AMPCO-1

Reference 1: Exhibit 1, Tab 1, Schedule 4, page 5

Alectra indicates when the DSP was prepared, Alectra Utilities had identified that 14% (3,173 km of a total of 22,140 km) of underground cable had a Health Index of poor or very poor condition. Notwithstanding the planned and reactive cable replacement work that Alectra Utilities conducted in the intervening years, the revised assessment of cable condition identified that the population of poor and very poor condition cable had increased to 3,793 km, representing 17% of the total cable population.

Reference 2: EB-2019-0018 2020 EDR Application, Exhibit 4, Tab 1, Schedule 1, 5.2.3 Performance Measurement for Continuous Improvement, page 103

In the DSP, Alectra Utilities indicates it plans to rehabilitate or replace 2,184 km of underground cable over the five years DSP planning period, which represents 69% of the 3,173 km of underground cable identified as being in Poor or Very Poor condition as indicated in the 2018 Asset Condition Assessment.

a) **Please confirm the Health Index of primary XLPE cables is calculated based on age. Provide the data inputs to the Health Index.**

b) **Please complete the following table:**

Underground Cables Health Index Distribution (km)

	Total km	Very Poor km	Poor km	Fair km	Good km	Very Good km
EB-2019-0018						
EB-2021-0013						

c) Please complete the following table for the sub-set of XLPE Cables:

XLPE Cables Health Index Distribution (km)

	Total Km	Very Poor km	Poor km	Fair km	Good km	Very Good km
EB-2019-0018						
EB-2021-0013						

d) Please confirm the distribution of Health Index values classified from Very Good to Very Poor has not changed from EB-2019-0018.

e) Please provide the km and percentage of the 3,173 km of underground cable identified in EB-2019-0018 as being in Poor or Very Poor condition that was rehabilitated or replaced over the 2020 to 2021 period.

f) Please provide the km and percentage of the 3,173 km of underground cable identified in EB-2019-0018 as being in Poor or Very Poor condition that is planned to be rehabilitated or replaced over the 2022 to 2024 period.

Response:

a) Health Index formula of XLPE cable segments has three inputs:
   a. XLPE type (tree retardant versus non-tree retardant)
   b. Construction type (direct buried versus in-duct)
   c. Age

b) Alectra Utilities has provided the requested data in Table 1 below.

Table 1 – Underground Cables Health Index Distribution (km)

	Total (km)	Very Poor (km)	Poor (km)	Fair (km)	Good (km)	Very Good (km)
EB-2019-0018	22,140	2,407	766	959	1,458	16,550
EB-2022-0013	22,656	2,594	1,200	1,410	27	17,425

c) Alectra Utilities has provided the requested data in Table 2 below.

Table 2 - XLPE Cables Health Index Distribution (km)

	Total (km)	Very Poor (km)	Poor (km)	Fair (km)	Good (km)	Very Good (km)
EB-2019-0018	21,638	2,396	760	955	1,450	16,078
EB-2022-0013	22,154	2,581	1,194	1,407	12	16,961

d) The Health Index categories classification have not been modified since the EB-2019-0018 application. For the classification ranges of Very Poor to Very Good, please refer to the 2020 ACA Report filed in response to SEC-11 (ACA Report 2020, page 16).

e) 358 km or 11% of the 3,173 km of underground cable identified in EB-2019-0018 as being in Poor or Very Poor condition were rehabilitated or replaced over the 2020 to 2021 period.

f) 404 km or 13% of the 3,173 km of underground cable identified in EB-2019-0018 as being in Poor or Very Poor condition is planned to be rehabilitated or replaced over the 2022 to 2024 period.

AMPCO-2

Reference: Exhibit 1, Tab 1, Schedule 4, page 3

The evidence states "The decision to reduce and defer significant investments in System Renewal was necessary to align the level of investment with the funding in base rates. The pace at which cable failures have intensified in existing or new emerging neighbourhoods is greater than what was contemplated in the DSP. These factors have resulted in an increasing volume of underground assets being replaced reactively through reactive capital or emerging underground renewal."

AMPCO seeks to understand the Reactive Capital $ and km directed to XLPE Cable. Please complete the following table:

Capital Investment $	2016	2017	2018	2019	2020	2021
Reactive Capital ($) (All Assets)						
Reactive Capital ($) XLPE Cable (All Rate Zones)						
PRZ: Reactive Capital ($) XLPE Cable						
ERZ: Reactive Capital ($) XLPE Cable						
PRZ: Reactive XLPE Cable Renewal km						
ERZ: Reactive XLPE Cable Renewal km						

Response:

Please see Alectra Utilities' response to 1-Staff 4 a) for details on reactive cable renewal expenditures. In the response to 1-Staff-4, Alectra Utilities outlined the three methods implemented to address cable failures:

i) Repair of cable completed under OPEX. Repair of cables does not result in km of cable replacement.

ii) Replace the cable under an emergency replacement using Reactive Capital. Table 1 below provides the km of cables replaced under reactive capital for 2020 and 2021.

iii) Addressing urgent cable renewal reactively under emerging underground renewal. Table 2 provides the km of XLPE cables replaced under emerging underground renewal for 2019 to 2021.

Table 1 – Reactive CAPEX XLPE Cable Replacement kms

Reactive CAPEX XLPE Replacement km	2020	2021
PRZ Reactive XLPE Cable Renewal km	1.1	0.7
ERZ Reactive XLPE Cable Renewal km	3.5	2.3

Table 2 – UG Emerging XLPE Cable Replacement kms

UG Emerging (km)	2019	2020	2021
PRZ	2.7	4.0	5.1
ERZ	1.0	2.0	4.8
Total	3.7	6.1	9.9

Alectra Utilities recommends these values be summed together as a more accurate reflection of reactive cable replacements, Table 3 and 4 provide the total kilometers of cable replaced for the PRZ and ERZ for 2020 and 2021.

Table 3 – Total PRZ Emergency XLPE Cable Replacement kms

Total Reactive and Emerging XLPE Cable PRZ (km)	2020	2021
UG Emerging PRZ	4.0	5.1
Reactive PRZ	1.1	0.7
Total PRZ	5.1	5.8

Table 4 – Total PRZ Emergency XLPE Cable Replacement kms

Total Reactive and Emerging XLPE Cable ERZ (km)	2020	2021
UG Emerging ERZ	2.0	4.8
Reactive ERZ	3.5	2.3
Total ERZ	5.5	7.1

AMPCO-3

Reference: Exhibit 3, Tab 1, Schedule 1, page 5

Alectra Utilities reduced and deferred significant investments in System Renewal over the five-year period, primarily driven by a decrease in investments in underground asset renewal of $125.2MM (before consideration of the proposed ICM investments).

Please identify the proposed ICM projects in this application that are included in the $125.2MM.

Response:

Table 1 below, provides the list of proposed ICM projects in this application that are included in the $125.2MM.

Table 1 – ICM Cable Projects Number of Years Deferred

C55#	Project Name
151407	Cable and Transformer Replacement Project - (AREA25) - Glen Erin & Burnhamthorpe, Mississauga
151435	Cable Injection - (AREA56) - Derry Rd W & Ninth Line, Mississauga
151461	Cable Injection Project - (V17) - Jacob Keffer Parkway area of Vaughan
151912	Cable Replacement Project – (V51) – Ashbridge Traffic Circle area in Vaughan
151403	Cable Replacement Project - (AREA46) - Montevideo & Battleford, Mississauga
151436	Cable Injection - (AREA58 & 59) - Winston Churchill & The Collegeway, Mississauga
151456	Cable Injection Project - (V50) - Sovereign Court area of Vaughan

AMPCO-4

Reference: Exhibit 3, Tab 1, Schedule 2, page 2, figure 1

Figure 1 provides reliability information for 2010-2021.

Please complete the attached excel spreadsheet.

Response:

Alectra Utilities has attached the updated version of the requested excel spreadsheet. For data prior to 2014, Alectra Utilities does not have all the data requested readily available in the format required. However, detailed data for the 8-year 2014 to 2021 period has been provided for all items. Further, detailed data from 2010 to 2021 has been provided for the 'All Inclusive' and 'MEDs Excluded' line items.

AMPCO-4

Attachment 1
Reliability Indices

AMPCO-4 Attachment #1
Alectra Utilities Consolidated Reliability Indexes
Ref: Exhibit 3 Tab 1 Schedule 2 Page 2 Figure 1

	Metric	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
All Inclusive	Number of Customer Interruptions	1,237,372	1,492,604	1,686,917	2,639,228	1,503,529	1,610,304	1,460,921	1,382,350	1,880,660	1,626,406	1,475,771	1,506,936
	Number of Customer Hours of Interruptions	774,528	1,306,337	999,499	7,639,974	1,298,297	1,433,442	1,696,634	1,138,846	1,959,287	1,475,041	1,267,347	1,280,434
	Average Number of Distribution Customers	937,442	952,416	966,063	981,995	996,930	1,009,752	1,024,463	1,034,326	1,046,296	1,056,132	1,064,615	1,075,157
	SAIFI	1.32	1.57	1.75	2.69	1.51	1.60	1.43	1.34	1.80	1.54	1.39	1.40
	SAIDI	0.83	1.37	1.04	7.78	1.30	1.42	1.66	1.10	1.87	1.40	1.19	1.19
MEDs Excluded	Number of Customer Interruptions	1,051,758	1,304,026	1,596,369	1,443,367	1,264,620	1,423,556	1,270,178	1,267,750	1,596,714	1,587,227	1,316,137	1,420,808
	Number of Customer Hours of Interruptions	774,528	839,653	849,727	966,756	877,892	1,058,836	979,649	903,050	1,190,807	1,210,855	1,041,824	1,126,491
	Average Number of Distribution Customers	937,442	952,416	966,063	981,995	996,930	1,009,752	1,024,463	1,034,326	1,046,296	1,056,132	1,064,615	1,075,157
	SAIFI	1.12	1.37	1.65	1.47	1.27	1.41	1.24	1.23	1.53	1.50	1.24	1.32
	SAIDI	0.83	0.88	0.88	0.98	0.88	1.05	0.96	0.87	1.14	1.15	0.98	1.05
LOS Excluded	Number of Customer Interruptions					1,392,747	1,392,066	1,275,025	1,260,514	1,644,620	1,372,028	1,364,366	1,312,507
	Number of Customer Hours of Interruptions					1,120,741	1,361,927	1,269,854	1,066,874	1,734,531	1,397,437	1,160,619	1,209,554
	Average Number of Distribution Customers	937,442	952,416	966,063	981,995	996,930	1,009,752	1,024,463	1,034,326	1,046,296	1,056,132	1,064,615	1,075,157
	SAIFI	1.04	1.33	1.50	2.14	1.40	1.38	1.25	1.22	1.57	1.30	1.28	1.22
	SAIDI	0.68	1.26	0.98	6.38	1.12	1.35	1.24	1.03	1.66	1.32	1.09	1.13
SO Excluded	Number of Customer Interruptions					1,467,750	1,574,895	1,422,750	1,336,939	1,850,107	1,582,738	1,432,473	1,446,656
	Number of Customer Hours of Interruptions					1,200,855	1,327,222	1,598,224	1,034,117	1,876,762	1,353,191	1,148,870	1,182,912
	Average Number of Distribution Customers	937,442	952,416	966,063	981,995	996,930	1,009,752	1,024,463	1,034,326	1,046,296	1,056,132	1,064,615	1,075,157
	SAIFI					1.47	1.56	1.39	1.29	1.77	1.50	1.35	1.35
	SAIDI					1.21	1.31	1.56	1.00	1.79	1.28	1.08	1.10
MEDs, LOS & SO Excluded	Number of Customer Interruptions					1,118,059	1,169,909	1,046,111	1,100,503	1,330,121	1,289,181	1,161,434	1,166,099
	Number of Customer Hours of Interruptions					602,894	881,101	454,457	726,350	883,526	1,011,401	816,619	961,089
	Average Number of Distribution Customers	937,442	952,416	966,063	981,995	996,930	1,009,752	1,024,463	1,034,326	1,046,296	1,056,132	1,064,615	1,075,157
	SAIFI	0.98	1.23	1.43	1.26	1.12	1.16	1.02	1.06	1.27	1.22	1.09	1.09
	SAIDI	0.68	0.80	0.88	0.89	0.61	0.87	0.44	0.70	0.84	0.96	0.77	0.89

AMPCO-5

Reference: Exhibit 3, Tab 1, Schedule 2, page 3, figure 2

Figure 2 provides SAIDI information by Cause Code.

Please complete the attached excel spreadsheet.

Response:

Alectra Utilities has updated the requested excel spreadsheet AMPCO_5_Attachment 1. For data prior to 2014, Alectra Utilities does not have the data readily available in the format required, which will require a significant amount of time to complete. Alectra Utilities has provided 8 years of data, from 2014 to 2021. The data provided shows that while the company has been investing in these assets for multiple years, the increasing deterioration of this equipment is outpacing the level of investment.

