencies across systems. By centralizing access controls, it enhances cybersecurity and facilitates secure data validation and sharing across departments. Additionally, it supports compliance with the Ontario Cybersecurity Framework by providing greater visibility into asset connectivity and condition.
- **Expansion of [Redacted]:** This initiative strengthens Elexicon's private cellular network, which is used to communicate with SCADA devices such as reclosers, fault indicators, and voltage sensors. It establishes secure, encrypted communication channels for field devices, reducing exposure to external threats. Furthermore, it enables real-time monitoring and control, which is essential for timely incident detection and effective response.
- **Lifecycle Refresh of Communication Consoles and Radios:** This initiative replaces aging communication equipment that may no longer receive security updates or support modern encryption standards, thereby improving overall system security. It enhances voice clarity,

coverage, and redundancy which are critical capabilities for coordinating field crews during outages and emergencies. Additionally, it strengthens cybersecurity by ensuring compatibility with secure operational technology (OT) networks and reducing the risk of communication failures.

- **Implementation of Enterprise Service Bus (ESB):** This initiative introduces a secure, standardized integration framework that enables seamless data exchange between operational technology (OT) systems such as SCADA, ADMS, DERMS, and GIS, and enterprise platforms like SAP S/4HANA and CIS. It replaces vulnerable point-to-point connections with a centralized architecture that supports encryption, access control, and auditability. By improving data integrity and reducing operational complexity, it aligns with best practices in cybersecurity governance.
- **Application Lifecycle Management Compliance:** This initiative ensures that all operational technology (OT) systems are maintained in accordance with vendor-defined lifecycle schedules, including the timely application of security patches and updates. By keeping platforms current and supported, it helps prevent functional obsolescence and reduces vulnerability exposure. It also supports continuous compliance with cybersecurity standards and minimizes the risk of system failures caused by outdated software.

By proactively addressing cybersecurity risks, Elexicon is safeguarding infrastructure, maintaining public trust, and ensuring the continued safe and reliable delivery of electricity to customers.

## 3.4 Reliability

Reliability is a secondary driver of Elexicon's Operational Technology (OT) investment program. As customer expectations rise and the distribution system becomes more complex, maintaining reliability requires modern, integrated systems that deliver real-time visibility, automation, and control. Many of Elexicon's existing OT tools were designed for a simpler, less dynamic grid environment which limit the Elexicon's ability to prevent, isolate, and restore outages efficiently, and to proactively manage system conditions across an expanding service territory.

To address these challenges, Elexicon is investing in upgrades to core OT platforms — including Advanced Distribution Management Systems (ADMS), Distributed Energy Resource Management Systems (DERMS),

and Geographic Information Systems (GIS) — to enhance fault detection, automate switching, and improve the accuracy of network condition data. These capabilities directly support system reliability – both the duration and frequency of outage – while improving situational awareness for control room operators and enabling more effective management of distributed energy resources and variable loads.

For example, improvements targeting SAIDI (System Average Interruption Duration Index) include the deployment of voltage sensors (VS), fault circuit indicators (FCIs), smart meters, and other grid monitoring assets to generate more granular data (the physical devices are being deployed within the Grid Enhancements program, with the OT portion being the connection and communication elements to enable their functionality). Upgraded backhaul communication systems will enable near real-time data transmission. In addition to this ADMS, middleware technologies and mobile workforce platform will be tightly integrated using near real time APIs to ensure that the outage location is identified accurately and quickly and crews are dispatched immediately to fix any issues causing the outage. These enhancements will significantly reduce outage durations and improve restoration times.

For SAIFI (System Average Interruption Frequency Index), Elexicon is introducing predictive technologies that anticipate asset failures and enable proactive maintenance. Tools such as Fault Location, Isolation, and Service Restoration (FLISR), combined with accurate and granular data, will help reduce the frequency of outages by identifying and resolving issues before they escalate.

