Report to the Ontario Energy Board

Activities and Program Benchmarking: 2020 Results

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Table of Contents

1. Introduction and Summary

In 2018, Ontario Energy Board ("OEB") staff began a project to benchmark granular costs that utilities incur at the activity level (e.g., reported right of way expenses) or program level (e.g., tree-trimming costs). This came to be called the activities and programs benchmarking ("APB") project. The project has focused on granular operation and maintenance ("O&M") expenses and capital expenditures ("capex") of power distributors. Pacific Economics Group Research LLC ("PEG") was chosen as project consultant.

PEG prepared a concept paper that discussed the challenges of granular cost benchmarking and considered alternative benchmarking methods. Several working group sessions were conducted to draw input from stakeholders and inform them of the state of the initiative. OEB staff prepared a discussion paper that identified 19 activities that were shortlisted to 10 activities for benchmarking. These categories included additions to property plant and equipment (capex) as well as O&M expenses. They consisted of the following cost areas

1. Billing O&M;
2. Meters O&M;
3. Vegetation management O&M;
4. Lines O&M;
5. Distribution station equipment O&M;
6. Poles, towers, and fixtures maintenance;
7. Distribution station equipment capex;
8. Pole, towers, and fixtures capex;
9. Line transformers capex;
10. Meter capex.

PEG prepared a report presenting benchmarking results for these 10 cost areas. The final version of this report was issued in May of 2021. A meeting was held on December 9, 2021 to gather input from stakeholders, at which OEB Staff presented their thoughts on APB and proposed changes to the work. The OEB sent a letter to industry and other interested parties on February 25th announcing changes to APB for this year and requested some additional data from industry in support of this effort. The specific data request and other APB documents can be found on the OEB's website. This report updates the benchmarking results for the 10 cost areas for 2020 data and implements new methods and

improved data. Section 2 presents the unit cost results. Section 3 presents the econometric models and results. Section 4 provides some commentary to aid interpretation of the results and highlights possible applications of APB.

2. Unit Cost Benchmarking Results

New work was undertaken to update the unit cost results for each of the ten granular cost categories using information expanded to include 2020 data. The unit cost research includes updates to the data, and in a few cases updates to the scale variable used as discussed in the December OEB Staff presentation. The unit cost results were calculated by OEB Staff.

Cost benchmarking is a process by which one attempts to explain differences in cost levels across similar companies. Each distributor will have a different level of cost, which will vary substantially for a variety of reasons. The most important reason cost will differ is size; some distributors have an inherently larger operating scale than others in that they serve more customers, have more km of wires, or are larger in some other relevant way. Accounting for the effect of the differences in operating scale is the first step in explaining why some distributors have higher levels of cost than others. This is accomplished by choosing a scale variable relevant to the cost area being benchmarked. It is often easy to identify options, but econometric modeling can help when trying to decide on the best to use among multiple candidates. The latest unit cost benchmarking work features some new scale variables as discussed in the December OEB presentation. Results for each cost area are briefly discussed followed by tables for each of the ten cost areas. Missing results on these tables are due to a variety of reasons and do not factor into the calculation of the industry average results.[1] Several distributors did not provide all the data required for these calculations in time for the publication of this report[2]. OEB Staff is planning to periodically update the unit cost work between reports and provide updates as new data become available.

[1] Reasons for missing results include data that have not been provided or provided too late to incorporate in this report. Zero and negative cost values have also been excluded from the analysis.

[2] The distributors and tables for which unit cost results are expected to become available are as follows: Hydro One Networks (3,5,6,7,8,9), Essex (3,6,8,9,10), PUC Distribution (3,6,8,9), Rideau St. Lawrence (3,5,6,7,8,9) and Tillsonburg (3,5,6,7,8,9).

Billing O&M

Table 1 summarizes the unit cost results for billing O&M. The data required was available for all distributors. Total cost ranges from $80 thousand to $44.7 million and the maximum value is 558 times the minimum value. The scale variable used to help explain the extreme variation in distributors' billing cost is the number of customers, which is the same as in the previous work. The average distributor has a cost per customer of $35.75 for the 2018-2020 period. The observed cost per customer ranges from $11.35 to $115.06. The ratio of the maximum value to the minimum value is only 10.14 which is much lower than the cost variation ratio of 558. This dramatic reduction in variation is the reason scale is the most important explanatory variable and unit cost indexes are the first step in explaining cost.

The distribution of the results is also interesting to note. PEG has used the number of distributors within 50% of the average for all distributors as an indication of the degree of dispersion remaining after controlling for scale. 61% percent of distributors are within 50% of the average. A large number of results that significantly deviate from the average suggests there is substantial variation that remains unexplained by the scale variable.[3] Analyzing relative price levels and distributor-specific circumstances may help explain some of the remaining variation in results. The econometric work presented in Section 3 of this report attempts to adjust for additional business conditions as far as they are identifiable and measurable.

Meter O&M

Table 2 summarizes the unit cost results for meter maintenance. The scale variable used to help explain the cost variation is the number of customers, as it was in the previous work. The average distributor has a cost per customer of $19.68 for the 2018-2020 period. The observed cost per customer values range from $3.88 to $73.61. 72% of distributors are within 50% of the average.

Vegetation Management

Table 3 summarizes the unit cost results for vegetation management. The scale variable used to help explain distributor cost variation is the total number of poles in the system and is the same as in the previous work. The average distributor has a cost per pole of $35.18 for the 2018-2020 period. The

[3] Dispersion of results was discussed in greater detail in the previous PEG report.

observed cost per customer values range from $6.40 to $120.66 and 68% of distributors are within 50% of the average.

Lines O&M

Table 4 summarizes the unit cost results for lines O&M. The scope of the lines O&M to be considered has been narrowed to exclude the high voltage accounts to improve the comparability among distributors. The scale variable selected to help explain the cost variation is the circuit-km of primary line, which is different than the previous work. The average distributor has a cost per km of $1,814 for the 2018-2020 period. The distributor cost per km values range from $366 to $6,164 and 60% of distributors are within 50% of the average.

Distribution Station Equipment O&M

Tables 5 summarizes the unit cost results for distribution station equipment O&M. The scope of cost considered is now restricted to the low voltage distribution accounts (5016, 5017, 5114) to allow for greater comparability among distributors. The previous scale variable used was number of stations. OEB staff received a variety of comments which were divided between using capacity and continuing to use number of stations. In seeking to include both station capacity and number of stations in a single measure, OEB Staff decided to feature average station capacity in the unit cost work for this report.[4]

Using average MVA shown in Table 5, the average distributor has a unit cost per $68,109 per average MVA. The observed cost per average MVA values range from $331 to $1,729,436. The ratio of the maximum value to the minimum value is 5,232 and 20% of distributors are within 50% of the average.