AMPCO-5

Attachment 1
Reliability by Cause Code

AMPCO-5 Attachment #1
Alectra Utilities Reliability by Cause Code
Ref: Exhibit 3 Tab 1 Schedule 2 Page 3 Figure 2

Cause Code	Customer Interruptions	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
0	Unknown/Other					134,547	136,440	126,689	160,052	312,698	215,656	264,792	204,589
1	Scheduled Outage					35,779	35,409	38,171	45,411	30,553	43,668	43,298	60,280
2	Loss of Supply					110,782	218,238	185,896	121,836	236,040	254,378	111,405	194,429
3	Tree Contacts					89,632	76,758	87,049	56,206	81,679	142,108	109,758	152,280
4	Lightning					100,707	81,035	26,304	48,369	46,233	36,527	62,821	26,696
5	Defective Equipment					490,089	389,254	434,934	422,621	518,395	445,362	480,179	446,593
6	Adverse Weather					183,320	170,773	198,378	188,527	353,356	179,351	87,837	74,996
7	Adverse Environment					42,741	201,792	16,528	16,878	32,910	10,286	24,821	38,845
8	Human Element					45,671	38,357	19,154	21,873	24,989	33,752	9,777	33,886
9	Foreign Interference					270,261	262,248	327,818	300,577	243,807	265,318	281,083	274,342
10	Major Event Days					238,909	186,748	190,743	114,600	283,946	39,179	159,634	86,128
TOTAL													

Cause Code	Customer Hours of Interruption	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
0	Unknown/Other					26,443	14,641	16,629	19,077	29,176	40,319	36,898	22,786
1	Scheduled Outage					97,442	106,220	98,411	104,729	82,525	121,850	118,477	94,522
2	Loss of Supply					177,556	71,515	426,781	71,972	224,756	77,603	106,728	70,881
3	Tree Contacts					68,163	98,521	110,792	84,719	136,452	290,520	126,495	152,631
4	Lightning					40,491	65,524	14,100	42,471	20,704	14,829	34,855	28,641
5	Defective Equipment					455,522	447,675	456,610	387,250	531,219	472,589	486,090	523,367
6	Adverse Weather					197,885	115,649	362,026	244,969	742,152	257,407	135,556	142,971
7	Adverse Environment					60,966	332,613	16,160	14,653	45,290	17,471	56,023	63,811
8	Human Element					8,001	19,938	10,425	7,061	6,879	21,763	3,446	9,669
9	Foreign Interference					165,827	161,147	184,701	161,946	140,135	160,690	162,779	171,156
10	Major Event Days					420,405	374,606	716,986	235,795	768,480	264,186	225,523	153,943
TOTAL													

AMPCO-6

Reference: Exhibit 3, Tab 1, Schedule 2, page 2

Alectra filed its first five-year Distribution System Plan (DSP) on an integrated basis in its 2020 rate application.

Please provide copies of any subsequent versions of the DSP.

Response:

Alectra Utilities' approach to capital investments over the 2020-2024 period was developed based on its 2020 DSP. Alectra Utilities reviews its capital plan on an annual basis, in order to address the evolving needs and priorities of the distribution system and Alectra Utilities' customers. There are no subsequent versions of the DSP.

AMPCO-7

Reference: Exhibit 3, Tab 1, Schedule 2, page 3, figure 2

Please complete the attached excel spreadsheet.

Response:

Please see attached completed excel spreadsheet AMPCO-7_Attachment 1.

AMPCO-7

Attachment 1
Defective Equipment CHI

AMPCO-7 Attachment #1
Alectra Utilities Defective Equipment with and without MEDs; PowerStream & Enersource Rate Zones

Defective Equipment - All Rate Zones	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Customer Hours of Interruptions - with MEDs	456,610	387,250	531,219	472,589	486,090	523,367
Customer Hours of Interruptions - without MEDs	383,898	377,280	523,816	471,943	478,038	517,499
Customer Interruptions - with MEDs	434,934	422,621	518,395	445,362	480,179	446,593
Customer Interruptions - without MEDs	398,365	419,701	510,399	445,205	470,107	440,986
Defective Equipment - PRZ						
Customer Hours of Interruptions - with MEDs	223,490	173,849	182,690	154,582	201,532	169,189
Customer Hours of Interruptions - without MEDs	150,778	164,203	179,265	154,019	200,782	167,304
Customer Interruptions - with MEDs	184,501	150,092	169,794	135,409	175,324	98,659
Customer Interruptions - without MEDs	147,932	147,214	166,351	135,275	173,405	96,724
Defective Equipment - ERZ						
Customer Hours of Interruptions - with MEDs	98,945	70,405	117,867	93,294	69,039	101,293
Customer Hours of Interruptions - without MEDs	98,945	70,284	114,880	93,294	68,930	99,462
Customer Interruptions - with MEDs	110,651	110,163	156,300	105,776	100,956	117,632
Customer Interruptions - without MEDs	110,651	110,146	154,777	105,776	100,893	117,044

AMPCO-8

Reference: Exhibit 3, Tab 1, Schedule 2, page 4, figure 3

Please provide Figure 3 excluding MEDs.

Response:

Alectra Utilities clarifies that the chart shown in Exhibit 3, Tab 1, Schedule 2, page 4, Figure 3 already excludes MEDs.

The chart shown in Exhibit 1, Tab 1, Schedule 4, page 7, Figure 2 also excludes MEDs.

AMPCO-9

Reference: Exhibit 3, Tab 1, Schedule 2, page 4, figure 3

Please complete the attached excel spreadsheet.

Response:

Please see attached completed excel spreadsheet AMPCO-9_Attachment 1.

AMPCO-9

Attachment 1
XLPE CHI

AMPCO-9 Attachment #1
Alectra Utilities Defective Equipment - Cable XLPE & Accessories
Ref: Exhibit 3 Tab 1 Schedule 2

Defective Equiqment - XLPE Cable - All Rate Zones	2016	2017	2018	2019	2020	2021
Customer Hours of Interruptions	208,444	190,354	227,553	124,042	112,229	221,032
Customer Interruptions	177,149	163,118	182,122	140,786	104,839	183,930
Defective Equipment - PRZ - XLPE Cable						
Customer Hours of Interruptions	66,539	79,954	72,022	54,200	94,622	88,115
Customer Interruptions	44,451	49,050	38,184	31,403	57,243	48,499
Defective Equipment - ERZ - XLPE Cable						
Customer Hours of Interruptions	88,072	61,390	81,539	67,443	53,373	80,280
Customer Interruptions	86,514	75,824	80,841	74,225	73,445	98,309

AMPCO-10

Reference: Exhibit 3, Tab 1, Schedule 2, page 6, figure 5

Please provide the km of underground XLPE Cable in the following ranges as per the 2020 ACA:

a) Under 30 years

b) 31-40 Years

c) 41-50 Years

d) 51-60 Years

Response:

a) The number of kms of underground XLPE cable under 30 years as per the 2020 ACA is 15,716 kms.

b) The number of kms of underground XLPE cable 31-40 years old as per the 2020 ACA is 4,647 kms.

c) The number of kms of underground XLPE cable 41-50 years old as per the 2020 ACA is 1,424 kms.

d) The number of kms of underground XLPE cable 51-60 years old as per the 2020 ACA is 325 kms.

AMPCO-11

Reference: Exhibit 3, Tab 1, Schedule 2, page 6, figure 5

Please provide the average age of XLPE Cable as per the 2020 ACA

Response:

The average age of XLPE cable as per the 2020 ACA is 22.3 years.

AMPCO-12

Reference: Exhibit 3, Tab 1, Schedule 2, page 13, table 21

a) Please provide Table 21 for the PRZ only.

b) Please provide Table 21 for the ERZ only.

Response:

a) and b) Please see Alectra Utilities' response to SEC-10.

AMPCO-13

Reference: Exhibit 3, Tab 1, Schedule 2, page 13, table 21

a) Please provide Table 21 on the basis of km.

b) Please provide the total km of cable replacement and cable injection for the PRZ over the 2018 to 2022 period.

c) Please provide the total km of cable replacement and cable injection for the ERZ over the 2018 to 2022 period.

Response:

a) Please refer to Table 1, below.

Table 1 – UG Cable Renewal (Table 21) km

Investment	Actual 2018	Actual 2019	Actual 2020	Actual 2021	Forecast 2022	Total
Cable Renewal - Replacement	96	45	74	43	55	313
Cable Renewal - Injection	56	78	118	105	157	514
Emerging Underground Projects	6	9	17	17	16	64
Total	158	132	209	165	228	891

b) The total quantity of cable replacement and cable injection for the PRZ over the 2018 to 2022 period is 432 km.

c) The total quantity of cable replacement and cable injection for the ERZ over the 2018 to 2022 period is 190 km.

AMPCO-14

Reference: Exhibit 3, Tab 1, Schedule 4, page 2

Alectra indicates it responds to and remediates an average of 488 cable failures events each year.

a) Please provide the calculation that underpins this statement.

b) Please complete the following Table:

# Cable Failure Events	2016	2017	2018	2019	2020	2021	2022 (YTD)
All Rate Zones							
PRZ							
ERZ							

Response:

a) Table 1 below provides the data and calculation that underpins the statement that Alectra Utilities on average responds to 488 cable failure events each year.

Table 1 – Cable & Accessories XLPE Outages per year 2016-2020

Cable & Accessories XLPE Outages	2016	2017	2018	2019	2020	Average
Alectra Utilities	541	477	534	411	475	488

b) Alectra Utilities has provided the information requested in Table 2 below.

Table 2 – Cable Failure Events per year 2016-2020

# Cable Failure Events	2016	2017	2018	2019	2020	2021	2022 (June YTD)
All Rate Zones	541	477	534	411	475	452	165
PRZ	179	165	166	163	171	146	57
ERZ	251	214	238	154	183	185	55

AMPCO-15

Reference: Exhibit 3, Tab 1, Schedule 4, page 1

Alectra Utilities has identified that the implementation of incremental cable renewal solutions in 28 neighbourhoods in 2023 and 2024 will result in mitigating approximately 250,000 customer hours of interruption and avoid approximately $180MM in future capital renewal costs, by injecting cable now, rather than replacing cable later.

Please provide the calculations that underpin the above statements.

Response:

Alectra Utilities has provided a summary below of the calculation of 250,000 customer hours of interruption. For the calculation of the $180MM, please see Alectra Utilities' response to 1-Staff-4 b).

Calculation for 250,000 customer hours of interruption

- For the options presented to customers during customer engagement, Alectra Utilities identified that a total of 319 outages would be mitigated
- Alectra Utilities' average number of customers per XLPE cable outage: 515
- Alectra Utilities' average XLPE Cable Outage Duration: 1.2 hours (rounded to 1.5)
- Calculation: 319*515*1.5 = 246,427 (rounded to 250,000)

AMPCO-16

Reference: Exhibit 4, Tab 1, Schedule 1

Please provide an excel version of the following Appendices:

a) Attachment #5

b) Attachment #6

c) Attachment #9

d) Attachment #10

e) Please provide an excel version of the Capital Project Listings for the PowerStream Rate Zone and Enersource Rate Zone for each of the years 2020 (Actual), 2021 (Actual) and 2022 Forecast.

Response:

a) Please see AMPCO-16 Attach 1_APPL_Attach 5 2023 ICM Project Listing PRZ.

b) Please see AMPCO-16 Attach 2_APPL_Attach 6 2024 ICM Project Listing PRZ.

c) Please see AMPCO-16 Attach 3_APPL_Attach 9 2023 ICM Project Listing ERZ.

d) Please see AMPCO-16 Attach 4_APPL_Attach 10 2024 ICM Project Listing ERZ.

e) Please see Alectra Utilities' response to 1-Staff-5.

AMPCO-16

Attachment 1
2023 ICM Project Listing PRZ

2023 Capital Project Listing - PowerStream Rate Zone

SYSTEM ACCESS	$MM
New Residential Subdivision and Condo Tower Development - Alectra East	9.0
New Subdivision Development - Secondary Service Lateral - Alectra East	2.1
New Services - PowerStream RZ	2.1
Road Authority Projects - East North	2.0
Road Authority Expenditure PS South	1.9
Services (New and Upgrades) - Commercial, Industrial and Institutional (ICI) Projects - East South	1.9
Services (New and Upgrades) - Layouts - East South	1.5
Barrie TS Upgrade Feeders and Metering	1.2
Renew Meter Equipment - PowerStream RZ	1.2
Sub-Total Material Projects	**23.0**
Miscellaneous Projects (under materiality threshold)	3.5
Total System Access	**26.5**
SYSTEM RENEWAL	
Reactive Capital, Alectra East - Distribution Equipment	8.6
Pole Renewal - East	5.6
Switchgear Renewal - East	3.2
Transformer Renewal - East	2.8
Cable Replacement Project – (V51) – Ashbridge Circle area in Vaughan	2.6
Cable Replacement Project - (M44) - Cochrane Dr (North) - Scolberg (South), Markham	2.5
Cable Replacement Project - (V36) - Aviva Park, Vaughan	2.4
Cable Replacement Project - East - Left Behind Cable	2.1
Cable Injection Project - (M19) - Markham - Steeles - McCowan - 14th, Markham	2.1
Cable Replacement Project - (A05) - Golf Links, Aurora	2.0
Cable Replacement Project - (M31) - Denison and Birchmount, Markham	1.8
Cable Replacement Project - (A10) -Batson Dr, Aurora	1.7
Joint Use Pole Removal - Alectra East	1.7
Cable Injection Project - (M21) - Cairns Drive area of Markham	1.7
Cable Injection Project - (V17) - Jacob Keffer Parkway area of Vaughan	1.6
Cable Replacement Project - (BA22) - Sunnidale and Anne, Barrie	1.6
Cable Injection Project - (R23) - Kersey Cr area of Richmond Hill	1.5
Rebuild 13.8 kV Pole line on Miller Ave to 27.6 kV with Road Widening	1.5
Cable Replacement Project - (M21) - Raymerville Dr, Markham	1.5
Underground Asset Renewal-Alectra Initiated Distribution System Projects-East	1.4
Cable Injection Project - (M31) - 14th - Old Kennedy - Steeles - Warden, Markham	1.4
Cable Injection Project - (M25) - 14th - McCowan - Steeles - Old Kennedy, Markham	1.3
Cable Injection Project - (M39) - 16th - Warden - Hwy 7 - Woodbine, Markham	1.2
Storm Hardening - Four-Circuit Poles - Alectra East	1.2
Cable Injection Project - (V23) - Hwy 7 - Keele - Langstaff - Jane, Vaughan	1.2
Cable Injection Project - (A09) - Willow Farm Lane of Aurora	1.1
Cable Injection Project - (V31) - Langstaff - Weston - Rutherford - Jane, Vaughan	1.1
Reactive Capital, Alectra East - Storm Damage	1.0
Sub-Total Material Projects	**59.3**
Miscellaneous Projects (under materiality threshold)	6.2
Total System Renewal	**65.5**