Enhanced communications networks and real-time monitoring infrastructure also play a crucial role in reliability. Expanding the [Redacted] networks and refreshing control room radios and consoles ensure secure, resilient communication links between field devices and operations centers. This connectivity allows for faster response during outages and greater coordination between field and system operations.

Modern analytics and asset management tools further support reliability by allowing Elexicon's to predict potential failures before they occur and prioritize maintenance based on data-driven insights. Together, these OT investments enable Elexicon to move from reactive outage response toward proactive system management—reducing risk, enhancing public and worker safety, and improving overall system resilience.

Collectively, these initiatives represent prudent, forward-looking investments that align with the OEB's Operational Effectiveness – Safety and Reliability outcome. By modernizing the OT environment, Elexicon ensures that customers continue to receive safe, reliable, and high-quality service as the grid evolves to accommodate electrification, distributed energy, and increasing demand for service continuity.

### 3.5 Customer Experience and Service Quality

Customer experience and service quality are important secondary drivers of Elexicon's Operational Technology (OT) investment program. As customers increasingly expect timely communication, reliable service, and seamless integration with emerging technologies, modern OT systems are essential to meeting these expectations.

Advanced platforms such as SCADA, ADMS, and automated switching and communication networks enable Elexicon to detect and isolate faults quickly, which leads to improved power restoration and a reduction in both the duration and frequency of outages. These systems also generate accurate, real-time data that enhances communication with customers during planned and unplanned outages which improves transparency, trust, and overall customer satisfaction.

Operational Technology plays a critical role in maintaining consistent voltage and power quality, helping prevent service disruptions and equipment damage at customer premises. As the grid evolves, OT investments support the safe integration of customer-owned technologies such as solar panels, heat pumps, and electric vehicles which ensures these additions do not compromise system performance or reliability.

The integration of Operational Technology (OT) systems — such as SCADA, GIS, and ADMS — with Elexicon's SAP Enterprise Resource Planning (ERP) platform creates a unified flow of operational and business data that improves efficiency, accuracy, and service quality. By linking real-time grid information with asset management, work management, and customer service functions, Elexicon can better plan, prioritize, and execute field work based on actual system conditions. This integration reduces manual data entry and duplication, streamlines maintenance scheduling, and provides more accurate cost tracking. For customers, the result is improved reliability and more transparent communication about service

interruptions and planned work. In the long term, this alignment supports data-driven decision-making and continuous improvement, ensuring a safer, smarter, and more responsive electricity system that delivers measurable value to ratepayers.

Elexicon's OT investments also respond to growing customer demand for participation in the energy market. Modern systems provide access to granular, real-time data, empowering customers to make informed energy decisions and benefit from programs linked to distributed energy resources (DERs). These include solar generation, electric vehicles, and heat pumps, which promote energy efficiency, offer new revenue opportunities, and support sustainability—while maintaining affordability and reliability.

## 4. INVESTMENT TIMING & PACING

### 4.1 Summary of Expenditures

**Table 3: Summary of Expenditures**

| | Actuals ($M) | | | | Bridge ($M) | | | | Forecast ($M) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital (Gross) - Excluding ICM | 0.54 | 1.69 | 0.59 | 0.71 | 0.70 | 2.02 | 1.33 | 0.83 | 1.69 | 3.45 | 5.28 | 6.28 |
| ICM (Gross) | - | - | 0.41[1] | 0.08[1] | - | - | - | - | - | - | - | - |
| Total Capital (Gross) | 0.54 | 1.69 | 1.01 | 0.79 | 0.70 | 2.02 | 1.33 | 0.83 | 1.69 | 3.45 | 5.28 | 6.28 |
| Total Contributions | - | - | 0.08[1] | 0.08[1] | - | - | - | - | - | - | - | - |
| Total Capital (Net) | 0.54 | 1.69 | 0.93 | 0.71 | 0.670 | 2.02 | 1.33 | 0.83 | 1.69 | 3.45 | 5.28 | 6.28 |

Table 3 summarizes the total investments associated with Elexicon's Operational Technology (OT) program, covering the actual expenditures from the historical period from 2020 to 2024, the budgets for the bridge period from 2025-2026, and the forecasted investments for the 2027-2031 period.