Maintenance of Poles, Towers and Fixtures

Table 6 summarizes the unit cost results for pole maintenance. All but three distributors had enough data to calculate unit cost for at least one of the three years 2018-2020. The scale variable used to help explain the cost variation is the total number of poles in the system and is the same as in the previous work. The average distributor has a cost per customer of $10.65 for the 2018-2020 period.

[4] Improvements in how to better address both station capacity and number of substations simultaneously in the unit cost work has been identified as a priority area for future research.

The observed cost per customer values range from $0.42 to $45.73 and 45% of distributors are within 50% of the average.

Capital Expenditures: Distribution Station Equipment

Tables 7 summarizes the unit cost results for station capex. The scope of cost has been reduced to only consider distribution stations. The previous scale variable used was number of stations. The average MVA per station which was chosen by OEB Staff for Distribution Station Equipment is also used here for station capex.

Using average MVA shown in Table 7, the average distributor has a unit cost per $223,325 per average MVA. The observed cost per average MVA values range from $109 to $5,789,833. The ratio of the maximum value to the minimum value is 53,158 and 13% of distributors are within 50% of the average.

Capital Expenditures: Poles, Towers, and Fixtures

Table 8 summarizes the unit cost results for pole, towers and fixtures capex. The scale variable used to help explain this variation is the total number of poles added which is different than the previous work. The average distributor has a cost per pole added of $7,538 for the 2018-2020 period. The observed cost per pole added ranges from $2,227 to $14,638 and 65% of distributors are within 50% of the average.

Capital Expenditures: Line Transformers

Table 9 summarizes the unit cost results for line transformer capex. The scale variable used to help explain this variation is the transformers added which is different than the previous work. The average distributor has a cost per transformer added of $10,930 for the 2018-2020 period. The observed cost per transformer added ranges from $3,028 to $102,268 and 75% of distributors are within 50% of the average.

Capital Expenditures: Meters

Table 10 summarizes the unit cost results for meter capex. The scale variable used to help explain this variation is the number of customers and is the same as in the previous work. The average distributor has a cost per customer of $13.21 for the 2018-2020 period. The observed cost per customer ranges from $2.55 to $57.53 and 68% of distributors are within 50% of the average.