SYSTEM SERVICE	
Vaughan TS#4 Feeder Integration - Part 3	3.4
Install Two 27.6kV Ccts on 16th Ave from Hwy 404 to Woodbine Ave	2.3
Implementation of Enterprise DERMS Platform	1.3
Sub-Total Material Projects	**6.9**
Miscellaneous Projects (under materiality threshold)	5.0
Total System Service	**11.9**
GENERAL PLANT	
PowerStream Rate Zone Allocation of General Plant	16.1
Total General Plant	**16.1**
2023 Budget	**120.0**

GENERAL PLANT - ALECTRA UTILITIES	
CIS CC&B upgrade	6.3
Customer Service Strategy-CX Project	4.2
Work Force Management / Mobile Dispatch	2.9
ERP Continuous Improvement	2.1
C55 Alectra: Optimization of Business Practices	1.9
Client - IT Infrastructure	1.3
Facilities_West_Capital Replacement Investment Support	1.3
Sub-Total Material Projects	**19.9**
Miscellaneous Projects (under materiality theshold)	24.3
Total General Plant	**44.2**

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Attachment 2
2024 ICM Project Listing PRZ

2024 Capital Project Listing - PowerStream Rate Zone

SYSTEM ACCESS	$MM
New Residential Subdivision and Condo Tower Development - Alectra East	8.9
New Subdivision Development - Secondary Service Lateral - Alectra East	2.2
New Services - PowerStream RZ	2.1
Road Authority Projects - East North	2.0
Services (New and Upgrades) - Commercial, Industrial and Institutional (ICI) Projects - East South	2.0
Road Authority Expenditure PS South	2.0
Services (New and Upgrades) - Layouts - East South	1.5
Renew Meter Equipment - PowerStream RZ	1.3
Sub-Total Material Projects	**22.1**
Miscellaneous Projects (under materiality threshold)	3.7
Total System Access	**25.8**
SYSTEM RENEWAL	
Reactive Capital, Alectra East - Distribution Equipment	8.9
Pole Renewal - East	5.6
Switchgear Renewal - East	3.5
Cable Replacement Project - East - Left Behind Cable	3.0
Transformer Renewal - East	3.0
Cable Replacement Project - (M44) - Cochrane Dr (North) - Scolberg (South), Markham	2.5
Cable Injection Project - (V24) - Creditstone Rd area of Vaughan	2.1
Cable Injection Project - (M39) - 16th - Warden - Hwy 7 - Woodbine, Markham	2.1
Cable Replacement Project - (BA22) - Sunnidale and Anne, Barrie	2.0
Cable Replacement Project - (A05) - Golf Links, Aurora	2.0
Cable Injection Project - (V26) - McNaughton Road area of Vaughan	1.9
Cable Injection Project - (M21) - Cairns Drive area of Markham	1.9
Joint Use Pole Removal - Alectra East	1.8
Cable Replacement Project - (M15) - Larkin Ave area of Markham	1.8
Cable Injection Project - (V17) - Langstaff - Railway - Rutherford - Dufferin, Vaughan	1.7
Cable Injection Project - (R23) - Bathurst - Weldrick - Yonge - Carville, Richmond Hill	1.6
Cable Injection Project - (V50) - Sovereign Court area of Vaughan	1.6
Cable Replacement Project - (V26) - St. Joan of Arc area of Vaughan	1.6
Cable Replacement Project - (M21) - Raymerville Dr, Markham	1.6
Cable Injection Project - (M31) - 14th - Old Kennedy - Steeles - Warden, Markham	1.4
Cable Injection Project - (M25) - 14th - McCowan - Steeles - Old Kennedy, Markham	1.4
Cable Replacement Project - (A09) - Hammond Dr area of Aurora	1.3
Storm Hardening - Four-Circuit Poles - Alectra East	1.3
Cable Injection Project - (BR5) - 8th Line and Highway 11, Bradford	1.3
Cable Replacement Project - (B23) - Cundles Rd and Janine St, Barrie	1.2
Underground Asset Renewal-Alectra Initiated Distribution System Projects-East	1.1
Reactive Capital, Alectra East - Storm Damage	1.1
Sub-Total Material Projects	**60.3**
Miscellaneous Projects (under materiality threshold)	7.7
Total System Renewal	**68.0**
SYSTEM SERVICE	
Vaughan TS#4 Feeder Integration - Part 3	3.1
Extend feeder 24M8 from Hwy 7 to 16th Ave in Markham	1.3
Implementation of Enterprise DERMS Platform	1.3
Sub-Total Material Projects	**5.7**
Miscellaneous Projects (under materiality threshold)	4.7
Total System Service	**10.5**

GENERAL PLANT	
PowerStream Rate Zone Allocation of General Plant	14.7
Total General Plant	**14.7**
2024 Budget	**119.0**

GENERAL PLANT - ALECTRA UTILITIES	
Work Force Management / Mobile Dispatch	2.5
CIS CC&B Enhancements	2.1
ERP Continuous Improvement	1.9
CIS CC&B Modifications(Regulatory Enhancements)	1.7
Derry Generator Replacement	1.7
Customer Service Strategy-CX Project	1.6
Client - IT Infrastructure	1.5
Facilities_Replacement_Patterson Road Roof	1.3
Facilities_West_Capital Replacement Investment Support	1.0
Sub-Total Material Projects	**15.3**
Miscellaneous Projects (under materiality theshold)	25.0
Total General Plant	**40.3**

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Attachment 3
2023 ICM Project Listing ERZ

2023 Capital Project Listing - Enersource Rate Zone

SYSTEM ACCESS	$MM
Road Authority Projects - Central South	3.8
New Residential Subdivision and Condo Tower Development - Alectra Central South	2.8
Service (new and upgrades) - Commercial, Industrial and Institutional (ICI) Projects - Central South	2.5
Customer Initiated Distribution System Projects - Central South	1.4
New Services - Enersource RZ	1.3
Sub-Total Material Projects	**11.8**
Miscellaneous Projects (under materiality threshold)	2.7
Total System Access	**14.5**
SYSTEM RENEWAL	**$MM**
Lines Central-South - Reactive Renewal	3.9
Pole Renewal - Central South	3.3
Cable and Transformer Replacement Project - (AREA25) - Glen Erin & Burnhamthorpe, Mississauga	2.2
Switchgear Renewal - Central South	1.8
Cable and Transformer Replacement Project - (AREA24) - Burnhamthorpe & Miss. Road, Mississauga	1.6
Cable Replacement and Switchgear Removal - (AREA19) - Fieldgate and Ponytrail Dr, Mississauga	1.6
Cable Replacement Project - (AREA46)- Millcreek Dr & Erin Mills Pkway, Mississauga	1.5
Cable Replacement Project - (AREA46) - Montevideo & Battleford, Mississauga	1.4
Transformer Renewal - Central South	1.3
Joint Use Pole Removal - Central South	1.2
Underground Asset Renewal-Alectra Initiated Distribution System Projects-Central South	1.1
Cable Injection - (AREA58 & 59) - Winston Churchill & The Collegeway, Mississauga	1.0
Cable Injection - (AREA56) - Derry Rd W & Ninth Line, Mississauga	1.0
Cable Injection - (AREA46) - Glen Erin & Aquitane, Mississauga	1.0
Sub-Total Material Projects	**24.0**
Miscellaneous Projects (under materiality threshold)	8.3
Total System Renewal	**32.3**
SYSTEM SERVICE	**$MM**
New build - 44kV Feeder Extension York/Meadowpine, Mississauga	2.3
New build - 25M9 Extension to Derry Rd, Mississauga	2.3
Sub-Total Material Projects	**4.6**
Miscellaneous Projects (under materiality threshold)	2.2
Total System Service	**6.8**
GENERAL PLANT	
Enersource Rate Zone Allocation of General Plant	11.7
Total General Plant	**11.7**
2023 Budget	**65.3**

GENERAL PLANT - ALECTRA UTILITIES	
C2M (CIS CC&B upgrade)	6.3
Customer Service Strategy-CX Project	4.2
Work Force Management / Mobile Dispatch	2.9
ERP Continuous Improvement	2.1
C55 Alectra: Optimization of Business Practices	1.9
Client - IT Infrastructure	1.3
Facilities_West_Capital Replacement Investment Support	1.3
Sub-Total Material Projects	**19.9**
Miscellaneous Projects (under materiality theshold)	24.3
Total General Plant	**44.2**

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Attachment 4
2024 ICM Project Listing ERZ

2024 Capital Project Listing - Enersource Rate Zone

SYSTEM ACCESS	$MM
Road Authority Projects - Central South	3.9
New Residential Subdivision and Condo Tower Development - Alectra Central South	3.2
Service (new and upgrades) - Commercial, Industrial and Institutional (ICI) Projects - Central South	2.6
Customer Initiated Distribution System Projects - Central South	1.5
New Services - Enersource RZ	1.3
Sub-Total Material Projects	**12.6**
Miscellaneous Projects (under materiality threshold)	2.7
Total System Access	**15.4**
SYSTEM RENEWAL	**$MM**
Lines Central-South - Reactive Renewal	3.9
Pole Renewal - Central South	2.9
Cable and Transformer Replacement Project - (AREA21) - Miss. Valley & Bloor, Mississauga	2.4
Cable and Transformer Replacement Project - (AREA25) - Glen Erin & Burnhamthorpe, Mississauga	2.3
Cable Replacement Project - (AREA54) - Copenhagen Rd, Mississauga	2.2
Cable Remediation- Main Feeder Cable (S5230 to S5227), Mississauga	2.0
Switchgear Renewal - Central South	1.9
Cable Injection - (AREA43 & 51) - Hurontario & Derry Rd W, Mississauga	1.3
Joint Use Pole Removal - Central South	1.3
Cable Injection - (AREA56) - Derry Rd W & Ninth Line, Mississauga	1.1
Transformer Renewal - Central South	1.1
Underground Asset Renewal-Alectra Initiated Distribution System Projects-Central South	1.1
Cable Injection - (AREA58 & 59) - Winston Churchill & The Collegeway, Mississauga	1.1
Switch Renewal - Central South	1.0
Sub-Total Material Projects	**25.7**
Miscellaneous Projects (under materiality threshold)	6.6
Total System Renewal	**32.3**
SYSTEM SERVICE	**$MM**
Miscellaneous Projects (under materiality threshold)	2.2
Total System Service	**2.2**
GENERAL PLANT	
Enersource Rate Zone Allocation of General Plant	10.7
Total General Plant	**10.7**
2024 Budget	**60.6**
GENERAL PLANT - ALECTRA UTILITIES	
Work Force Management / Mobile Dispatch	2.5
CIS CC&B Enhancements	2.1
ERP Continuous Improvement	1.9
CIS CC&B Modifications(Regulatory Enhancements)	1.7
Derry Generator Replacement	1.7
Customer Service Strategy-CX Project	1.6
Client - IT Infrastructure	1.5
Facilities_Replacement_Patterson Road Roof	1.3
Facilities_West_Capital Replacement Investment Support	1.0
Sub-Total Material Projects	**15.3**
Miscellaneous Projects (under materiality theshold)	25.0
Total General Plant	**40.3**

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Reference: Exhibit 3, Tab 1, Schedule 2, page 16

Alectra Utilities examined the increasing hours of interruption due to failing direct-buried XLPE cable by overlaying maps of recent XLPE cable failures and cable asset condition for the Enersource and PowerStream RZs, where most of the cable failures are occurring.

Alectra Utilities combined reliability statistics by grid against the 2020 ACA as part of an enhanced overlay methodology. Reliability heat maps illustrate the most recent (2016 – 2021) outages due to cable failures, including the location of recently (2016-2021) completed projects, planned projects in base rates and the proposed incremental cable renewal projects.

a) **Please provide a copy of the 2020 ACA.**

b) **Please provide copies of any subsequent ACAs.**

c) **Please provide an excel listing of the completed XLPE cable projects for the years 2016 to 2021 by year and include the project number, description, rate zone, cost, km and community.**[1]

Response:

a) Please see Alectra Utilities response to SEC-11.

b) There are no subsequent finalized ACAs.

c) Alectra Utilities has attached AMPCO-17_Attachment_1 which includes completed cable projects for 2016 to 2021 that over the 5-year period, exceed $1MM. All projects less than $1MM are aggregated. In the Guelph Rate Zone km values prior to 2020 are not available.