Elexicon's OT investment strategy follows a phased and program-driven approach, with expenditures gradually increasing over the forecast period to reflect the timing and complexity of planned initiatives.

[1] Whitby Smart Grid Incremental Capital Module

Total forecasted spending from 2027 to 2031 is approximately $17.52 million, with annual investments rising from $0.83 million in 2027 to $6.28 million in 2031. This upward trend reflects the sequencing of major system upgrades, integration efforts, and lifecycle refreshes aligned with operational readiness and strategic priorities.

**Table 4: Summary of Expenditures by Investment Category**

| Investment Category | Forecast ($M) | | | | | |
|---|---|---|---|---|---|---|
| | **2027** | **2028** | **2029** | **2030** | **2031** | **Total** |
| OT Systems Upgrades & Enhancements | 0.83 | 1.69 | 1.45 | 3.28 | 2.28 | 9.53 |
| ADMS/DERMS Upgrades & Enhancements | - | - | 1.00 | 1.00 | 2.00 | 4.00 |
| OT Grid Modernization | - | - | 1.00 | 1.00 | 2.00 | 4.00 |
| Total | 0.83 | 1.69 | 3.45 | 5.28 | 6.28 | 17.53 |

Table 4 summarizes the planned investments across key investment categories within Elexicon's Operational Technology program including OT systems upgrades and enhancements, ADMS/DERMS, and Grid Modernization initiatives which will be expanded on in sections below. The table outlines the expenditures over the 2027-2031 forecasting period, reflecting a phased implementation strategy aligned with system needs, program readiness, and strategic priorities.

This investment pacing reflects a deliberate and strategic approach to modernization, balancing immediate system needs with long-term transformation goals. Compared to the historical period, where annual OT investments were relatively modest, the forecasted expenditures represent a significant scale-up aligned with the growing complexity of the grid, increasing cyber security requirements, and the need to support distributed energy resources and customer-centric technologies.

4.1.1 OT Systems Upgrades and Enhancements Historical & Future Expenditures

**Table 5: OT System Upgrades and Enhancements**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.53 | 1.23 | 0.50 | 0.67 | 0.70 | 1.95 | 1.25 | 0.83 | 1.69 | 1.45 | 3.28 | 2.28 |
| Contributions | - | - | - | - | - | - | - | - | - | - | - | - |
| Capital (Net) | 0.53 | 1.23 | 0.50 | 0.67 | 0.70 | 1.95 | 1.25 | 0.83 | 1.69 | 1.45 | 3.28 | 2.28 |

From 2020 to 2024, Elexicon made targeted investments in Operational Technology (OT) systems to improve reliability, safety, and responsiveness across the electricity distribution network. These initiatives focused on modernizing core platforms and digitizing manual processes, laying the foundation for future grid enhancements.

Key historical investments included:

- GIS software enhancements, such as the digitization of CAD drawings and Movement Forms, which streamlined workflows and improved data accuracy.
- Implementation of a new radio communication system, which strengthened field communications and emergency coordination, enabling faster and safer outage response.
- Deployment of additional OT servers, supporting system scalability and performance.
- Expansion of the [Redacted] backhaul communication network, which improved the secure transfer of SCADA data between field devices and control centers.
- SCADA radio head-end and frequency network efficiency analysis, ensuring the communication infrastructure remains optimized and resilient.

These projects with additional Incremental Capital Module (ICM) funding (Whitby Smart Grid) that Elexicon obtained in 2025, delivered measurable benefits to customers by enhancing system reliability, operational efficiency, and safety. They also demonstrated Elexicon's ability to execute commitments and

laid the groundwork for more advanced OT capabilities. Table 6 outlines the ICM expenditures across key investment categories within Elexicon's OT program, including OT System Upgrades and Enhancements, ADMS/DERMS Systems, and OT Grid Modernization initiatives. The costs reflect investments made to support the key historical investments above during the 2022–2025 period.