Table 1

Unit Cost Indexes by Distributor: Billing O&M

Distributor	Cost ($1,000)				Scale (1,000 customers)				Unit Cost ($ / customer)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	13,939.7	32,307.5	28,891.0	25,046.1	1,047	1,055	1,062	1,054	$ 13.32	$ 30.63	$ 27.20	$ 23.72
Algoma Power Inc.	159.6	190.2	227.7	192.5	11.7	11.7	12.1	11.9	$ 13.62	$ 16.21	$ 18.78	$ 16.20
Atikokan Hydro Inc.	137.3	138.3	143.2	139.6	1.6	1.6	1.6	1.6	$ 83.93	$ 84.88	$ 88.00	$ 85.61
Bluewater Power Distribution Corporation	1,024.0	962.6	947.8	978.1	36.7	36.7	36.9	36.8	$ 27.91	$ 26.20	$ 25.67	$ 26.59
Brantford Power Inc.	959.9	1,004.5	1,043.5	1,002.6	39.9	40.1	40.7	40.2	$ 24.05	$ 25.03	$ 25.66	$ 24.92
Burlington Hydro Inc.	791.2	805.0	930.3	842.2	67.9	68.2	68.6	68.2	$ 11.65	$ 11.80	$ 13.57	$ 12.34
Canadian Niagara Power Inc.	473.9	423.4	393.7	430.3	29.2	29.5	29.7	29.5	$ 16.20	$ 14.37	$ 13.25	$ 14.61
Centre Wellington Hydro Ltd.	234.6	263.9	281.3	259.9	7.0	7.2	7.3	7.2	$ 33.41	$ 36.88	$ 38.63	$ 36.31
Chapleau Public Utilities Corporation	72.0	81.4	87.0	80.1	1.2	1.2	1.2	1.2	$ 59.58	$ 66.64	$ 71.14	$ 65.79
Cooperative Hydro Embrun Inc.	190.0	205.3	200.8	198.7	2.3	2.4	2.4	2.4	$ 82.43	$ 86.79	$ 83.37	$ 84.20
E.L.K. Energy Inc.	395.6	285.3	255.3	312.1	12.4	12.5	12.6	12.5	$ 31.95	$ 22.86	$ 20.24	$ 25.02
Elexicon Energy Inc.	4,734.9	3,650.0	4,940.2	4,441.7	164.7	167.7	169.5	167.3	$ 28.74	$ 21.77	$ 29.15	$ 26.55
Energy Plus Inc.	1,324.5	1,643.6	1,672.1	1,546.7	65.4	66.5	67.3	66.4	$ 20.25	$ 24.71	$ 24.84	$ 23.27
Entegrus Powerlines Inc.	1,464.8	1,110.8	1,143.3	1,239.6	59.2	59.8	60.6	59.9	$ 24.75	$ 18.57	$ 18.87	$ 20.73
EnWin Utilities Ltd.	1,457.2	1,457.2	1,534.1	1,482.8	89.0	89.6	90.1	89.5	$ 16.38	$ 16.27	$ 17.03	$ 16.56
EPCOR Electricity Distribution Ontario Inc.	441.7	508.2	546.6	498.8	17.4	17.9	18.2	17.8	$ 25.37	$ 28.37	$ 30.03	$ 27.92
ERTH Power Corporation	1,224.5	1,381.6	1,229.8	1,278.6	23.1	23.4	23.6	23.3	$ 52.98	$ 59.08	$ 52.22	$ 54.76
Espanola Regional Hydro Distribution Corpora	187.8	187.0	207.1	194.0	3.3	3.3	3.3	3.3	$ 56.84	$ 56.50	$ 62.24	$ 58.53
Essex Powerlines Corporation	707.1	695.2	799.7	734.0	30.0	30.4	30.7	30.4	$ 23.56	$ 22.87	$ 26.08	$ 24.17
Festival Hydro Inc.	568.1	598.9	595.8	587.6	21.4	21.4	21.7	21.5	$ 26.58	$ 28.01	$ 27.52	$ 27.37
Fort Frances Power Corporation	183.2	166.9	159.2	169.8	3.7	3.8	3.8	3.8	$ 48.93	$ 44.24	$ 42.34	$ 45.17
Greater Sudbury Hydro Inc.	1,994.0	1,560.1	1,553.5	1,702.5	47.6	47.7	47.9	47.7	$ 41.87	$ 32.69	$ 32.46	$ 35.67
Grimsby Power Incorporated	459.3	423.5	421.4	434.7	11.6	11.6	11.7	11.6	$ 39.76	$ 36.40	$ 36.06	$ 37.41
Halton Hills Hydro Inc.	391.3	389.0	322.0	367.4	22.4	22.5	22.6	22.5	$ 17.44	$ 17.27	$ 14.27	$ 16.33
Hearst Power Distribution Company Limited	201.5	206.5	229.3	212.4	2.7	2.7	2.7	2.7	$ 74.70	$ 76.50	$ 86.25	$ 79.15
Hydro 2000 Inc.	138.4	156.7	139.5	144.8	1.3	1.2	1.3	1.3	$ 109.65	$ 125.97	$ 109.55	$ 115.06
Hydro Hawkesbury Inc.	230.9	234.3	240.4	235.2	5.5	5.5	5.5	5.5	$ 41.62	$ 42.23	$ 43.92	$ 42.59
Hydro One Networks Inc.	47,295.2	41,998.7	44,910.3	44,734.7	1,385.2	1,395.9	1,413.5	1398.2	$ 34.14	$ 30.09	$ 31.77	$ 32.00
Hydro Ottawa Limited	8,531.1	8,224.5	7,851.5	8,202.4	335.3	339.8	346.3	340.5	$ 25.44	$ 24.21	$ 22.67	$ 24.11
Innpower Corporation	365.5	395.3	400.1	387.0	18.2	18.6	19.3	18.7	$ 20.13	$ 21.22	$ 20.75	$ 20.70