[1] [1] Alectra Utilities carries on the business of distributing electricity within the communities of Mississauga, Hamilton, St. Catharines, Brampton, Alliston, Aurora, Barrie, Beeton, Bradford, Markham, Penetanguishene, Richmond Hill, Thornton, Tottenham, Vaughan, Guelph and Rockwood

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Attachment 1
Cable Project 2016-2021

Project Code	Project Name	Rate Zone	Community	2016	2017	2018	2019	2020	2021	2016 km	2017 km	2018 km	2019 km	2020 km	2021 km
328284	2016 REBUILD - BROMSGROVE/CRAMER/SHERHILL	ERZ	Mississauga	$ 2.3	$ -	$ -	$ -	$ -	$ -	1.0					
323918	2016 REBUILD - ELLENGALE - IBBETSON CRES/SHAMIR	ERZ	Mississauga	$ 2.1	$ -	$ -	$ -	$ -	$ -	1.3					
330894	2016 REBUILD - MALTON - WRENWOOD/ ROCKHILL/BAYSWATER	ERZ	Mississauga	$ 1.6	$ 0.0	$ -	$ -	$ -	$ -	1.0					
319476	2015 REBUILD - BEECHOLLOW CRES. - SECTION 2	ERZ	Mississauga	$ 1.5	$ -	$ -	$ -	$ -	$ -	1.5					
342781	2017 U/G REBUILD - CLARKSON SECTION 2 - BROMSGROVE/LUNDENE/CONSTABLE	ERZ	Mississauga	$ 0.1	$ 2.6	$ -	$ -	$ -	$ -		3.1				
321218	2017 REBUILD - BEECHOLLOW CRES. - SECTION 3	ERZ	Mississauga	$ 0.0	$ 2.3	$ -	$ -	$ -	$ -		1.6				
338845	WRENWOOD & BAYSWATER REBUILD SECTION 2	ERZ	Mississauga	$ 0.0	$ 1.7	$ -	$ -	$ -	$ -		1.5				
327003	2017 U/G REBUILD - ELLENGALE SECTION-3 - CONYERS CRES. & FAIRDALE DR.	ERZ	Mississauga	$ 0.0	$ 1.5	$ -	$ -	$ -	$ -		2.0				
311811	2017 UG REBUILD - AUTUMN HARVEST SECTION 3 - WAGONDUST	ERZ	Mississauga	$ 0.0	$ 2.7	$ -	$ -	$ -	$ -		2.0				
338853	2017 U/G REBUILD - MAPLE RIDGE - FIELDGATE/ MAPLE RIDGE	ERZ	Mississauga	$ -	$ 1.8	$ -	$ -	$ -	$ -		3.1				
364921	2018 - APPLEDORE - SECTION 1	ERZ	Mississauga	$ -	$ 0.0	$ 1.9	$ -	$ -	$ -			6.9			
362167	2018 UG REBUILD - GANANOQUE MO	ERZ	Mississauga	$ -	$ -	$ 2.5	$ 0.0	$ -	$ -			9.0			
361834	2018-BOUGH BEECHES SECTION 1	ERZ	Mississauga	$ -	$ -	$ 2.1	$ -	$ -	$ -			4.8			
340216	2018-GLEN ERIN AND BATTLEFORD,	ERZ	Mississauga	$ -	$ -	$ 1.4	$ -	$ -	$ -			8.0			
380162	2018 UG REBUILD - GLEN ERIN MO	ERZ	Mississauga	$ -	$ -	$ 1.1	$ 0.0	$ -	$ -			5.4			
338722	2018 UG REBUILD - TENTH LINE W	ERZ	Mississauga	$ -	$ -	$ 1.0	$ -	$ -	$ -			4.0			
151144	Rathburn Rd. W	ERZ	Mississauga	$ -	$ -	$ -	$ 6.8	$ -	$ -				8.8	7.8	
151171	Copenhagen	ERZ	Mississauga	$ -	$ -	$ -	$ 2.7	$ 0.0	$ -				6.1		
151173	Credit Woodlands Crt and Whiltshire	ERZ	Mississauga	$ -	$ -	$ -	$ 1.5	$ 0.0	$ -				5.3		
151146	Cable Replacement and Transformers Replacement - Project - Folkway, Mississauga	ERZ	Mississauga	$ -	$ -	$ -	$ -	$ 6.0	$ 0.3					14.2	1.7
151141	Cable Replacement and Transformers replacement - Project - Windjammer, Mississauga	ERZ	Mississauga	$ -	$ -	$ -	$ -	$ 3.3	$ 1.3					9.0	
151107	Cable Replacement Project - 7143 Main Feeder	ERZ	Mississauga	$ -	$ -	$ -	$ -	$ 1.8	$ 0.1					2.6	
151143	Cable Replacement and Transformers Replacement -Project - Shelter Bay Rd. Mississauga	ERZ	Mississauga	$ -	$ -	$ -	$ -	$ 1.7	$ -					3.8	
151402	Cable Replacement Project- Montevideo & Treviso Crt (19a)-Phase 1, Mississauga	ERZ	Mississauga	$ -	$ -	$ -	$ -	$ -	$ 4.4						9.7
151401	Cable Replacement Project- Sigsbee & Brandon Gate Dr (21b)- Phase 2, Mississauga	ERZ	Mississauga	$ -	$ -	$ -	$ -	$ -	$ 2.1						2.7
151328	Cable Replacement Project- Darcel & Brandon Gate (21a)-Phase 1, Mississauga	ERZ	Mississauga	$ -	$ -	$ -	$ -	$ -	$ 1.4						3.0
	OTHER REPLACEMENT PROJECTS	ERZ	Mississauga	$ 5.9	$ 6.1	$ 4.6	$ 2.8	$ 2.3	$2,489.8	3.8	6.5	17.6	5.2	6.8	0.0
150571	Cable Injection Project - (J3-K3-N2-O2), Brampton	BRZ	Brampton	$ -	$ -	$ -	$ -	$ 2.7	$ 3.6					24.6	28.0
008	DISTRIB CABLE REHAB OR REPLACEMENT	BRZ	Brampton	$ 0.4	$ 1.8	$ 1.5	$ -	$ -	$ -	4.9	34.1	15.7			
151318	Cable Injection Project - (I3) -Bovaird - Dixie - Queen - Hwy 410, Brampton	BRZ	Brampton	$ -	$ -	$ -	$ -	$ 0.7	$ 1.0					12.0	8.8
150278	Cable Injection - Brampton (F3-G3-H3)	BRZ	Brampton	$ -	$ -	$ -	$ 1.0	$ -	$ -				15.5		
007	FEEDER CABLE REHAB OR REPLACEMENT	BRZ	Brampton	$ 0.1	$ 2.4	$ 2.5	$ -	$ -	$ -	0.5	15.4	8.8			
150572	Cable Replacement Project - (J4) - Queen - Clark - Bramalea - Kensington - Knightsbridge, Bramp	BRZ	Brampton	$ -	$ -	$ -	$ -	$ 0.7	$ 3.0						5.3
150277	Cable Replacement - Brampton (K3) - Professor Lake Parkway	BRZ	Brampton	$ -	$ -	$ -	$ 1.5	$ -	$ -				6.7		
	OTHER REPLACEMENT	BRZ	Brampton	$ 0.1	$ -	$ 0.0	$ 0.2	$ 0.4	$ 1.4	0.4			0.9		2.4
	OTHER INJECTION	BRZ	Brampton	$ -	$ -	$ -	$ -	$ -	$ 1.0						8.0
N/A	Cable Replacement	GRZ	Guelph	$ 3.2	$ 4.0	$ 0.6	$ -	$ -	$ -						
151062	Cable and Transformer Replacement - (279) - 201 Silvercreek Pky N Subdivision, Guelph	GRZ	Guelph	$ -	$ -	$ -	$ -	$ 1.6	$ -						
151062	GUELPH - Cable Replacement	GRZ	Guelph	$ -	$ -	$ -	$ 1.4	$ -	$ -					3.0	
151371	Cable Replacement - (87) - Marksam Rd/ Rhonda Rd Subdivision, Guelph	GRZ	Guelph	$ -	$ -	$ -	$ -	$ -	$ 1.0					1.3	1.1
151224	Cable and Transformer Replacement - (920) - 226 - 324 Scottsdale Drive Subdivision, Guelph	GRZ	Guelph	$ -	$ -	$ -	$ -	$ -	$ -					0.4	
HRN64	Hamilton Mountain URD	HRZ	Hamilton	$ 1.4	$ 4.0	$ 1.4	$ -	$ -	$ -	7.6	14.4	1.6			
151066	Cable Replacement Project - Hamilton Mountain URD	HRZ	Hamilton	$ -	$ -	$ -	$ -	$ 5.5	$ 0.3					14.3	0.8
151066	Hamilton Mountain URD	HRZ	Hamilton	$ -	$ -	$ -	$ 4.9	$ -	$ -				11.8		
151250	Upper Stoney Creek	HRZ	Hamilton	$ -	$ -	$ -	$ 2.6	$ -	$ -			7.9			
151303	Cable and Transformer Replacement Project - (HAM) - Stone Church - Garth - Lincoln M. Alexand	HRZ	Hamilton	$ -	$ -	$ -	$ -	$ -	$ 2.2						8.6
HRN97	York Phases 2 of 2 URD	HRZ	Hamilton	$ -	$ -	$ 1.4	$ -	$ -	$ -			4.6			
HRN96	York Phase 1 of 2	HRZ	Hamilton	$ -	$ -	$ 1.3	$ -	$ -	$ -			2.9			
	OTHER REPLACEMENT	HRZ	Hamilton/St.Catharines	$1.80	$2.71	$0.72	$ 0.16	$ 0.43	$ 1.93	9.7	9.8	3.0	0.2	1.1	7.2
150014	Cable Injection - (V01) - Young - Steeles - Bathurst - Center	PRZ	Vaughan	$0.67	$1.17	$0.30	$ -	$ 0.91	$ 0.01	8.0	12.3	0.0	0.0	4.0	0.0
150015	Cable Injection - (M27) - Kennedy - 16th Ave - McCowan - Hwy 7	PRZ	Markham	$0.92	$0.07	$0.54	$ 0.00	$ 0.91	$ -	20.3	0.3	11.2	0.0	13.4	0.0
150016	Cable Injection - (V16) - Hwy 7 and Langstaff (Phase 2 of 2)	PRZ	Vaughan	$1.28	$ -	$ -	$ -	$ -	$ -	13.1	0.0	0.0	0.0	0.0	0.0
150022	Cable Injection - (M37) - Woodbine and 14th Ave	PRZ	Markham	$ -	$0.00	$1.10	$ 0.35	$ 0.71	$ 0.01	0.0	0.0	13.5	5.6	9.3	0.2
150023	Cable Injection - (M33) - Warden and Hwy 7	PRZ	Markham	$0.00	$1.08	$ -	$ -	$ -	$ -	0.0	15.0	0.0	0.0	0.0	0.0
150025	Cable Injection - (V18) - Major Mackenzie and Keele	PRZ	Vaughan	$ -	$ -	$ -	$ 1.12	$ 0.70	$ 0.43	0.0	0.0	0.0	18.2	9.3	4.0
150026	Cable Injection Project - (M43) - John and Woodbine, Markham	PRZ	Markham	$ -	$ -	$ -	$ -	$ 1.36	$ -	0.0	0.0	0.0	0.0	12.3	0.0
150134	Cable Injection - (V37) - Langstaff and Weston	PRZ	Vaughan	$ -	$0.00	$1.65	$ 1.30	$ 1.20	$ 0.17	0.0	0.0	15.5	22.0	12.0	1.7
150208	Cable Injection - (M44) - Konrad Cres	PRZ	Markham	$0.00	$1.12	$ -	$ 0.65	$(0.10)	$ 0.00	0.0	13.6	0.0	10.4	0.0	0.0
151351	Cable Injection Project - (M32) - Hwy 7 - Main - 14th - Warden, Markham	PRZ	Markham	$ -	$ -	$ -	$ -	$ -	$ 1.51	0.0	0.0	0.0	0.0	0.0	14.3
100890	Emerging Cable Replacement Projects	PRZ	PRZ Various	$2.00	$0.91	$0.26	$ 0.00	$ -	$ -	7.3	3.8	0.7	0.0	0.0	0.0
150011	Cable Replacement - (A09) - Bathurst and Wellington (Phase 2 of 3)	PRZ	PRZ Various	$4.02	$ -	$ -	$ -	$ -	$ -	15.9	0.0	0.0	0.0	0.0	0.0
150029	Cable Replacement - (M51) - Henderson and Clark	PRZ	Markham	$1.46	$ -	$ -	$ -	$ -	$ -	1.4	0.0	0.0	0.0	0.0	0.0
150030	Cable Replacement - (M51) - Henderson and Doncaster	PRZ	Markham	$0.00	$0.83	$0.17	$ -	$ -	$ -	0.0	2.5	0.5	0.0	0.0	0.0
150035	Cable Replacement - (M43) - Steelcase and Idema	PRZ	Markham	$ -	$ -	$0.00	$ 2.24	$ 0.28	$ (0.23)	0.0	0.0	0.0	3.4	0.0	0.0
150141	Cable Replacement Project – (M49) - Steeles and Fairway Heights, Markham	PRZ	Markham	$ -	$ -	$ -	$ 0.02	$ 4.04	$ 0.01	0.0	0.0	0.0	0.0	3.8	0.0
150142	Cable Replacement – (V08) - Steeles Ave and New Westminster	PRZ	Vaughan	$ -	$ -	$3.54	$ 0.98	$ 0.00	$ -	0.0	5.4	10.8	0.0	0.0	0.0
150144	Cable Replacement – (V38) - Rutherford and Weston	PRZ	Vaughan	$0.00	$3.28	$ -	$ -	$ -	$ -	0.0	11.8	0.0	0.0	0.0	0.0
150145	Cable Replacement – Left Behind Cable	PRZ	PRZ Various	$ -	$0.01	$1.95	$ -	$ -	$ -	0.0	0.0	4.8	0.0	0.0	0.0