**Table 6: Summary of ICM Costs by Investment Category (2022-2025)**

| | Actuals ($M) | | | | |
|---|---|---|---|---|---|
| Investment Category | **2022** | **2023** | **2024** | **2025** | **TOTAL** |
| OT Systems & Enhancements | - | - | - | - | - |
| ADMS/DERMS | 0.26 | - | - | - | 0.26 |
| Grid Modernization | 0.07 | - | - | - | 0.07 |
| Total | 0.33 | - | - | - | 0.33 |

To develop the forecasted costs for OT Systems Upgrades and Enhancements over the 2027–2031 period, Elexicon engaged with technology vendors to obtain preliminary estimates for hardware, software, licensing, and implementation services. These consultations provided insight into expected pricing for system upgrades, integration efforts, and lifecycle refreshes aligned with vendor support timelines and cyber security requirements.

Forecasts were also informed by:

- Historical expenditures from prior OT initiatives (2020–2024), including projects funded through the Whitby Smart Grid ICM
- Internal assessments of system readiness, asset lifecycle status, and capacity needs to support new field devices
- Strategic alignment with enterprise platforms such as SAP S/4HANA and ADMS
- Anticipated growth in connected assets and data volumes requiring scalable infrastructure

This approach ensures that forecasted investments are realistic, strategically timed, and reflective of the resources required to maintain and modernize Elexicon's OT environment. It also supports compliance

with the Ontario Cyber Security Framework and positions Elexicon to deliver on its long-term OT System objectives.

#### 4.1.2 ADMS/DERMS Systems Upgrade and Enhancements Historical & Future Expenditures

**Table 7: ADMS/DERMS Systems Upgrade and Enhancements**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.01 | 0.44 | 0.48 | - | - | - | - | - | - | 1.00 | 1.00 | 2.00 |
| Contributions | - | - | 0.08 | - | - | - | - | - | - | - | - | - |
| Capital (Net) | 0.0 | 0.44 | 0.40 | - | - | - | - | - | - | 1.00 | 1.00 | 2.00 |

Table 7 summarizes the historical and forecasted investments associated with the ADMS/DERMS Systems Upgrades and Enhancements. Elexicon's historical expenditures for ADMS and DERMS systems primarily reflect the initial implementation of these platforms, including foundational software, integration with SCADA and GIS systems, and deployment of supporting infrastructure. A significant portion of this investment was delivered through an Incremental Capital Module (ICM) (see Exhibit 2A – Tab 6 – Schedule 1), which supported the upgrade of the Advanced Distribution Management System (ADMS). This upgrade improves real-time visibility, outage detection, and automated switching, reducing both the frequency and duration of customer interruptions.

Looking ahead to the 2027–2031 forecast period, Elexicon plans to invest $4.00M in upgrading the functionality of ADMS and DERMS through targeted module upgrades and system enhancements. Forecasted costs were developed by engaging with technology vendors to obtain estimates for licensing, implementation services, and integration support. These consultations helped determine the resources required to deploy new capabilities aligned with vendor-supported versions and cybersecurity standards.

These upgrades are essential to maintaining vendor support, ensuring regulatory compliance, and enabling Elexicon to manage a more dynamic, distributed grid. They also support improved reliability, faster outage response, and better accommodation of emerging technologies like rooftop solar and EVs, delivering on the commitments made in prior applications and supporting the rationale for increased investment in the forecast period.