Kingston Hydro Corporation	326.4	357.0	394.4	359.3	27.7	27.8	27.7	27.7	$ 11.80	$ 12.85	$ 14.23	$ 12.96
Kitchener-Wilmot Hydro Inc.	2,122.2	2,297.0	2,438.8	2,286.0	96.8	97.7	99.0	97.9	$ 21.92	$ 23.51	$ 24.63	$ 23.35
Lakefront Utilities Inc.	210.4	231.7	223.6	221.9	10.5	10.5	10.6	10.5	$ 20.13	$ 21.98	$ 21.01	$ 21.04
Lakeland Power Distribution Ltd.	475.6	487.1	486.9	483.2	13.6	13.8	13.9	13.8	$ 34.86	$ 35.39	$ 34.94	$ 35.06
London Hydro Inc.	1,711.9	1,866.8	1,888.9	1,822.6	159.0	160.6	162.1	160.6	$ 10.76	$ 11.62	$ 11.65	$ 11.35
Milton Hydro Distribution Inc.	1,502.6	1,476.6	1,578.7	1,519.3	39.6	40.4	41.2	40.4	$ 37.96	$ 36.56	$ 38.30	$ 37.61
Newmarket-Tay Power Distribution Ltd.	584.9	815.9	914.0	771.6	43.5	43.9	44.2	43.9	$ 13.44	$ 18.57	$ 20.68	$ 17.57
Niagara Peninsula Energy Inc.	2,928.1	3,147.2	2,963.3	3,012.9	55.6	56.1	57.0	56.2	$ 52.67	$ 56.13	$ 52.01	$ 53.61
Niagara-on-the-Lake Hydro Inc.	320.1	286.5	360.5	322.4	9.5	9.6	9.6	9.6	$ 33.84	$ 29.97	$ 37.43	$ 33.74
North Bay Hydro Distribution Limited	462.0	383.0	427.0	424.0	24.2	24.2	24.3	24.2	$ 19.11	$ 15.83	$ 17.58	$ 17.51
Northern Ontario Wires Inc.	249.9	234.2	226.3	236.8	5.9	6.0	5.9	5.9	$ 42.22	$ 39.18	$ 38.18	$ 39.86
Oakville Hydro Electricity Distribution Inc.	1,380.1	1,537.7	1,566.4	1,494.7	72.1	73.1	74.0	73.1	$ 19.14	$ 21.03	$ 21.17	$ 20.44
Orangeville Hydro Limited	368.5	338.2	356.8	354.5	12.6	12.7	12.7	12.6	$ 29.29	$ 26.73	$ 28.10	$ 28.04
Oshawa PUC Networks Inc.	1,169.6	1,138.5	1,212.1	1,173.4	58.7	59.2	59.5	59.1	$ 19.91	$ 19.24	$ 20.38	$ 19.84
Ottawa River Power Corporation	427.1	441.1	589.0	485.7	11.2	11.3	11.4	11.3	$ 37.97	$ 38.97	$ 51.47	$ 42.80
PUC Distribution Inc.	446.4	476.2	347.0	423.2	33.6	33.6	33.8	33.7	$ 13.28	$ 14.15	$ 10.28	$ 12.57
Renfrew Hydro Inc.	293.2	312.1	312.0	305.8	4.3	4.3	4.3	4.3	$ 68.01	$ 72.16	$ 71.82	$ 70.66
Rideau St. Lawrence Distribution Inc.	368.1	383.2	360.5	370.6	5.9	5.9	5.9	5.9	$ 62.29	$ 64.85	$ 61.11	$ 62.75
Sioux Lookout Hydro Inc.	191.6	199.3	202.0	197.6	2.8	2.8	2.8	2.8	$ 67.49	$ 69.98	$ 71.10	$ 69.53
Synergy North Corporation	1,761.8	1,478.1	1,497.9	1,579.3	56.5	56.7	56.9	56.7	$ 31.17	$ 26.07	$ 26.33	$ 27.86
Tillsonburg Hydro Inc.	463.6	500.0	518.5	494.0	7.1	7.1	7.7	7.3	$ 65.08	$ 70.13	$ 67.17	$ 67.46
Toronto Hydro-Electric System Limited	9,626.2	16,632.5	22,199.9	16,152.9	772.6	777.9	779.2	776.6	$ 12.46	$ 21.38	$ 28.49	$ 20.78
Wasaga Distribution Inc.	553.8	595.4	500.1	549.8	13.8	14.0	14.2	14.0	$ 40.16	$ 42.52	$ 35.12	$ 39.27
Waterloo North Hydro Inc.	1,650.1	1,730.6	1,475.6	1,618.7	57.5	57.9	58.4	57.9	$ 28.71	$ 29.91	$ 25.25	$ 27.96
Welland Hydro-Electric System Corp.	923.2	900.4	914.8	912.8	23.4	23.7	24.1	23.7	$ 39.51	$ 38.05	$ 38.03	$ 38.53
Wellington North Power Inc.	108.4	110.1	102.7	107.0	3.8	3.8	3.9	3.8	$ 28.49	$ 28.73	$ 26.60	$ 27.94
Westario Power Inc.	277.0	383.7	378.6	346.4	23.5	23.8	24.0	23.8	$ 11.76	$ 16.14	$ 15.80	$ 14.57
Distributor Average				**$ 2,388**				**92.20**				**$ 35.75**
Maximum	47,295.2	41,998.7	44,910.3	44,734.7	1,385.2	1,395.9	1,413.5	1,398.2	$ 109.65	$ 125.97	$ 109.55	$ 115.06
Minimum	72.0	81.4	87.0	80.1	1.2	1.2	1.2	1.2	$ 10.76	$ 11.62	$ 10.28	$ 11.35
Maximum / Minimum	657.1	515.7	516.2	558.2	1,146.7	1,142.3	1,155.7	1,148.3	10.19	10.84	10.65	10.14