Project Code	Project Name	Rate Zone	Community	2016	2017	2018	2019	2020	2021	2016 km	2017 km	2018 km	2019 km	2020 km	2021 km
150254	Cable Replacement Project - (A02) - Steeplechase Ave, Aurora	PRZ	Aurora	$ -	$ -	$ -	$ -	$ 2.14	$ -	0.0	0.0	0.0	0.0	7.6	0.0
150257	Cable Replacement Project - (V15) - Jardin Dr, Vaughan	PRZ	Vaughan	$ -	$ -	$ -	$ -	$ 1.74	$ -	0.0	0.0	0.0	0.0	7.5	0.0
150263	Cable Replacement Project - East - Left Behind Cable	PRZ	PRZ Various	$ -	$ -	$ -	$ -	$ -	$ 1.69	0.0	0.0	0.0	0.0	0.0	4.2
150263	Cable Replacement Project - East Left Behind Cable	PRZ	PRZ Various	$ -	$ -	$ -	$ -	$ 1.48	$ -	0.0	0.0	0.0	0.0	3.2	0.0
151071	Cable Replacement - (V01) - York Hill - Hilda - Clark (Phase 1 and Phase 2)	PRZ	Vaughan	$ -	$ -	$3.71	$(0.01)	$ -	$ -	0.0	0.0	9.9	0.0	0.0	0.0
151114	Cable Replacement - (V01) - York Hill - Hilda - Clark (Phase 3)	PRZ	Vaughan	$ -	$ -	$ -	$ 1.42	$ 0.51	$ 0.00	0.0	0.0	0.0	1.8	0.6	0.0
151336	Cable Replacement Project - (BA22) - Sunnidale and Anne, Barrie	PRZ	Barrie	$ -	$ -	$ -	$ -	$ 1.09	$ 1.88	0.0	0.0	0.0	0.0	2.9	5.5
151337	Cable Replacement Project - (BA18) - Ferndale and Benson, Barrie	PRZ	Barrie	$ -	$ -	$ -	$ -	$ -	$ 1.28	0.0	0.0	0.0	0.0	0.0	2.9
150036/150037	Cable Replacement - Left Behind Cable	PRZ	PRZ Various	$1.29	$1.41	$0.08	$ 1.30	$ -	$ -	7.6	3.4	0.2	3.2	0.0	0.0
OTHER REPLACEMENT PROJECTS		PRZ	PRZ Various	$1.43	$2.15	$0.15	$ 0.77	$ 0.63	$ 1.68	5.3	9.0	0.4	1.1	1.4	4.6
OTHER INJECTION PROJECTS		PRZ	PRZ Various	$1.40	$0.03	$ -	$ 0.38	$ 2.20	$ 5.27	19.2	0.3	0.0	6.2	21.3	39.9

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Reference: Exhibit 3, Tab 1, Schedule 4, page 7

Alectra Utilities has identified 28 distinct projects that are required to address urgent and necessary cable renewal work in the Enersource and PowerStream RZs. Alectra Utilities leveraged its Asset Analytics platform to identify the projects for ICM funding. As identified above, the utility employs overlays of reliability and cable condition maps to identify emerging hotspots and completes a full engineering assessment of the remediation needs. The engineering assessment of cable failures was completed utilizing the most recent reliability results as of year-end 2021.

a) **When did Alectra develop and implement the Asset Analytics platform?**

b) **Please explain the platform and the driver for the Asset Analytics platform.**

c) **Please discuss the extra functionality provided by the Asset Analytics platform.**

d) **Please explain how the Asset Analytics platform computes asset condition assessments.**

e) **Please provide the data inputs to the Asset Analytics platform.**

f) **Please provide the internal document that directs Alectra's use of the Asset Analytics platform.**

g) **Please provide any third-party reviews/assessments of Alectra's Asset Analytics platform.**

h) **Please provide a sample engineering assessment for an ICM project.**

i) **Please confirm the time span of reliability results used in the engineering assessments.**

j) Please discuss if the most pressing neighbourhoods for cable renewal have changed in 2023 and 2024 as a result of the Asset Analytics platform results.

k) Please discuss if Alectra applies the CopperLeaf C55 system to optimize the capital investment portfolio on an annual basis. If yes, please explain how this impacts the identification and prioritization of ICM Projects.

l) Does Alectra score projects on an annual basis? If yes please provide the project scores for the base and ICM projects for 2023 and 2024.

Response:

a) Alectra Utilities started the development of the Asset Analytics Platform in 2019. The implementation occurred in 2020-2021. Please also see Alectra Utilities' response to 1-Staff-1 a) and AMPCO-18 c).

b) Alectra Utilities' Analytics Platform is comprised of an analytical tool "Alteryx" and connections to different data sources (e.g., GIS, reliability) which it can access to retrieve data in an automated manner, perform computation and visualize results. The key driver for implementing an Asset Analytics Platform is to enable actionable insight from data and information to facilitate effective decision making and timely action.

The Asset Analytics Platform was identified as the next step for Alectra Utilities' Asset Management continuous improvement. In 2018, Alectra Utilities conducted a third-party review to assess its asset condition assessment methodology and practices. A recommendation from the review was that Alectra Utilities should consider a platform to allow for seamless integration of input data from different data sources and reporting on demand to enhance decision-making. The full report for the third-party review was included in Appendix E of the Distribution System Plan ("DSP") filed in Alectra Utilities' 2020 rate application (EB-2019-0018).

Alectra Utilities also conducted an assurance review of its DSP for 2020-2024 (EB-2019-0018, Application, Appendix G). The review recommended considering advanced analytics particularly in the area of underground cables.

c) The Asset Analytics Platform provides the following additional functionality including, but not limited to:

- Access multiple data sources without the need of systems integration
- Ability to join and blend different data from different data sources
- Ability to conduct geo-spatial analysis
- Ability to build on the work of already conducted analysis
- No need to copy or duplicate data to conduct studies
- Analytics can be conducted on demand
- Enables predictive analytics and machine learning (future improvements)
- Ability to integrate in the future with other systems (e.g., CopperLeaf C55)

d) The Asset Analytics Platform accesses the asset information in the Geographical Information System ("GIS") and inspections data sources on a regular basis. The platform computes the asset condition following the logic described in the Asset Condition Assessment report (e.g., ACA Report – 2020). The results are stored in a database that can be accessed for further analysis and analytics. The process of access and computing the ACA is automated.

e) Please see response to 1-Staff-1, part b.

f) Please refer to EB-2019-0018 Appendix E, "Alectra Third Party ACA Review" and Appendix G "Alectra Utilities 2020-2024 – Distribution System Plan Assurance Review Report" from Alectra Utilities' DSP filed in its 2020 rate application.

g) It is important to note that the logic followed in conducting the Asset Condition Assessment that the Asset Analytics Platform uses is the one reviewed by third parties in 2018 and 2019. Therefore, Alectra Utilities did not conduct a third party review of the Asset Analytics Platform.

h) Below is a sample engineering assessment for an ICM project:

- Asset Management ("AM") is informed by the Reliability, Control Room or Lines departments or an AM engineer is informed throughout the year as new information is gained.
- AM engineer validates information using the Asset Analytics Platform:
    - Plot the cable failures that occurred in year 2018 or earlier on a map.
    - Plot the cable failures that occurred up to year 2022 on a map.
    - Compare the two maps and confirm there are significant failure events in the area since 2018.
- Once confirmed, the engineer generates the scope for the project.
    - Plot the condition of the cables on a map to check where other cables in poor condition are in the same loop or same subdivision.
    - Check for other work being planned or executed in the area and exclude them from the scope.
    - Check against the cable injection eligibility criteria to determine if the renewal strategy is cable injection or cable replacement.
    - For cable replacement project,
        - Check existing system configuration to determine if renewal will be like-for-like or reconfiguration (e.g., rear-lots).
        - Newer cables in the area are excluded from the scope.
        - Check associated equipment such as transformer (condition, loading) and switchgear if renewal is required.
- After scope is determined, the engineer creates a business case in Copperleaf.
    - Provide justification for the project.
    - Provide alternatives including "do nothing" and recommend the best alternative.
    - Fill out the value framework and confirm the project has benefits.

i) Alectra Utilities staff use all available reliability information when performing an assessment on an area. A greater emphasis is placed on data within the last 3-5 years, specifically when estimating: customers impacted, duration and number of events; or estimating future reliability impacts.

j) The list of pressing neighbourhoods was developed using the Asset Analytics Platform and therefore did not change as a result of the tool.

k) Yes, Copperleaf C55 is used to optimize a budget yearly. The identification of ICM projects is completed before projects are submitted for optimization, as only projects funded in rates are optimized.

l) When Alectra Utilities states that it has identified 52 high priority projects, this is based on the density and impact to customers with respect to failures. However, this is only one metric to evaluate priority, and it is used to determine which areas need investment. However, this does not factor costs, customer count, or the total value of the investment. It is for these reasons that C55 is used to optimize a portfolio with the greatest value; even though projects with higher values may not get optimized, the total portfolio has a greater value. Tables 1 and 2 below, provide a list of the ICM and base projects in the PowerStream and Enersource RZs, sorted by value.

In regard to 'value', it represents the entire value of the project including future years. For example, projects 151367 and 151361, the second and third highest ICM projects, will be completed over 2 years. The value is for completion of all work. However, both of these projects start in 2024, meaning only one phase of the two-year project is completed. Therefore, 100% of the value is not realized by only completing one out of two years. Two of the base projects are "Left Behind Cable"; these projects are required to complete a remediated area, and while prudent, the values are normally lower when compared to the cable injection and replacement projects. Additionally, there are more ICM projects than base projects. Projects are reviewed yearly, during this process project scores may or may not updated**.** The project scores for the Base projects in 2023 and 2024 are provided in in Table 1 below. The project score for the ICM projects in 2023 and 2024 are provided Table 2 below.

Table 1 – 2023 and 2024 Base Cable Renewal Project Value Scores

Project #	Project Name	Alectra Value
151336	Cable Replacement Project - (BA22) - Sunnidale and Anne, Barrie	22367
151360	Cable Injection Project - (M31) - 14th - Old Kennedy - Steeles - Warden, Markham	8215

Project #	Project Name	Alectra Value
151366	Cable Injection Project - (M19) - Markham - Steeles - McCowan - 14th, Markham	6490
151364	Cable Injection Project - (V23) - Hwy 7 - Keele - Langstaff - Jane, Vaughan	6301
151457	Cable Injection Project - (V25) - Major Mackenzie - Keele - Rutherford - Jane, Vaughan	6156
151911	Cable Replacement Project - (A05) - Golf Links, Aurora	4971
150263	Cable Replacement Project - East - Left Behind Cable	4294
151363	Cable Injection Project - (M25) - 14th - McCowan - Steeles - Old Kennedy, Markham	4232
152383	Cable Injection - (AREA 39) - Erin Mills Pkwy & Thomas St, Mississauga	3745
151855	Cable Replacement and Switchgear Removal - (AREA19) - Fieldgate and Ponytrail Dr, Mississauga	3293
152281	Cable Replacement Project - (M31) - Denison and Birchmount, Markham	3094
151516	Cable Replacement Project - (AREA46)- Millcreek Dr & Erin Mills Pkway, Mississauga	1567
151433	Cable Injection - (AREA46) - Glen Erin & Aquitane, Mississauga	1529
152388	Cable Injection Project - (V17) - Langstaff - Keele - Rutherford - Dufferin, Vaughan	1476
151408	Cable and Transformer Replacement Project - (AREA24) - Burnhamthorpe & Miss. Road, Mississauga	1278
151458	Cable Injection Project - (V31) - Langstaff - Weston - Rutherford - Jane, Vaughan	1232
151904	Cable Replacement Project - (AREA54) - Copenhagen Rd, Mississauga	1212
151465	Cable Replacement - Mississauga Left Behind Cable	1012
150255	Cable Replacement Project - (B23) - Cundles Rd and Janine St, Barrie	966
151362	Cable Injection Project - (M39) - 16th - Warden - Hwy 7 - Woodbine, Markham	950
151428	Cable Injection - (AREA30) - Eglinton Ave W & Miss Rd, Mississauga	755
152385	Cable Injection Project - (R23) - Bathurst - Weldrick - Yonge - Carville, Richmond Hill	739
151424	Cable and Transformer Replacement Project - (AREA21) - Miss. Valley & Bloor, Mississauga	667
151430	Cable Injection- (AREA 38) - Bristol & Creditview, Mississauga	532
150262	Cable Replacement Project - (M33) - 16th Avenue and Village Parkway, Markham	304

Table 2 - 2023 and 2024 ICM Cable Renewal Project Value Scores

Project #	Project Name	Alectra Value
151432	Cable Injection - (AREA43-51) Edwards Blvd area of Mississauga	14423

Project #	Project Name	Alectra Value
151367	Cable Injection Project - (V26) - McNaughton Road area of Vaughan	8885
151361	Cable Injection Project - (M21) - Cairns Drive area of Markham	7800
151935	Cable Replacement Project - (M15) - Larkin Ave area of Markham	7630
152373	Cable Replacement Project - (V26) - St. Joan of Arc area of Vaughan	7439
152387	Cable Injection Project - (V51) - Rainbridge Ave, Vaughan	6352
152375	Cable Replacement Project - (A09) - Hammond Dr area of Aurora	5433
151435	Cable Injection - (AREA56) - Derry Rd W & Ninth Line, Mississauga	5134
151520	Cable Injection Project - (A09) - Willow Farm Lane of Aurora	4795
151329	Cable Replacement Project - (M21) - Raymerville Dr, Markham	3815
151431	Cable Injection - (AREA 39) - Glen Erin Dr and and Bell Harbour Dr, Mississauga	2555
151889	Cable Replacement- Tomken Trail in Mississauga (AREA36)	2396
151913	Cable Replacement Project - (M44) - Cochrane Dr (North) - Scolberg (South), Markham	2384
151436	Cable Injection - (AREA58 & 59) - Winston Churchill & The Collegeway, Mississauga	1942
151403	Cable Replacement Project - (AREA46) - Montevideo & Battleford, Mississauga	1781
151461	Cable Injection Project - (V17) - Jacob Keffer Parkway area of Vaughan	1767
152379	Cable Replacement Project - (A10) -Batson Dr, Aurora	1742
151903	Cable Replacement Project - (AREA25) - South Millway, Mississauga	1689
151517	Cable Injection Project - (BR5) - 8th Line and Highway 11, Bradford	1541
151912	Cable Replacement Project – (V51) – Ashbridge Circle area in Vaughan	1472
151407	Cable and Transformer Replacement Project - (AREA25) - Glen Erin & Burnhamthorpe, Mississauga	1379
151914	Cable Replacement Project – (V36) - Aviva Park, Vaughan	962
151459	Cable Injection Project - (V24) - Creditstone Rd area of Vaughan	920
152386	Cable Injection Project - (R23) - Kersey Cr area of Richmond Hill	772
151902	Cable Replacement Project - (AREA19) - Dixie Rd and Winding Trail, Mississauga	747
151456	Cable Injection Project - (V50) - Sovereign Court area of Vaughan	639
151895	Cable Replacement- Main Feeder Cable on Cantay Road, Mississauga (AREA 44)	410
151901	Cable Replacement Project - (AREA16) - Hemus Square, Mississauga	223

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Reference: Exhibit 3, Tab 1, Schedule 4, page 7

Alectra's assessment identified 78 projects that will address hotspots for cable failures in need of renewal over the 2023 to 2024 time period; 20 high priority projects in the Enersource RZ and 32 high priority projects in the PowerStream RZ. Of these 52 projects, base funding was sufficient to address 24 cable renewal projects.

a) Please confirm the other 26 projects (78-52) are included in base funding in other rate zones in 2023 and 2024.

b) Please identify any projects previously turned down by the Board in previous decisions which are now included in base funding in 2023 and 2024.