### 4.1.3 OT Grid Modernization Historical & Future Expenditures

**Table 8: Grid Modernization Historical & Future Expenditure**

| | Actuals ($M) | | | | | Bridge ($M) | | Forecast ($M) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** |
| Capital | 0.01 | 0.02 | 0.03 | 0.115 | - | 0.07 | 0.08 | - | - | 1.00 | 1.00 | 2.00 |
| Contributions | - | - | - | 0.08 | - | - | - | - | - | - | - | - |
| Capital (Net) | 0.01 | 0.02 | 0.032 | 0.04 | - | 0.07 | 0.08 | - | - | 1.00 | 1.00 | 2.00 |

Table 8 summarizes Elexicon's historical and forecasted investments in grid modernization initiatives. Elexicon's historical grid modernization expenditures have been supported through Incremental Capital Module (ICM) funding (see Exhibit 2A – Tab 6 – Schedule 1), enabling Elexicon to proactively prepare the distribution system for emerging customer and operational needs. These investments laid the foundation for a smarter, more resilient grid by deploying technologies that enhance visibility, control, and responsiveness.

Key historical initiatives include:

- Deployment of the SCADA/DERMS platform, enabling real-time management of Distributed Energy Resources (DERs) such as rooftop solar, battery storage, and electric vehicles (EVs), while maintaining voltage stability and reliability.
- Installation of voltage sensors across the distribution network to improve situational awareness and power quality monitoring, allowing for early detection and correction of voltage fluctuations.
- Phased deployment of Communicating Fault Current Indicators (CFCIs) at approximately 250 locations, significantly improving fault detection, outage response times, and service reliability.

These initiatives have strengthened grid reliability, supported distributed generation, and positioned Elexicon to deliver a safer, smarter, and more customer-centric energy system.

Looking ahead to the 2027–2031 forecast period, Elexicon plans to invest ($4.00M) into advancing grid modernization through a structured, phased approach that builds foundational capacity, expands field capability, and enables intelligent automation. Forecasted expenditures were developed through

engagement with technology vendors to obtain cost estimates for licensing, implementation, and integration support, ensuring alignment with vendor-supported versions and cybersecurity standards.

Planned investments include:

- Core infrastructure upgrades in the early years, including communications networks, control systems, and data integration platforms to support secure, high-performance operations.
- Connection and integration of the field devices to Elexicon systems, being deployed as part of the Grid Enhancements program, such as voltage sensors, automated switching equipment, and smart meters to enhance situational awareness, improve outage response, and enable predictive analytics.
- Implementation of advanced capabilities within ADMS, including load forecasting, voltage regulation, fault isolation, and distributed resource management to dynamically balance supply and demand.
- Introduction of DERMS and some basic Distribution System Operator (DSO) functions by Years 4 and 5, enabling active management of DERs, EVs, and other customer-driven technologies.
- Complementary initiatives such as enhancements to solar PV systems, EV chargers, and microgrid projects to support seamless integration of clean energy resources.

These future investments will enable improved reliability, safety, and cost efficiency. The modernized grid will be more flexible, data-driven, and capable of supporting evolving customer expectations for a connected, sustainable electricity system.

## 4.2 Investment Pacing and Prioritization OT Systems

Elexicon's approach to prioritizing and pacing Operational Technology (OT) investments, including ADMS/DERMS systems, grid modernization initiatives, and OT systems upgrades, is guided by a structured evaluation framework that ensures expenditures align with system needs, reliability performance, and customer expectations. Many of the investments align with Elexicon's wider Grid Modernization Plan, which follows a phased strategy that builds foundational capacity in the early years, expands field capability in the mid-term, and enables advanced grid automation functions in the later years.

A responsible approach to Operational Technology (OT) investments requires careful pacing to balance cost control, operational readiness, and customer value. In the early years, expenditures are directed toward foundational architecture and infrastructure—including upgrades to communications networks, control systems, and data integration platforms—to ensure the Elexicon has the secure and scalable architecture needed to support more advanced functions in the future. Adequate resourcing during this phase is essential, involving specialized engineering, IT/OT integration expertise, and coordination across departments to define data standards, security protocols, and system interoperability requirements.