Table 2

Unit Cost Indexes by Distributor: Meter Maintenance

Distributor	Cost ($1,000)				Scale (1,000 customers)				Unit Cost ($ per customer)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	15,664.9	9,045.4	3,579.5	9,429.9	1,046.8	1,054.6	1,062.0	1,054.5	$ 14.96	$ 8.58	$ 3.37	8.97
Algoma Power Inc.	877.3	829.7	912.4	873.1	11.7	11.7	12.1	11.9	$ 74.85	$ 70.72	$ 75.25	$ 73.61
Atikokan Hydro Inc.	86.2	85.2	93.6	88.3	1.6	1.6	1.6	1.6	$ 52.66	$ 52.32	$ 57.52	$ 54.17
Bluewater Power Distribution Corporation	813.2	759.3	746.9	773.1	36.7	36.7	36.9	36.8	$ 22.16	$ 20.67	$ 20.23	$ 21.02
Brantford Power Inc.	886.9	874.3	752.6	837.9	39.9	40.1	40.7	40.2	$ 22.23	$ 21.79	$ 18.51	$ 20.84
Burlington Hydro Inc.	772.6	693.3	875.9	780.6	67.9	68.2	68.6	68.2	$ 11.37	$ 10.17	$ 12.77	$ 11.44
Canadian Niagara Power Inc.	798.3	866.8	804.0	823.0	29.2	29.5	29.7	29.5	$ 27.29	$ 29.43	$ 27.05	$ 27.92
Centre Wellington Hydro Ltd.	202.3	213.2	209.8	208.5	7.0	7.2	7.3	7.2	$ 28.81	$ 29.79	$ 28.81	$ 29.14
Chapleau Public Utilities Corporation	41.6	41.9	42.9	42.1	1.2	1.2	1.2	1.2	$ 34.45	$ 34.31	$ 35.05	$ 34.60
Cooperative Hydro Embrun Inc.		12.0	6.5	9.2	2.3	2.4	2.4	2.4		$ 5.06	$ 2.69	$ 3.88
E.L.K. Energy Inc.	244.6	246.4	239.4	243.5	12.4	12.5	12.6	12.5	$ 19.75	$ 19.75	$ 18.98	$ 19.49
Elexicon Energy Inc.	1,744.0	1,211.1	1,389.8	1,448.3	164.7	167.7	169.5	167.3	$ 10.59	$ 7.22	$ 8.20	$ 8.67
Energy Plus Inc.	1,373.9	1,344.3	1,297.9	1,338.7	65.4	66.5	67.3	66.4	$ 21.01	$ 20.21	$ 19.28	$ 20.16
Entegrus Powerlines Inc.	551.6	389.1	471.7	470.8	59.2	59.8	60.6	59.9	$ 9.32	$ 6.51	$ 7.79	$ 7.87
EnWin Utilities Ltd.	1,301.2	1,422.3	1,353.9	1,359.1	89.0	89.6	90.1	89.5	$ 14.62	$ 15.88	$ 15.03	$ 15.18
EPCOR Electricity Distribution Ontario Inc.	502.0	453.7	422.7	459.5	17.4	17.9	18.2	17.8	$ 28.84	$ 25.32	$ 23.22	$ 25.79
ERTH Power Corporation	329.8	433.9	433.4	399.0	23.1	23.4	23.6	23.3	$ 14.27	$ 18.56	$ 18.40	$ 17.08
Espanola Regional Hydro Distribution Corpora	76.9	108.9	66.9	84.2	3.3	3.3	3.3	3.3	$ 23.29	$ 32.90	$ 20.10	$ 25.43
Essex Powerlines Corporation	388.8	346.8	247.3	327.7	30.0	30.4	30.7	30.4	$ 12.95	$ 11.41	$ 8.07	$ 10.81
Festival Hydro Inc.	626.9	615.2	615.8	619.3	21.4	21.4	21.7	21.5	$ 29.34	$ 28.77	$ 28.44	$ 28.85
Fort Frances Power Corporation	62.9	98.6	67.5	76.3	3.7	3.8	3.8	3.8	$ 16.81	$ 26.13	$ 17.95	$ 20.29
Greater Sudbury Hydro Inc.	769.5	809.7	828.9	802.7	47.6	47.7	47.9	47.7	$ 16.16	$ 16.97	$ 17.32	$ 16.81
Grimsby Power Incorporated	303.4	230.4	289.2	274.3	11.6	11.6	11.7	11.6	$ 26.26	$ 19.81	$ 24.75	$ 23.61
Halton Hills Hydro Inc.	97.6	116.7	95.8	103.4	22.4	22.5	22.6	22.5	$ 4.35	$ 5.18	$ 4.24	$ 4.59
Hearst Power Distribution Company Limited	38.9	34.4	21.1	31	2.7	2.7	2.7	2.7	$ 14.41	$ 12.75	$ 7.92	$ 11.69
Hydro 2000 Inc.	15.6	8.1	7.6	10.4	1.3	1.2	1.3	1.3	$ 12.38	$ 6.49	$ 5.94	$ 8.27
Hydro Hawkesbury Inc.	46.0	34.8	52.3	44.4	5.5	5.5	5.5	5.5	$ 8.30	$ 6.27	$ 9.55	$ 8.04
Hydro One Networks Inc.	32,059.2	29,411.0	27,307.4	29,592.5	1,385.2	1,395.9	1,413.5	1,398.2	$ 23.14	$ 21.07	$ 19.32	$ 21.18
Hydro Ottawa Limited	2,535.6	2,355.3	2,051.5	2,314.1	335.3	339.8	346.3	340.5	$ 7.56	$ 6.93	$ 5.92	$ 6.81
Innpower Corporation	307.9	291.1	276.2	291.7	18.2	18.6	19.3	18.7	$ 16.95	$ 15.62	$ 14.33	$ 15.63