Response:

a) The total of 78 projects are within the PowerStream and Enersource Rate Zones only. The other 26 projects have been deferred and will be planned in later years.

b) Table 1 includes the five projects which were included in the M-Factor, which are now in base.

Table 1 – M-Factor projects included in Base Funding

ICM #	Project Name
151465	Cable Replacement - Mississauga Left Behind Cable
151457	Cable Injection Project - (V25) - Major Mackenzie - Keele - Rutherford - Jane, Vaughan
150262	Cable Replacement Project - (M33) - 16th Avenue and Village Parkway, Markham
151458	Cable Injection Project - (V31) - Langstaff - Weston - Rutherford - Jane, Vaughan
150255	Cable Replacement Project - (B23) - Cundles Rd and Janine St, Barrie

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Reference: Exhibit 3, Tab 1, Schedule 4, page 8, table 28

Table 28 provides a listing of proposed ICM Projects for PRZ and ERZ for the years 2023 and 2024.

a) Please add the following columns to Table 28:
- **i. Km**
- **ii. # Customers**
- **iii. Failures Avoided Per Year**
- **iv. Hours of Customer Interruption Avoided Per Year**
- **v. Community**
- **vi. Priority Ranking**

b) Please provide an excel version of the Table in part (a).

c) Please produce a list of projects previously turned down by the Board in previous decisions which are now included as ICM projects in this application.

Response

a) and b)
Alectra Utilities has attached an excel spreadsheet which contains the information requested in part a. For failures avoided, as provided in Exhibit 3, Tab 1, Schedule 4, page 11, the number of customers impacted, and the duration of each outage is based on an average of the historical five years. The estimate of avoided outages is capped to five years from completion of the investment, and assumes no benefit in the year of execution, to provide a conservative estimate. For further details on the priority ranking, please see Alectra Utilities' response to AMPCO-18 l).

c) Table 1 provides a list of the only four projects, all of which were submitted in EB-2019-0018, that are now ICM projects.

Table – 1: Projects submitted in previous applications

Project Code	Project Name
151461	Cable Injection Project - (V17) - Jacob Keffer Parkway area of Vaughan
151459	Cable Injection Project - (V24) - Creditstone Rd area of Vaughan
152387	Cable Injection Project - (V51) - Rainbridge Area of Vaughan
151456	Cable Injection Project - (V50) - Sovereign Court area of Vaugh

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Attachment 1
ICM Projects (Reliability Data)

ICM#	Project Name	Community	2023 MM	2024 MM	km of cable	Number of Customers	Avoided Outages						Avoided CHI						Project Value
							2024	2025	2026	2027	2028	2029	2024	2025	2026	2027	2028	2029	
151407	Cable Replacement Project - (AREA25) - Glen Erin & Burnhamthorpe, Mississauga	Mississauga	$ 2.19	$ 2.26	7.630	327	3	5	6	6	7	7	375	375	750	750	1125	1125	1379
151895	Cable Replacement- Main Feeder Cable on Cantay Road, Mississauga (AREA 44)	Mississauga	$ 0.93		1.620	3	1	1	2	2	3		375	375	750	750	1125	0	410
151901	Cable Replacement Project - (AREA16) - Hemus Square in Mississauga	Mississauga	$ 0.66		1.150	101	1	2	2	3	4		375	750	750	1125	1500	0	223
151902	Cable Replacement Project - (AREA19) - Dixie Rd and Winding Trail, Mississauga	Mississauga	$ 0.58		1.010	9	1	2	2	3	4		375	750	750	1125	1500	0	747
151912	Cable Replacement Project – (V51) – Ashbridge Traffic Circle area in Vaughan	Vaughan	$ 2.59		4.840	302	0	0	1	1	1		0	0	614	614	614		1472
151913	Cable Replacement Project - (M44) - Cochrane Dr (North) - Scolberg (South), Markham	Markham	$ 2.54	$ 2.54	8.730	134	3	5	5	6	6	8	1842	3070	3070	3684	3684	4912	2384
151914	Cable Replacement Project - (V36) - Aviva Park, Vaughan	Vaughan	$ 2.40		4.170	26	2	3	4	4	6		1228	1842	2456	2456	3684		962
151889	Cable Replacement- Tomken Trail in Mississauga (AREA36)	Mississauga		$ 1.97	3.320	338	0	1	2	3	3	4	0	375	750	1125	1125	1500	2396
151459	Cable Injection Project - (V24) - Creditstone Rd area of Vaughan	Vaughan		$ 2.14	24.520	243	0	0	1	1	2	2	0	0	614	614	1228	1228	920
152379	Cable Replacement Project - (A10) - Batson Dr, Aurora	Aurora	$ 1.68		3.180	325	1	2	2	3	3		614	1228	1228	1842	1842		1742
151361	Cable Injection Project - (M21) - Cairns Drive area of Markham	Markham	$ 1.68	$ 1.86	37.110	2231	1	2	2	3	3	4	614	1228	1228	1842	1842	2456	7800
151461	Cable Injection Project - (V17) - Jacob Keffer Parkway area of Vaughan	Vaughan	$ 1.63		18.630	88	0	0	0	1	1		0	0	0	614	614		1767
151367	Cable Injection Project - (V26) - McNaughton Road area of Vaughan	Vaughan		$ 1.93	22.110	783	0	0	1	1	2	2	0	0	614	614	1228	1228	8885
152386	Cable Injection Project - (R23) - Kersey Cr area of Richmond Hill	Richmond Hill	$ 1.53		17.640	1645	1	1	2	2	3		614	614	1228	1228	1842		772
151432	Cable Injection - (AREA43-51) Edwards Blvd area of Mississauga	Mississauga		$ 1.32	16.419	77	0	0	0	1	1	1	0	0	0	375	375	375	14423
151329	Cable Replacement Project - (M21) - Raymerville Dr, Markham	Markham	$ 1.50	$ 1.58	5.300	676	2	4	5	5	6	8	1228	2456	3070	3070	3684	4912	3815
151935	Cable Replacement Project - (M15) - Larkin Ave area of Markham	Markham		$ 1.76	3.209	199	0	0	1	1	2	2	0	0	614	614	1228	1228	7630
151435	Cable Injection - (AREA56) - Derry Rd W & Ninth Line, Mississauga	Mississauga	$ 1.03	$ 1.14	22.710	3323	1	1	2	2	3	3	375	375	750	750	1125	1125	5134
151456	Cable Injection Project - (V50) - Sovereign Court area of Vaughan	Vaughan		$ 1.63	16.810	765	0	1	1	2	2	3	0	614	614	1228	1228	1842	639
152373	Cable Replacement Project - (V26) - St. Joan of Arc area of Vaughan	Vaughan		$ 1.60	2.924	154	0	1	2	2	3	3	0	614	1228	1228	1842	1842	7439
151431	Cable Injection - (AREA 39) - Glen Erin Dr and and Bell Harbour Dr, Mississauga	Mississauga	$ 0.86		9.880	151	1	1	2	2	3		375	375	750	750	1125	0	2555
151436	Cable Injection - (AREA58 & 59) - Winston Churchill & The Collegeway, Mississauga	Mississauga	$ 1.03	$ 1.06	21.930	2609	1	1	2	2	3	3	375	375	750	750	1125	1125	1942
151403	Cable Replacement Project - (AREA46) - Montevideo & Battleford, Mississauga	Mississauga	$ 1.44		2.700	467	1	2	2	3	3	0	375	750	750	1125	1125	0	1781
151903	Cable Replacement Project - (AREA25) - South Millway Area in Mississauga	Mississauga		$ 0.95	1.500	133	0	1	1	2	2	3	0	375	375	750	750	1125	1689
152387	Cable Injection Project - (V51) - Rainbridge Area of Vaughan	Vaughan		$ 0.60	6.210	163	0	1	1	2	2	3	0	614	614	1228	1228	1842	6352
151520	Cable Injection Project - (A09) - Willow Farm Lane of Aurora	Aurora	$ 1.07		11.420	565	1	1	2	2	3		614	614	1228	1228	1842		4795
152375	Cable Replacement Project - (A09) - Hammond Dr area of Aurora	Aurora		$ 1.32	2.240	128	0	0	0	1	1	1	0	0	0	614	614	614	5433
151517	Cable Injection Project - (BR5) - 8th Line and Highway 11, Bradford	Bradford		$ 1.27	15.080	1229	0	0	1	1	2	2	0	0	614	614	1228	1228	1541

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Reference 1: Exhibit 3, Tab 1, Schedule 4, page 22
Project 151901: Cable Replacement Hemus Square in Mississauga (Area 16)

The evidence states "The 2020 ACA identified the cables in this project to be beyond the end of useful life of 40 years and in very poor condition.

Reference 2: Page 23: Project 151436: Cable Injection – Winston Churchill & The Collegeway in Mississauga

The evidence states "In the 2020 ACA, these cables were determined to be beyond typical useful life of 30 years and in fair condition.

Please explain the difference between the terms end of useful life and typical useful life and the reference to 40 years and 30 years, respectively.

Response:

The ACA cable model defines the Typical Useful Life (TUL) and End of Useful Life (EUL) based on industry averages and Alectra Utilities' experience. The industry average EUL and TUL values were sourced from Kinectrics' "Asset Depreciation Study for the Ontario Energy Board" (EB-2010-0178) and adjusted in the 2018 ACA harmonization to reflect Alectra Utilities' experience. TUL refers to when a cable has reached the end of its physical life - beyond which it starts experiencing growing failures. End of Useful Life (EUL) refers to the point at which the cable life is completely exhausted, and replacement is the only option, as remediation through injection is not effective. For the list of EUL and TUL values for different XLPE cables, please refer to the response to SEC-11, Attachment 6, ACA Report 2020, Page 16.

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Reference: Exhibit 4, Tab 1, Schedule 1, Attachment 11 - Workbook Results Business Customers, Choices Cable Replacement Strategies – Additional Feedback, Small Business, page 34

After making their choice on which cable replacement strategies they prefer, respondents were given an opportunity to make additional comments. 3% of customers in the ERZ indicated they need more info - rates, funding, progress.

Please provide the total number of responses and the specific comments made.

Response:

There were two (2) Enersource RZ small business customers whose responses to the open-ended question were coded as "need more info – rates, funding, progress". The specific comments are as follows:

- "I am assuming this question and the previous one is based on a flat rate increase of $1.08 and $2.04 per year (as opposed to per unit like KHW). If it is more than a total of $1.08 and $2.04 per year then I would need more data to answer these questions"
- "How does this impact the cost to customers? What's the % increase?"

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Reference: Exhibit 4, Tab 1, Schedule 1, Attachment 11 – Workbook Results Business Customers, Choices Cable Replacement Strategies – Additional Feedback Medium & Large Business, page 35

Please provide the total number of responses and the specific comments made.

Response:

There were four (4) medium and large business customers who provided an answer to this follow-up open-ended question. These customers were from the PowerStream RZ. As shown on page 35 of the report, their responses are as follows:

- "See previous feedback" (Alectra should use it's $75M of net income from 2020 to pay for these expenses. Rates should not increase as a result of this work, especially for those that don't work/live in the affected neighbourhoods. This is long term maintenance which should be budgeted for over long term periods.)
- "Why customers should carry any additional costs? Costs are already included in our bills, albeit hidden, and normal definition of it is: 'repair and maintenance'."
- "This work should be completed ASAP."
- "Go out for competitive pricing – lock in the cable future cost."

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Reference: EB-2019-0018 J1.2 Attachment #1 All Cable Projects

J1.2 provides a list of all cable renewal projects (injection and replacement) contained within the 2020-2024 Distribution System Plan ("DSP"). Alectra identified the projects which are included in the M-Factor.

a) Please identify the ICM projects in EB-2022-0013 that are on the J1.2 list as either base or M-Factor projects.

b) Please provide an updated version of J1.2 Attachment #1 in excel format that indicates the year each project is completed or identify if the project has been deferred beyond 2024 or cancelled.

Response:

a) Thirteen of the 28 high priority projects were listed in J1.2, as provided in Table 1 below.

Project Code	Project Name	Base Or M-Factor
151367	Cable Injection Project - (V26) - McNaughton Road area of Vaughan	Base
151361	Cable Injection Project - (M21) - Cairns Drive area of Markham	Base
151431	Cable Injection - (AREA 39) - Glen Erin Dr and and Bell Harbour Dr, Mississauga	Base
151432	Cable Injection - (AREA43-51) Edwards Blvd area of Mississauga	Base
152387	Cable Injection Project - (V51) - Rainbridge Area of Vaughan	M-Factor
151407	Cable and Transformer Replacement Project - (AREA25) - Glen Erin & Burnhamthorpe, Mississauga	Base
151435	Cable Injection - (AREA56) - Derry Rd W & Ninth Line, Mississauga	Base
151459	Cable Injection Project - (V24) - Creditstone Rd area of Vaughan	M-Factor
151461	Cable Injection Project - (V17) - Jacob Keffer Parkway area of Vaughan	M-Factor
151912	Cable Replacement Project – (V51) – Ashbridge Traffic Circle area in Vaughan	Base
151403	Cable Replacement Project - (AREA46) - Montevideo & Battleford, Mississauga	Base
151436	Cable Injection - (AREA58 & 59) - Winston Churchill & The Collegeway, Mississauga	Base
151456	Cable Injection Project - (V50) - Sovereign Court area of Vaugh	M-Factor

b) Alectra Utilities has provided and updated J1.2 excel table as AMPCO-24_Attachment_1.