Building on this foundation, Years 2–4 focus on expanding field capability through the deployment and connection of sensors, smart meters, voltage regulators, and automated switching equipment to enhance visibility, improve outage response, and generate the real-time data necessary for predictive analytics and operational efficiency. Note the deployment of the field hardware is carried out under the Grid Enhancements program, with this program deployed the OT infrastructure to connect and enable the full functionality and operation of these devices. By Years 4–5, Elexicon will enable advanced grid capabilities such as Distributed Energy Resource Management Systems (DERMS) and some basic Distribution System Operator (DSO) functions to actively manage distributed generation, electric vehicles, and other customer-driven technologies while maintaining safety, reliability, and power quality.

This sequenced approach ensures that early investments are not standalone expenditures but foundational enablers of future automation and efficiency. Pacing growth over time allows Elexicon to align capital spending with resource availability, supply-chain conditions, and regulatory expectations—smoothing cost impacts for ratepayers.

The approach delivers sustained value:

- Customer Focus: Improved support to reliability, faster outage response, and greater support for emerging energy choices such as EVs and rooftop solar.
- Operational Effectiveness (Safety & Reliability): Enhanced field visibility and automation reduce manual intervention, improve safety, and ensure predictable performance.
- Public Policy Responsiveness: Supports DER integration, electrification.

- Financial Performance: Prudent sequencing and resourcing ensure cost efficiency, effective risk management, and long-term value for ratepayers.

## 4.3 Execution Approach

The successful delivery of the OT program is subject to several external and internal risks that could affect cost, schedule, and scope. Elexicon has developed risk management strategies to mitigate these challenges and ensure prudent, cost-effective execution while maintaining focus on reliability and customer value. Table 9 below describes relevant risks to the program, and highlights mitigations strategies for those risks.

**Table 9: OT Program: Key Risks and Mitigation Strategies**

| Risk Area | Potential Impact (Cost/Schedule/Scope) | Likelihood | Mitigation Strategy | Link to OEB Outcomes |
|---|---|---|---|---|
| Resource Availability | Delays in project execution; increased contractor costs | Medium | Phase project delivery, cross-train staff, secure flexible vendor agreements | **Operational Effectiveness – Cost Efficiency & Reliability** (ensures projects remain on schedule and cost-controlled) |
| Supply Chain Disruptions | Late delivery of OT devices/equipment; schedule slippage | High | Early procurement, bulk ordering, alternative suppliers, buffer stock | **Operational Effectiveness – Reliability** (ensures timely deployment of critical OT infrastructure) |

| Risk Area | Potential Impact (Cost/Schedule/Scope) | Likelihood | Mitigation Strategy | Link to OEB Outcomes |
|---|---|---|---|---|
| Customer & Stakeholder Impacts | Customer dissatisfaction; delays due to access or outage concerns | Medium | Robust communication plans, advance outage notifications, flexible scheduling to minimize disruption | **Customer Focus – Service Quality** (reduces service disruption and improves transparency with customers) |
| Measures to Control Pricing | Increased costs | Medium | Compliance with Elexicon's procurement policy, obtain multiple quotes where possible, bulk purchasing, provide early lead time on equipment orders | Operational Effectiveness – Cost Efficiency & Reliability (ensures projects remain on schedule and cost-controlled) |

## 5. OPTIONS ANALYSIS

Elexicon's OT systems are essential to the safe, secure, and efficient operation of its electrical distribution network. Many existing platforms are aging and approaching end-of-life, with several of the current OT software systems no longer supported by vendors. This creates vulnerabilities in both operational performance and cyber security. The Ontario Cyber Security Framework requires utilities to maintain secure, up-to-date systems and demonstrate proactive risk mitigation. At the same time, the increasing adoption of Distributed Energy Resources (DERs), Electric Vehicles (EVs), and customer-centric technologies demands real-time visibility, control, and analytics across the grid.

Modernization is necessary, but investment must be paced. To determine the level of investment in the 2027 to 2031 period, Elexicon considered three options of investment pacing. The preferred option aligned with customer engagement results and allows Elexicon to make the foundational investments required to unlock value for customers while preparing Elexicon's systems for future enhanced technologies and customer expectations.