Kingston Hydro Corporation	623.2	659.2	722.0	668.1	27.7	27.8	27.7	27.7	$ 22.53	$ 23.73	$ 26.05	$ 24.10
Kitchener-Wilmot Hydro Inc.	1,490.6	1,685.3	1,726.7	1,634.2	96.8	97.7	99.0	97.9	$ 15.39	$ 17.25	$ 17.44	$ 16.69
Lakefront Utilities Inc.	293.1	282.4	281.7	285.7	10.5	10.5	10.6	10.5	$ 28.04	$ 26.77	$ 26.48	$ 27.10
Lakeland Power Distribution Ltd.	176.6	168.8	220.3	188.5	13.6	13.8	13.9	13.8	$ 12.94	$ 12.26	$ 15.81	$ 13.67
London Hydro Inc.	3,028.3	3,309.7	3,267.4	3,201.8	159.0	160.6	162.1	160.6	$ 19.04	$ 20.61	$ 20.15	$ 19.93
Milton Hydro Distribution Inc.	679.7	636.6	705.6	674.0	39.6	40.4	41.2	40.4	$ 17.17	$ 15.76	$ 17.12	$ 16.68
Newmarket-Tay Power Distribution Ltd.	789.3	925.6	864.1	859.7	43.5	43.9	44.2	43.9	$ 18.13	$ 21.07	$ 19.56	$ 19.59
Niagara Peninsula Energy Inc.	989.6	984.1	1,123.1	1,032.3	55.6	56.1	57.0	56.2	$ 17.80	$ 17.55	$ 19.71	$ 18.36
Niagara-on-the-Lake Hydro Inc.	189.9	183.2	191.3	188.1	9.5	9.6	9.6	9.6	$ 20.07	$ 19.17	$ 19.86	$ 19.70
North Bay Hydro Distribution Limited	530.1	578.3	630.1	579.5	24.2	24.2	24.3	24.2	$ 21.93	$ 23.90	$ 25.94	$ 23.92
Northern Ontario Wires Inc.	255.8	269.7	258.8	261.4	5.9	6.0	5.9	5.9	$ 43.22	$ 45.12	$ 43.65	$ 44.00
Oakville Hydro Electricity Distribution Inc.	1,247.8	1,362.1	1,292.2	1,300.7	72.1	73.1	74.0	73.1	$ 17.30	$ 18.62	$ 17.46	$ 17.80
Orangeville Hydro Limited	242.3	268.7	234.4	248.5	12.6	12.7	12.7	12.6	$ 19.26	$ 21.24	$ 18.46	$ 19.65
Oshawa PUC Networks Inc.	896.5	1,093.2	806.4	932.0	58.7	59.2	59.5	59.1	$ 15.26	$ 18.47	$ 13.56	$ 15.76
Ottawa River Power Corporation	166.7	198.1	143.7	169.5	11.2	11.3	11.4	11.3	$ 14.82	$ 17.50	$ 12.56	$ 14.96
PUC Distribution Inc.	727.4	722.1	684.0	711.2	33.6	33.6	33.8	33.7	$ 21.64	$ 21.46	$ 20.27	$ 21.12
Renfrew Hydro Inc.	36.0	30.2	66.0	44.1	4.3	4.3	4.3	4.3	$ 8.34	$ 6.98	$ 15.19	$ 10.17
Rideau St. Lawrence Distribution Inc.	98.5	72.4	83.1	84.7	5.9	5.9	5.9	5.9	$ 16.67	$ 12.25	$ 14.08	$ 14.34
Sioux Lookout Hydro Inc.	73.7	96.3	85.1	85.1	2.8	2.8	2.8	2.8	$ 25.97	$ 33.82	$ 29.96	$ 29.92
Synergy North Corporation	497.3	593.4	482.0	524.2	56.5	56.7	56.9	56.7	$ 8.80	$ 10.47	$ 8.47	$ 9.25
Tillsonburg Hydro Inc.	123.2	62.4	105.4	97.0	7.1	7.1	7.7	7.3	$ 17.30	$ 8.75	$ 13.65	$ 13.23
Toronto Hydro-Electric System Limited	5,193.3	5,556.2	5,655.8	5,468.5	772.6	777.9	779.2	776.6	$ 6.72	$ 7.14	$ 7.26	$ 7.04
Wasaga Distribution Inc.	224.9	232.2	171.5	209.5	13.8	14.0	14.2	14.0	$ 16.31	$ 16.59	$ 12.04	$ 14.98
Waterloo North Hydro Inc.	819.9	867.4	910.7	866.0	57.5	57.9	58.4	57.9	$ 14.27	$ 14.99	$ 15.58	$ 14.95
Welland Hydro-Electric System Corp.	273.0	291.4	326.2	296.9	23.4	23.7	24.1	23.7	$ 11.68	$ 12.31	$ 13.56	$ 12.52
Wellington North Power Inc.	147.2	160.4	133.4	147.0	3.8	3.8	3.9	3.8	$ 38.68	$ 41.87	$ 34.57	$ 38.37
Westario Power Inc.	547.0	562.8	445.9	518.6	23.5	23.8	24.0	23.8	$ 23.23	$ 23.67	$ 18.62	$ 21.84
Distributor Average				**$ 1,323**				**92.2**			**$**	**19.68**
Maximum	32,059.2	29,411.0	27,307.4	29,592.5	1,385.2	1,395.9	1,413.5	1,398.2	$ 74.85	$ 70.72	$ 75.25	$ 73.61
Minimum	15.6	8.1	6.5	9.2	1.2	1.2	1.2	1.2	$ 4.35	$ 5.06	$ 2.69	$ 3.88
Maximum / Minimum	2,051.5	3,643.8	4,207.9	3,204.6	1,146.7	1,142.3	1,155.7	1,148.3	$ 17.20	$ 13.97	$ 27.93	$ 18.98