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Attachment 1
DSP Cable Projects

Project Number	Funding	Project Name	DSP Year	Adjusted Capital Plan Year
151301	Base	Cable Replacement Project - (HAM) - Rymal - Mud - Upper Centennial - Upper Red Hill Valley	2026	2026
150134	Base	Cable Injection Project - (V37) - Langstaff and Weston, Vaughan	2022	2022
151363	Base	Cable Injection Project - (M25) - 14th - McCowan - Steeles - Old Kennedy, Markham	2024	2025
150571	Base	Cable Injection Project - (J3-K3-N2-O2), Brampton	2020	Completed or Closing out
151362	Base	Cable Injection Project - (M39) - 16th - Warden - Hwy 7 - Woodbine, Markham	2024	2026
151360	Base	Cable Injection Project - (M31) - 14th - Old Kennedy - Steeles - Warden, Markham	2024	2025
151303	Base	Cable Replacement Project - (HAM) - Stone Church - Garth - Lincoln M. Alexander	2024	2023
151361	Base	Cable Injection Project - (M21) - Cairns Drive area of Markham	2024	2024
151366	Base	Cable Injection Project - (M19) - Markham - Steeles - McCowan - 14th, Markham	2024	2023
151318	Base	Cable Injection Project - (I3) -Bovaird - Dixie - Queen - Hwy 410, Brampton	2024	2024
151460	M-Factor	Cable Injection Project - (V17) - Langstaff - Keele - Rutherford - Dufferin, Vaughan	2024	2026
150025	Base	Cable Injection Project - (V18) - Major Mackenzie and Keele, Vaughan	2020	Completed or Closing out
151066	Base	Cable Replacement Project - Hamilton Mountain URD	2020	Completed or Closing out
150014	Base	Cable Injection Project - (V01) - Yonge - Steeles - Bathurst - Center, Vaughan	2020	Completed or Closing out
151302	Base	Cable Injection Project - (HAM) - Rymal - Mud - Upper Centennial - Upper Red Hill Valley	2022	2026
151314	Base	Cable Injection Project - (G2) -Wanless - Kennedy - Bovaird - Main, Brampton	2024	2024
151409	Base	Cable Replacement Project- Central Parkway & Bloor (29), Mississauga	2022	Deferred Beyond 2026
151307	Base	Cable Injection Project - (HAM) - Upper Sherman - Stone Church - Nebo - Rymal	2025	2026
151429	Base	Cable Injection- 003- AREA36 -Matheson & Kennedy, Mississauga	2024	Deferred Beyond 2026
151299	Base	Cable Replacement Project - (HAM) - Millen - Barton - Fruitland	2023	2025
151402	Base	Cable Replacement Project- Montevideo & Treviso (19a), Mississauga	2021	2022
151315	Base	Cable Injection Project - (G5) - Steeles - Kennedy - Hwy 407 - Main, Brampton	2024	2026
151456	M-Factor	Cable Injection Project - (V50) - Hwy 7 - Kipling - Steeles - Hwy 27, Vaughan	2023	2025
150261	Base	Cable Injection Project - (V38) - Rutherford and Weston, Vaughan	2020	Completed or Closing out
151275	Base	Cable Injection Project - (SCH) - QEW - Highway 406 - Martindale Road	2023	2025
151298	Base	Cable Injection Project - (HAM) - Govenors - Old Ancaster	2024	2026
151300	Base	Cable Injection Project - (HAM) - Millen - Barton - Fruitland	2021	2024
151424	Base	Cable Replacement Project-Miss. Valley & Bloor (15) Mississauga	2024	2026
151313	Base	Cable Injection Project - (F5) - Steeles - Main - Hwy 407 - McLaughlin, Brampton	2024	2026
151349	Base	Cable Injection Project - (V16) - Langstaff - Dufferin - Steeles - Jane, Vaughan	2021	Completed or Closing out
151352	Base	Cable Injection Project - (M38) - Hwy 7 - Warden - 14th - Woodbine, Markham	2022	2022
151062	Base	Cable Replacement - (279) - 201 Silvercreek Pky N Subdivision, Guelph	2020	Paritally Completed Remaing beyond 2026
151367	Base	Cable Injection Project - (V26) - McNaughton Road area of Vaughan	2024	2024
151407	Base	Cable Replacement Project- Glen Erin & Burnhamthorpe (12), Mississauga	2022	2025
151325	Base	Cable Replacement Project - (M31) - 14th - Old Kennedy - Steeles - Warden, Markham	2024	Deferred Beyond 2026
151457	M-Factor	Cable Injection Project - (V25) - Major Mackenzie - Keele - Rutherford - Jane, Vaughan	2023	2023
151339	Base	Cable Replacement Project - (BA19) - Letitia - Anne - Edgehill - Ferndale, Barrie	2023	Deferred Beyond 2026
151316	Base	Cable Injection Project - (H2) - Wanless - Heart Lake - Bovaird - Kennedy, Brampton	2023	2026
151121	Base	Cable Injection Project - (V43) - Hwy 7 and Pine Valley Dr, Vaughan	2020	Completed or Closing out
151351	Base	Cable Injection Project - (M32) - Hwy 7 - Main - 14th - Warden, Markham	2022	Completed or Closing out
150026	Base	Cable Injection Project - (M43) - John and Woodbine, Markham	2020	Completed or Closing out
150021	Base	Cable Injection Project - (V36) - Steeles and Pine Valley, Vaughan	2020	Completed or Closing out
151355	Base	Cable Injection Project - (M26) - Hwy 7 -McCowan - 14th - Old Kennedy, Markham	2023	2022
151459	M-Factor	Cable Injection Project - (V24) - Langstaff - Jane - Rutherford - Keele, Vaughan	2024	2024
151418	Base	Cable Replacement Project- Innovator & Courtney Park E (4), Mississauga	2023	Deferred Beyond 2026

Project Number	Funding	Project Name	DSP Year	Adjusted Capital Plan Year
151310	Base	Cable Injection Project - (E4) - Queen - McLaughlin - Steeles - Chinguacousy, Brampton	2023	Paritally Completed Remaing beyond 2026
151336	Base	Cable Replacement Project - (BA22) - Sunnidale and Anne, Barrie	2024	2025
151305	Base	Cable Injection Project - (HAM) - Stone Church - Upper Sherman - Rymal - Upper Wellington	2025	Deferred Beyond 2026
151176	Base	Cable Replacement Project - MS Argentia distribution feeder(s) upgrade	2020	Completed or Closing out
151404	Base	Cable Replacement Project- Central Pk E & Miss. Valley (28)	2021	Deferred Beyond 2026
151463	M-Factor	Cable Injection Project - (F4-G4) - Main - Steeles - Chinguacousy - Queen, Brampton	2024	2025
151306	Base	Cable Injection Project - (HAM) - Upper Wentworth - Lincoln M. Alexander - Upper Ottawa - Stone	2025	Deferred Beyond 2026
151432	Base	Cable Injection- 007- AREA 43 & 51- Hurontario & Derry Rd W, Mississauga	2024	2024
151403	Base	Cable Replacement Project- Montevideo & Battleford (19b), Mississauga	2021	2023
151359	Base	Cable Injection Project - (M16) - Major Mackenzie - 9th - 16th - Hwy 48, Markham	2023	Completed or Closing out
151464	M-Factor	Cable Injection Project - (F3-G3-H3) - Phase 2, Brampton	2023	Deferred Beyond 2026
151328	Base	Cable Replacement Project- (21a) Darcel & Brandon Gate, Mississauga	2021	Completed or Closing out
152387	M-Factor	Cable Injection Project - (V51) - Rainbridge Area of Vaughan	2024	2025
151420	Base	Cable Replacement Project-Eglinton & Credit Valley (5), Mississauga	2023	Deferred Beyond 2026
151433	Base	Cable Injection- 008- AREA46 - Glen Erin & Aquitane, Mississauga	2021	2023
151364	Base	Cable Injection Project - (V23) - Hwy 7 - Keele - Langstaff - Jane, Vaughan	2024	2023
151401	Base	Cable Replacement Project- (21b) Sigsbee & Morning Star, Mississauga	2021	Completed or Closing out
151348	Base	Cable Injection Project - (M20) - Hwy 7 - Markham - 14th - McCowan, Markham	2021	Completed or Closing out
151430	Base	Cable Injection- 005- AREA 38- Bristol & Creditview, Mississauga	2021	2024
151413	Base	Cable Replacement Project- Rathburn Rd W & Elora Dr (9), Mississauga	2023	Deferred Beyond 2026
151411	Base	Cable Replacement Project- Queensway & Mavis (31), Mississauga	2023	Deferred Beyond 2026
151319	Base	Cable Injection Project - (I4) -Queen - Dixie - Steeles - Hwy 410, Brampton	2022	Deferred Beyond 2026
151428	Base	Cable Injection- 002- AREA 30- Eglinton Ave W & Miss Rd, Mississauga	2022	2023
151276	Base	Cable Injection Project - (SCH) - Vansickle	2023	2026
151304	Base	Cable Injection Project - (HAM) - Stone Church - Garth - Lincoln M. Alexander	2020	2023
151462	M-Factor	Cable Injection Project - (G1) - Hwy 410 - Kennedy - Wanless - Main, Brampton	2022	2024
151344	Base	Cable Injection Project - (R16) - Major Mackenzie - Bayview - 16th - Yonge, Richmond Hill	2021	Completed or Closing out
151458	M-Factor	Cable Injection Project - (V31) - Langstaff - Weston - Rutherford - Jane, Vaughan	2023	2023
150263	Base	Cable Replacement Project - East Left Behind Cable	2024	2026
151416	Base	Cable Replacement Project- Woodchester & Thorn Lodge (34), Mississauga	2023	Deferred Beyond 2026
151356	Base	Cable Injection Project - (V44) - Langstaff - Pine Valley - Hwy 7 - Kipling, Vaughan	2023	Completed or Closing out
151297	Base	Cable Replacement Project - (HAM) - Govenors - Old Ancaster	2025	Deferred Beyond 2026
151317	Base	Cable Injection Project - (H4) - Queen - Hwy 410 - Steeles - Kennedy, Brampton	2023	Completed or Closing out
151426	Base	Cable Replacement Project-Southdown & Lakeshore (35), Mississauga	2024	Deferred Beyond 2026
151417	Base	Cable Replacement Project- Rathburn & Cawthra (27), Mississauga	2023	Deferred Beyond 2026
151286	Base	Cable Replacement Project - (H2) - Wanless - Heart Lake - Bovaird - Kennedy, Brampton	2024	Deferred Beyond 2026
151107	Base	Cable Replacement Project - 7143 Main Feeder	2020	Completed or Closing out
151422	Base	Cable Replacement Project-Queen St W & Paisley (30), Mississauga	2024	Deferred Beyond 2026
150141	Base	Cable Replacement Project – (M49) - Steeles and Fairway Heights, Markham	2020	Completed or Closing out
150572	Base	Cable Replacement Project - (J4) - Queen - Clark - Bramalea - Kensington - Knightsbridge, Bram	2020	Completed or Closing out
151311	Base	Cable Injection Project - (E5) - Steeles - Mclaughlin - Hwy 407 - Chinguacousy, Brampton	2022	Deferred Beyond 2026
151365	Base	Cable Injection Project - (V02) - Atkinson and Worth, Vaughan	2024	Completed or Closing out
151144	Base	Cable Replacement Project and Transformers Replacement - Rathburn Rd. W, Mississauga	2020	Completed or Closing out
151346	Base	Cable Injection Project - (M45) - Hwy 7 and Woodbine, Markham	2021	Completed or Closing out
151340	Base	Cable Replacement Project - (V29) - Hwy 7 - Jane - Steeles - Weston, Vaughan	2024	Deferred Beyond 2026