**Balanced Option (Recommended, $17.52M)**

The Balanced option reflects a level of investment that delivers value to customers in the immediate term while also building foundational capabilities for the future. This option prioritizes initiatives based on risk, regulatory requirements, and operational impact. This option includes cyber security compliance, vendor-supported software upgrades, and enhancements to ADMS and DERMS systems that enable real-time grid visibility, fault isolation, and load balancing.

It also supports substation digitization, mobile workforce solutions, and OT technology renewal, which collectively improve field coordination, reduce outage durations, and enhance predictive maintenance. Improvements to data quality, reporting tools, and analytics capabilities further strengthen decision-making and transparency.

This option ensures Elexicon remains secure, resilient, and future-ready. Deferring key Operational Technology (OT) initiatives would increase operational, reliability, and cyber security risks while limiting Elexicon's ability to meet evolving customer and policy expectations. Without timely upgrades to integrate Distributed Energy Resources (DERs) and Electric Vehicles (EVs), the Elexicon may face voltage instability and reduced system flexibility, constraining customer participation in customer energy initiatives, such as building electrification programs. Delays in enhancing **r**eal-time visibility, control, and analytics—including upgrades to the Advanced Distribution Management System (ADMS)—would slow outage detection and restoration, leading to longer interruptions and diminished service reliability. Similarly, postponing cyber security enhancements, database modernization, and middleware integration would increase exposure to cyber threats and data integrity issues, while reducing the efficiency of grid operations and decision-making.

For customers, the deferral of these initiatives translates to higher long-term costs, less responsive service, and reduced reliability. Delaying mobile workforce solutions, substation digitization, and control centre technology renewal would limit field coordination, extend outage restoration times, and increase maintenance costs. Furthermore, deferring enhancements to Solar PV systems, EV charging, microgrid integration, and data reporting tools would slow progress toward Ontario's energy transition goals and reduce Elexicon's ability to provide customers with accurate, transparent, and timely information. Collectively, these delays would erode system resilience, hinder operational effectiveness, and compromise Elexicon's ability to deliver safe, reliable, service to customers.

**Comprehensive Investment Option (Highest Cost)**

This option represents a comprehensive investment strategy that includes all conceivable OT enhancements, regardless of current urgency or regulatory requirement. It includes full implementation of all planned initiatives, plus additional layers of redundancy, advanced analytics platforms, expanded microgrid pilots, and enhanced customer-facing technologies beyond current demand.

Many of the additional investments, while beneficial, were not deemed immediately urgent to address Elexicon's more pressing challenges related to capacity constraints and reliability performance. Many of the additional enhancement above the balanced option will be reviewed during the rate period and considered as part of investments beyond 2031.

**Low Investment Option (Lowest Cost)**

The Low Investment option assumes minimal capital expenditure, maintaining current systems with limited upgrades. It defers most modernization initiatives and focuses on reactive maintenance and legacy system support. While this approach may reduce short-term costs, it introduces significant long-term risks.

Unsupported software platforms would continue to degrade, increasing the likelihood of system failures and data breaches. DER and EV integration would be severely limited, and outage detection and restoration would remain manual and inefficient. Elexicon would likely fall out of compliance with cyber

security standards, triggering regulatory scrutiny and potential penalties. Customer satisfaction would decline due to slower service restoration and lack of transparency.

This option sacrifices long-term reliability and operational effectiveness for short-term savings, which may ultimately result in higher costs and reputational damage.

**Recommendation**

The Balanced option is recommended as the most responsible and effective investment strategy. It ensures compliance with cyber security and vendor requirements and supports critical modernization initiatives. The proposed $17.52 million budget reflects a well-considered, informed approach that avoids unnecessary spending while delivering essential upgrades. By investing strategically, Elexicon can ensure compliance with cyber security requirements, maintain system reliability, enhance customer service, and position itself for future growth and modernization.