Table 3

Unit Cost Indexes by Distributor: Vegetation Management O&M Cost

Distributor	Cost ($1,000)				Scale (1,000 Poles)				Unit Cost ($ per Pole)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	5,362.7	5,027.4	5,098.8	5,163.0	123.5	123.5	134.1	127.0	$ 43.43	$ 40.71	$ 38.03	$ 40.72
Algoma Power Inc.	3,616.1	3,620.1	3,595.2	3,610.5	30.4	30.5	29.0	29.9	$ 119.15	$ 118.80	$ 124.03	$ 120.66
Atikokan Hydro Inc.	41.6	53.5	34.1	43.1	1.3	1.3	1.3	1.3	$ 31.34	$ 40.30	$ 25.72	$ 32.45
Bluewater Power Distribution Corporation	277.6	238.0	178.4	231.3	15.4	15.4	15.6	15.5	$ 18.04	$ 15.45	$ 11.41	$ 14.97
Brantford Power Inc.	380.2	425.9	382.8	396.3	10.0	10.0	10.0	10.0	$ 37.91	$ 42.46	$ 38.10	$ 39.49
Burlington Hydro Inc.	486.7	596.2	802.4	628.4	14.6	14.6	15.2	14.8	$ 33.25	$ 40.74	$ 52.64	$ 42.21
Canadian Niagara Power Inc.	478.2	530.2	492.4	500.3	24.5	24.4	19.9	22.9	$ 19.55	$ 21.69	$ 24.79	$ 22.01
Centre Wellington Hydro Ltd.	47.2	42.7	52.0	47.3	1.8	1.9	1.9	1.9	$ 26.00	$ 23.00	$ 27.26	$ 25.42
Chapleau Public Utilities Corporation					0.7	0.7	0.7	0.7				
Cooperative Hydro Embrun Inc.	17.1	9.6	6.2	11.0	0.4	0.4	0.3	0.4	$ 39.65	$ 22.17	$ 17.90	$ 26.57
E.L.K. Energy Inc.	59.6	54.1	64.7	59.5	3.3	3.3	4.5	3.7	$ 18.09	$ 16.38	$ 14.36	$ 16.28
Elexicon Energy Inc.	1,259.6	895.9	1,034.9	1,063.5	34.8	36.5	36.8	36.0	$ 36.18	$ 24.52	$ 28.15	$ 29.62
Energy Plus Inc.	516.4	545.5	511.2	524.3	21.8	22.3	22.5	22.2	$ 23.68	$ 24.50	$ 22.67	$ 23.62
Entegrus Powerlines Inc.	280.2	270.7	115.5	222.1	20.1	20.7	20.6	20.4	$ 13.96	$ 13.09	$ 5.61	$ 10.89
EnWin Utilities Ltd.	940.6	1,044.6	1,019.9	1,001.7	20.1	20.5	20.7	20.4	$ 46.88	$ 51.03	$ 49.39	$ 49.10
EPCOR Electricity Distribution Ontario Inc.	169.6	155.3	114.7	146.5	5.1	5.0	5.5	5.2	$ 33.50	$ 30.86	$ 21.03	$ 28.46
ERTH Power Corporation	205.4	144.2	143.8	164.5	10.6	10.6	10.0	10.4	$ 19.45	$ 13.66	$ 14.42	$ 15.84
Espanola Regional Hydro Distribution Corpora	51.9	91.5	111.1	84.8	2.0	2.0	2.0	2.0	$ 26.07	$ 45.95	$ 55.58	$ 42.53
Essex Powerlines Corporation	477.1	460.9	400.6	446.2	6.3	6.2		6.2	$ 76.33	$ 73.86		$ 75.10
Festival Hydro Inc.	114.0	128.3	177.7	140.0	6.0	6.0	6.1	6.0	$ 18.97	$ 21.37	$ 29.13	$ 23.16
Fort Frances Power Corporation	98.0	69.9	44.6	70.8	1.9	1.9	1.8	1.8	$ 52.47	$ 37.46	$ 25.38	$ 38.44
Greater Sudbury Hydro Inc.	506.8	625.3	723.2	618.4	12.0	12.0	11.9	12.0	$ 42.10	$ 52.15	$ 60.57	$ 51.61
Grimsby Power Incorporated	60.8	91.0	71.5	74.4	3.7	3.7	3.7	3.7	$ 16.54	$ 24.79	$ 19.41	$ 20.25
Halton Hills Hydro Inc.	237.1	202.9	221.4	220.5	9.2	9.4	9.4	9.3	$ 25.74	$ 21.69	$ 23.65	$ 23.69
Hearst Power Distribution Company Limited	2.6	14.1	13.0	9.9	1.5	1.5	1.5	1.5	$ 1.66	$ 9.12	$ 8.42	$ 6.40
Hydro 2000 Inc.	6.9	5.0	3.3	5.1	0.4	0.4	0.4	0.4	$ 18.88	$ 13.59	$ 9.08	$ 13.85
Hydro Hawkesbury Inc.	59.1	31.6	112.5	67.7	1.6	1.6	1.6	1.6	$ 37.71	$ 19.95	$ 70.40	$ 42.69
Hydro One Networks Inc.	133,718	157,818	132,653	141,396	1,623.8	1,625.6		1,624.7	$ 82.35	$ 97.08		$ 89.72
Hydro Ottawa Limited	3,959.8	2,796.1	3,509.6	3,421.8	48.5	48.9	48.8	48.7	$ 81.62	$ 57.17	$ 71.93	$ 70.24
Innpower Corporation	106.0	197.1	305.6	202.9	10.5	10.7	11.0	10.8	$ 10.05	$ 18.35	$ 27.66	$ 18.69
Kingston Hydro Corporation	295.5	306.4	415.2	339.1	3.5	3.5	5.0	4.0	$ 84.24	$ 86.98	$ 82.26	$ 84.49
Kitchener-Wilmot Hydro Inc.	1,051.5	1,082.5	1,052.8	1,062.3	23.1	23.2	23.3	23.2	$ 45.45	$ 46.73	$ 45.27	$ 45.82
Lakefront Utilities Inc.	48.3	52.8	66.0	55.7	3.1	3.1	3.1	3.1	$ 15.40	$ 16.83	$ 20.97	$ 17.74
Lakeland Power Distribution Ltd.	193.6	180.4	208.1	194.0	6.3	6.3	6.4	6.3	$ 30.51	$ 28.47	$ 32.71	$ 30.56
London Hydro Inc.	1,090.8	1,111.8	1,200.6	1,134.4	27.0	27.0	26.9	27.0	$ 40.42	$ 41.19	$ 44.55	$ 42.05
Milton Hydro Distribution Inc.	373.7	325.3	473.4	390.8	9.7	9.7	9.8	9.7	$ 38.49	$ 33.47	$ 48.30	$ 40.09
Newmarket-Tay Power Distribution Ltd.	106.1	218.3	200.8	175.1	8.5	8.5	8.5	8.5	$ 12.52	$ 25.75	$ 23.60	$ 20.62
Niagara Peninsula Energy Inc.	346.9	371.1	344.3	354.1	24.8	24.8	25.0	24.9	$ 13.98	$ 14.95	$ 13.80	$ 14.24
Niagara-on-the-Lake Hydro Inc.	74.8	76.2	49.3	66.8	4.8	4.8	4.8	4.8	$ 15.67	$ 15.96	$ 10.33	$ 13.99
North Bay Hydro Distribution Limited	516.0	550.4	630.1	565.5	10.4	10.4	10.0	10.3	$ 49.41	$ 52.70	$ 62.71	$ 54.94
Northern Ontario Wires Inc.	93.1	94.4	102.4	96.6	3.0	3.0	3.0	3.0	$ 30.72	$ 31.08	$ 33.73	$ 31.84
Oakville Hydro Electricity Distribution Inc.	536.4	396.2	343.2	425.3	8.4	8.5	8.6	8.5	$ 63.53	$ 46.45	$ 39.87	$ 49.95
Orangeville Hydro Limited	118.0	144.0	84.5	115.5	1.7	1.7	1.7	1.7	$ 68.37	$ 84.34	$ 49.81	$ 67.51
Oshawa PUC Networks Inc.	132.3	139.7	133.1	135.0	10.5	12.4	11.0	11.3	$ 12.66	$ 11.29	$ 12.14	$ 12.03
Ottawa River Power Corporation	168.2	217.3	100.5	162.0	4.1	4.1	5.5	4.6	$ 41.18	$ 53.21	$ 18.28	$ 37.56
PUC Distribution Inc.	622.0	617.3	651.6	630.3	18.1	18.1		18.1	$ 34.32	$ 34.06		$ 34.19
Renfrew Hydro Inc.	69.8	105.4	64.7	80.0	1.8	1.8	1.8	1.8	$ 39.22	$ 59.16	$ 36.28	$ 44.89
Rideau St. Lawrence Distribution Inc.	76.5	69.9	45.3	63.9	2.1	2.1		2.1	$ 36.19	$ 32.92		$ 34.55
Sioux Lookout Hydro Inc.	84.3	88.0	66.7	79.7	2.7	2.7	2.7	2.7	$ 30.92	$ 32.17	$ 24.29	$ 29.13
Synergy North Corporation	838.9	825.2	899.5	854.5	23.3	23.4	23.5	23.4	$ 35.98	$ 35.27	$ 38.25	$ 36.50
Tillsonburg Hydro Inc.	61.4	69.4	66.5	65.8	2.4	2.4		2.4	$ 25.68	$ 28.35		$ 27.01
Toronto Hydro-Electric System Limited	3,309.3	2,826.2	3,229.8	3,121.7	179.4	180.3	181.8	180.5	$ 18.44	$ 15.67	$ 17.76	$ 17.29
Wasaga Distribution Inc.	181.0	181.1	117.4	159.8	5.2	5.2	5.2	5.2	$ 34.84	$ 34.84	$ 22.44	$ 30.71
Waterloo North Hydro Inc.	316.5	370.7	349.5	345.6	21.4	21.8	21.7	21.6	$ 14.78	$ 17.00	$ 16.13	$ 15.97
Welland Hydro-Electric System Corp.	206.4	247.5	212.1	222.0	7.8	7.9	7.9	7.9	$ 26.30	$ 31.49	$ 26.98	$ 28.26
Wellington North Power Inc.	77.6	50.9	67.0	65.2	1.9	1.9	1.9	1.9	$ 41.11	$ 26.91	$ 35.26	$ 34.42
Westario Power Inc.	125.9	153.3	316.8	198.6	10.4	10.3	10.4	10.4	$ 12.11	$ 14.86	$ 30.50	$ 19.16
Distributor Average				**$ 3,067**				**43.9**				**$ 35.18**
Maximum	133,718	157,818	132,653	141,396	1,623.8	1,625.6	181.8	1,624.7	$ 119.15	$ 118.80	$ 124.03	$ 120.66
Minimum	2.6	5.0	3.3	5.1	0.4	0.4	0.3	0.4	$ 1.66	$ 9.12	$ 5.61	$ 6.40
Maximum / Minimum	51,990.9	31,563.6	39,686.9	27,742.9	4,412.4	4,417.5	527.0	4,414.9	71.57	13.02	22.09	18.85