Project Number	Funding	Project Name	DSP Year	Adjusted Capital Plan Year
151427	Base	Cable Injection- 001- AREA 11- Truscott & Southdown, Mississauga	2022	Deferred Beyond 2026
151421	Base	Cable Replacement Project-Rathkeale Rd & Edenrose St (6), Mississauga	2024	Deferred Beyond 2026
151342	Base	Cable Injection Project - (M40) - Major Mackenzie - Warden - 16th - Woodbine, Markham	2021	Completed or Closing out
151419	Base	Cable Replacement Project- Thomas St & Hillside (24), Mississauga	2023	Deferred Beyond 2026
151435	Base	Cable Injection- 010 - Area 56- Derry Rd W & Ninth Line, Mississauga	2024	2024
151425	Base	Cable Replacement Project-Rathburn Rd E & Tomken (10), Mississauga	2024	Deferred Beyond 2026
151290	Base	Cable Replacement Project - (I3) - Bovaird - Dixie - Queen - Hwy 410, Brampton	2024	2025
151347	Base	Cable Injection Project - (V40) - Teston - Weston - Major Mackenzie - Pine Valley, Vaughan	2021	Completed or Closing out
151281	Base	Cable Replacement Project - (SCH) - Lake - Linwell - Geneva - Scott	2021	2023
151181	Base	Cable Replacement Project - Left Behind Cable, Brampton	2024	2026
151423	Base	Cable Replacement Project-Old Carriage Road (33), Mississauga	2024	Deferred Beyond 2026
151341	Base	Cable Injection Project - (M15) - 16th - Markham - 9th - Hwy 7, Markham	2021	Completed or Closing out
151345	Base	Cable Injection Project - (M51) - 14th - Bayview - Steeles - Yonge, Markham	2021	Completed or Closing out
151343	Base	Cable Injection Project - (M14) - Hwy 7 - Markham - 9th - 14th, Markham	2021	Completed or Closing out
151338	Base	Cable Replacement Project- (BA15) - Burton - Huronia - Little - Bayview, Barrie	2024	Deferred Beyond 2026
151912	Base	Cable Replacement Project – (V51) – Ashbridge Traffic Circle area in Vaughan	2021	2023
151335	Base	Cable Replacement Project - (BA14) - Tifffin and Hwy 400, Barrie	2023	Deferred Beyond 2026
151324	Base	Cable Injection Project - (M3) - Castlemore - Goreway - Queen - Airport, Brampton	2022	2025
151350	Base	Cable Injection Project - (M22) - Major Machenzie - Hwy 48 - 16th - McCowan, Markham	2022	Completed or Closing out
151330	Base	Cable Replacement Project - (A01) - Henderson - Yonge - Bloomington - Bathurst, Aurora	2021	Deferred Beyond 2026
151321	Base	Cable Injection Project - (J5) - Steeles - Bramalea - Hwy 407 - Dixie, Brampton	2021	Completed or Closing out
151224	Base	Cable Replacement - (920) - Scottsdale Drive Subdivision, Guelph	2020	Deferred Beyond 2026
151137	Base	Cable Replacement Project - Main Fedeer(s) upgrade - 68F2, 68F4, 68F7, 83F5, 83F3	2020	Completed or Closing out
151323	Base	Cable Injection Project - (L4) - Queen - Airport - Steeles - Torbram, Brampton	2023	Deferred Beyond 2026
151283	Base	Cable Replacement Project - (HAM) - Mohawk	2022	Deferred Beyond 2026
151333	Base	Cable Replacement Project - (BA9) - Little - Fairview - Harvie - Ferndale, Barrie	2022	Deferred Beyond 2026
151385	Base	Cable Replacement - (892) - 30-250 Janefield Ave Subdivision, Guelph	2021	2025
151295	Base	Cable Replacement Project - (SCH) - Welland - Bunting - Carlton - Cushman	2021	2022
151436	Base	Cable Injection-011 - Area 58 & 59- Winston Churchill & The Collegeway, Mississauga	2022	2024
151331	Base	Cable Replacement Project - (V41) - Stephanie Blvd, Vaughan	2021	Deferred Beyond 2026
151386	Base	Cable Replacement - (278) - 31 Greengate Rd Subdivision, Guelph	2022	Deferred Beyond 2026
151292	Base	Cable Replacement Project- (K4) - Queen - Torbram - Steeles - Bramalea	2021	Deferred Beyond 2026
151353	Base	Cable Injection Project - (V41) - Kirby - Weston - Teston - Pine Valley, Vaughan	2022	Completed or Closing out
151332	Base	Cable Replacement Project - (BA20) - Bayfield and Simcoe, Barrie	2024	2026
151309	Base	Cable Injection Project - (E3) - Bovaird - McLaughlin - Queen - Chinguacousy, Brampton	2022	2026
151354	Base	Cable Injection Project - (V52) - Rutherford - Kipling - Langstaff - Hwy 27, Vaughan	2022	Completed or Closing out
151372	Base	Cable Replacement - (451) - Country Club Dr Subdivision, Guelph	2022	Completed or Closing out
151134	Base	Cable Replacement Project - Winston Churchill consolidation - 49F6 and 49F4	2020	Completed or Closing out
151408	Base	Cable Replacement Project- Burnhamthorpe & Miss. Road (13), Mississauga	2022	2023
151320	Base	Cable Injection Project - (I5) - Steeles - Dixie - Hwy 407 - Hwy 410, Brampton	2023	Deferred Beyond 2026
151371	Base	Cable Replacement - (87) - Marksam Rd/ Rhonda Rd Subdivision, Guelph	2022	Completed or Closing out
150019	Base	Cable Injection Project - (M41) - Woodbine and Elgin Mills, Markham	2020	Completed or Closing out
151410	Base	Cable Replacement Project-Roselle & Priority Cres (2), Mississauga	2022	Deferred Beyond 2026
151308	Base	Cable Injection Project - (HAM) - Hollybush - Parkside - Dundas - Spring Creek	2024	2024
151288	Base	Cable Replacement Project - (H4) - Queen - Hwy 410 - Steeles - Kennedy, Brampton	2023	Deferred Beyond 2026

Project Number	Funding	Project Name	DSP Year	Adjusted Capital Plan Year
151296	Base	Cable Injection Project - (SCH) - Welland - Bunting - Carlton - Cushman	2020	2023
151357	Base	Cable Injection Project - (V34) - Kirby - Jane - Teston - Weston, Vaughan	2023	Completed or Closing out
151374	Base	Cable Replacement - (893) - Janefield Ave Subdivision, Guelph	2024	2023
151387	Base	Cable Replacement - (833) - 295 Water St Subdivision, Guelph	2023	Deferred Beyond 2026
151337	Base	Cable Replacement Project - (BA18) - Ferndale and Benson, Barrie	2023	Completed or Closing out
151326	Base	Cable Replacement Project - (V44) - Hayhoe - Islington - Hwy 7, Vaughan	2021	Completed or Closing out
151388	Base	Cable Replacement - (724) - 30 Hadati Rd, Guelph	2024	Deferred Beyond 2026
151291	Base	Cable Replacement Project - (I4) - Queen - Dixie - Steeles - Hwy 410, Brampton	2024	Deferred Beyond 2026
151358	Base	Cable Injection Project - (V62) - Kirby - Hwy 27 - Nashville - Huntington, Vaughan	2023	Completed or Closing out
151146	Base	Cable Replacement and Transformers Replacement - Project - Folkway, Mississauga	2020	Completed or Closing out
151282	Base	Cable Replacement Project - (SCH) - Weiden	2021	Completed or Closing out
151312	Base	Cable Injection Project - (F2) - Wanless - Main - Bovaird - McLaughlin, Brampton	2022	Deferred Beyond 2026
150254	M-Factor	Cable Replacement Project - (A02) - Steeplechase Ave, Aurora	2020	Completed or Closing out
151322	Base	Cable Injection Project - (K4) - Queen - Torbram - Steeles - Bramalea, Brampton	2021	Deferred Beyond 2026
151405	Base	Cable Replacement Project- Erin Mills & N.Sheridan (16), Mississauga	2021	Deferred Beyond 2026
150139	Base	Cable Replacement Project – (B19) - Donald St and Simcoe Terrace, Barrie	2020	Completed or Closing out
151434	Base	Cable Injection- 009- AREA 54- Highway 401 & Argentia, Mississauga	2023	Deferred Beyond 2026
151465	M-Factor	Cable Replacement - Mississauga Left Behind Cable	2024	2026
151284	Base	Cable Replacement Project - (E3) - Bovaird - McLaughlin - Queen - Chinguacousy, Brampton	2023	Deferred Beyond 2026
151293	Base	Cable Replacement Project - (SCH) - Lakeshore - Stanley - Parnell - Chancery	2021	Deferred Beyond 2026
151327	Base	Cable Replacement Project - (BR6) - 8th and Dissette, Bradford	2021	Completed or Closing out
151373	Base	Cable Replacement - (923) - Scottsdale Drive Subdivision, Guelph	2023	2026
150257	M-Factor	Cable Replacement Project - (V15) - Jardin Dr, Vaughan	2020	Completed or Closing out
151406	Base	Cable Replacement Project- Rathburn Rd W & Queenbridge (8), Mississauga	2021	Deferred Beyond 2026
151334	Base	Cable Replacement Project - (BA13) - Dunlop and Miller, Barrie	2021	Completed or Closing out
151294	Base	Cable Injection Project - (SCH) - Lakeshore - Stanley - Parnell - Chancery	2020	Completed or Closing out
151287	Base	Cable Replacement Project - (SCH) - Bolger - Elma - Dorothy - The Meadows	2021	Completed or Closing out
151280	Base	Cable Injection Project - (SCH) - Millward - Jeanette Drive - Trevor	2020	Completed or Closing out
151279	Base	Cable Injection Project - (SCH) - Jacobson - Chestnut - Woodcrest	2024	Completed or Closing out
151285	Base	Cable Replacement Project - (G2) - Wanless - Kennedy - Bovaird - Main, Brampton	2024	Deferred Beyond 2026
150262	M-Factor	Cable Replacement Project - (M33) - 16th Avenue and Village Parkway, Markham	2022	2025
151469	M-Factor	Cable Replacement Project - (F4-G4) - Main - Steeles - Chinguacousy - Queen, Brampton	2024	2026
151466	M-Factor	Cable Replacement Project - (V24) - Langstaff - Jane - Rutherford - Keele, Vaughan	2024	Deferred Beyond 2026
151468	M-Factor	Cable Replacement Project - (V51) - Langstaff - Kipling - Hwy 7 - Hwy 27, Vaughan	2024	Deferred Beyond 2026
151178	M-Factor	Cable Replacement Project - Mason Heights	2020	Completed or Closing out
151431	Base	Cable Injection- 006- AREA 39- Erin Mills Pkway & Thomas St, Mississauga	2024	2026
151467	M-Factor	Cable Replacement Project - (V17) - Langstaff - Keele - Rutherford - Dufferin, Vaughan	2024	Deferred Beyond 2026
151179	M-Factor	Cable Replacement Project - Area of Erin Mills Parkway and South Millway	2020	Completed or Closing out
151141	M-Factor	Cable Replacement and Transformers replacement - Project - Windjammer, Mississauga	2020	Completed or Closing out
150138	M-Factor	Cable Replacement Project – (BA23-BA24) - Cook St and Steel St, Barrie	2023	Deferred Beyond 2026
151145	M-Factor	Cable Replacement Project - Bough Beeches Blvd.	2020	Completed or Closing out
151143	M-Factor	Cable Replacement and Transformers Replacement -Project - Shelter Bay Rd. Mississauga	2020	Completed or Closing out
150255	M-Factor	Cable Replacement Project - (B23) - Cundles Rd and Janine St, Barrie	2023	2024

AMPCO-25

Reference: General

Please provide the Operating and Maintenance (O&M) investment amounts ($) for underground cable for each of the years 2016 to 2021.

Response:

OM&A for underground cable for 2020 and 2021 was $7.9MM and $10.4MM, respectively. Alectra Utilities' Brampton, Horizon Utilities, PowerStream and Enersource RZs migrated to Alectra Utilities' Enterprise Resource Planning ('ERP") system in July 2019. Alectra Utilities is unable to provide this data for prior years on a consistent basis.

AMPCO-26

Reference: Exhibit 3, Tab 1, Schedule 4

a) Please provide the total km of XLPE cable in PRZ and ERZ and the cable renewal rate for each rate zone for each of the years 2016 to 2024.

Response:

a) Please refer to Tables 1 and 2.

Table 1 – PRZ Cable Population and Cable Renewal Rate for Years 2016 – 2024

	PRZ								
Metric	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Cable Replacement (km)	38	36	27	9	27	17	15	20	20
Cable Injection (km)	61	42	40	62	82	60	92	63	95
Total Cable Renewal (km)	92	69	58	86	108	77	107	83	115
2020 XLPE Cable Population for PRZ (km)	8,603	8,603	8,603	8,603	8,603	8,603	8,603	8,603	8,603
Renewal Rate (Total Cable Renewal / 2020 Cable Population)	1.07%	0.80%	0.67%	1.00%	1.26%	0.90%	1.24%	0.97%	1.34%

Table 2 – ERZ Cable Population and Cable Renewal Rate for Years 2016 – 2024

	ERZ								
Metric	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Cable Replacement (km)	9	20	56	25	44	17	22	13	9
Cable Injection (km)	0	0	0	0	0	0	26	30	39
Total Cable Renewal (km)	38	53	33	17	29	9	48	43	48
2020 XLPE Cable Population for ERZ (km)	6,186	6,186	6,186	6,186	6,186	6,186	6,186	6,186	6,186
Renewal Rate (Total Cable Renewal / 2020 Cable Population)	0.62%	0.86%	0.54%	0.28%	0.46%	0.15%	0.78%	0.69%	0.77%

AMPCO-27

Reference: EB-2019-0018 Responses to SEC Questions Delivered: October 11, 2019, Question-SEC d)

Alectra provided a forecast of ROE for the 2020 to 2024 period as shown in Table 1, below.

Table 1 – ROE Forecast

	2020	2021	2022	2023	2024
ROE	6.80%	6.80%	7.10%	6.50%	6.40%

Please provide 2020 actuals and the updated forecast for 2022, 2023 and 2024.

Response:

Alectra Utilities' 2020 and 2021 actual ROE and forecast for 2022, 2023 and 2024 are provided in Table 1, below.

Table 1 - ROE

	2020 Actual	2021 Actual	2022 Forecast	2023 Forecast	2024 Forecast
ROE	6.55%	7.95%	8.62%	8.20%	7.56%

The 2020 and 2021 Actual ROE are based on Alectra Utilities' Reporting and Record-Keeping Requirements ("RRR") 2.1.5.6 ROE filing, adjusted to exclude the net OM&A merger savings adjustment.[1] In response to 1-Staff-25 b), Alectra Utilities confirmed OEB staff's recalculation of 2021 ROE excluding net OM&A merger savings of 7.95%. To ensure the forecast for 2022 to 2024 were comparable, they were calculated consistent with the 2020 and 2021 actual values and includes adjustments required for the purposes of the OEB's ROE calculation.

Please note that the response to SEC d) did not include the same adjustments included in the 2020 to 2024 ROE in Table 1.

[1] 2020 and 2021 RRR ROE filed with the OEB (inclusive of the net OM&A adjustment) was 4.80% and 6.18%.