Table 4

Unit Cost Indexes by Distributor: Lines O&M

Distributor	Cost ($1000)				Scale (Circuit km of Primary)				Unit Cost ($ per km)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	29,980.0	48,238.0	48,090.7	42,102.9	21,112.0	21,112.0	21,171.0	21,131.7	$1,420.05	$2,284.86	$2,271.54	$1,992.15
Algoma Power Inc.	1,049.7	980.5	1,452.6	1,160.9	1,851.0	1,851.0	1,878.0	1,860.0	$ 567.11	$ 529.73	$ 773.46	$ 623.43
Atikokan Hydro Inc.	383.1	370.3	380.9	378.1	92.0	92.0	92.0	92.0	$4,164.60	$4,025.34	$4,140.31	$4,110.09
Bluewater Power Distribution Corporation	1,830.5	1,543.1	1,654.2	1,675.9	773.0	773.0	781.0	775.7	$2,367.98	$1,996.27	$2,118.01	$2,160.76
Brantford Power Inc.	1,195.6	1,294.2	1,161.4	1,217.0	515.0	515.0	534.0	521.3	$2,321.48	$2,513.01	$2,174.83	$2,336.44
Burlington Hydro Inc.	4,452.2	3,921.1	4,066.0	4,146.4	1,539.0	1,539.0	1,513.0	1,530.3	$2,892.94	$2,547.83	$2,687.35	$2,709.38
Canadian Niagara Power Inc.	1,366.8	1,175.4	1,416.8	1,319.7	1,038.0	1,038.0	1,035.0	1,037.0	$1,316.80	$1,132.36	$1,368.87	$1,272.68
Centre Wellington Hydro Ltd.	232.2	284.0	243.2	253.1	159.0	159.0	160.0	159.3	$1,460.07	$1,786.47	$1,520.21	$1,588.91
Chapleau Public Utilities Corporation	166.4	178.0	210.4	184.9	30.0	30.0	30.0	30.0	$5,546.60	$5,931.69	$7,014.25	$6,164.18
Cooperative Hydro Embrun Inc.	13.6	11.1	15.3	13.3	36.0	36.0	37.0	36.3	$ 377.74	$ 308.12	$ 413.53	$ 366.46
E.L.K. Energy Inc.	618.1	746.9	484.0	616.3	165.0	165.0	168.0	166.0	$3,745.87	$4,526.81	$2,881.15	$3,717.94
Elexicon Energy Inc.	5,145.1	3,911.6	4,263.3	4,440.0	3,823.0	3,823.0	3,867.0	3,837.7	$1,345.83	$1,023.18	$1,102.47	$1,157.16
Energy Plus Inc.	2,676.7	2,648.5	3,190.5	2,838.6	1,523.0	1,523.0	1,530.0	1,525.3	$1,757.51	$1,739.00	$2,085.31	$1,860.61
Entegrus Powerlines Inc.	1,372.8	1,656.5	1,734.6	1,588.0	980.0	980.0	992.0	984.0	$1,400.84	$1,690.33	$1,748.56	$1,613.24
EnWin Utilities Ltd.	3,957.4	3,746.9	4,175.1	3,959.8	1,144.0	1,144.0	1,150.0	1,146.0	$3,459.26	$3,275.26	$3,630.49	$3,455.00
EPCOR Electricity Distribution Ontario Inc.	622.6	690.7	845.3	719.5	371.0	371.0	376.0	372.7	$1,678.14	$1,861.78	$2,248.06	$1,929.33
ERTH Power Corporation	608.0	667.6	843.6	706.4	437.0	437.0	443.0	439.0	$1,391.38	$1,527.63	$1,904.32	$1,607.77
Espanola Regional Hydro Distribution Corpora	301.8	314.8	303.6	306.7	141.0	141.0	101.0	127.7	$2,140.44	$2,232.43	$3,005.72	$2,459.53
Essex Powerlines Corporation	934.4	778.1	742.2	818.2	456.0	456.0	455.0	455.7	$2,049.11	$1,706.36	$1,631.14	$1,795.53
Festival Hydro Inc.	1,205.2	1,241.1	1,261.3	1,235.9	261.0	261.0	263.0	261.7	$4,617.56	$4,755.34	$4,795.80	$4,722.90
Fort Frances Power Corporation	38.5	43.1	58.4	46.7	81.0	81.0	81.0	81.0	$ 475.53	$ 532.67	$ 720.88	$ 576.36
Greater Sudbury Hydro Inc.	1,256.8	1,363.0	1,436.3	1,352.0	1,015.0	1,015.0	1,015.0	1,015.0	$1,238.26	$1,342.84	$1,415.04	$1,332.04
Grimsby Power Incorporated	252.2	280.1	322.0	284.7	251.0	251.0	252.0	251.3	$1,004.60	$1,115.79	$1,277.70	$1,132.70
Halton Hills Hydro Inc.	619.0	599.1	617.1	611.7	903.0	903.0	890.0	898.7	$ 685.46	$ 663.44	$ 693.37	$ 680.76
Hearst Power Distribution Company Limited	194.5	243.3	179.6	205.8	71.0	71.0	71.0	71.0	$2,739.56	$3,426.52	$2,528.90	$2,898.33
Hydro 2000 Inc.	21.0	16.5	14.4	17.3	21.0	21.0	21.0	21.0	$ 999.13	$ 787.86	$ 687.59	$ 824.86
Hydro Hawkesbury Inc.	122.3	54.0	63.5	80.0	71.0	71.0	71.0	71.0	$1,722.49	$ 761.13	$ 895.00	$1,126.20
Hydro One Networks Inc.	63,193.0	68,950.7	70,485.2	67,543.0	123,956.0	123,956.0	124,310.0	124,074.0	$ 509.80	$ 556.25	$ 567.01	$ 544.35
Hydro Ottawa Limited	6,644.6	6,311.9	6,243.8	6,400.1	5,836.0	5,836.0	5,913.0	5,861.7	$1,138.55	$1,081.54	$1,055.94	$1,092.01
Innpower Corporation	468.3	462.6	483.0	471.3	796.0	796.0	804.0	798.7	$ 588.31	$ 581.17	$ 600.75	$ 590.08
Kingston Hydro Corporation	1,071.0	904.7	714.4	896.7	335.0	335.0	335.0	335.0	$3,197.12	$2,700.68	$2,132.47	$2,676.76
Kitchener-Wilmot Hydro Inc.	4,376.9	4,241.2	4,224.2	4,280.8	1,980.0	1,980.0	1,993.0	1,984.3	$2,210.56	$2,142.02	$2,119.52	$2,157.37
Lakefront Utilities Inc.	505.5	515.5	498.0	506.3	221.0	221.0	221.0	221.0	$2,287.37	$2,332.64	$2,253.23	$2,291.08
Lakeland Power Distribution Ltd.	876.3	763.5	1,007.9	882.6	358.0	358.0	353.0	356.3	$2,447.88	$2,132.72	$2,855.34	$2,478.65
London Hydro Inc.	5,138.4	4,844.0	4,978.9	4,987.1	3,060.0	3,060.0	3,070.0	3,063.3	$1,679.20	$1,583.02	$1,621.80	$1,628.01
Milton Hydro Distribution Inc.	852.8	946.1	888.4	895.7	1,097.0	1,097.0	1,116.0	1,103.3	$ 777.37	$ 862.44	$ 796.02	$ 811.94
Newmarket-Tay Power Distribution Ltd.	1,207.3	1,323.2	1,021.2	1,183.9	1,028.0	1,028.0	1,029.0	1,028.3	$1,174.43	$1,287.19	$ 992.38	$1,151.34
Niagara Peninsula Energy Inc.	2,420.9	2,602.5	2,727.3	2,583.6	2,041.0	2,041.0	2,071.0	2,051.0	$1,186.14	$1,275.13	$1,316.92	$1,259.40
Niagara-on-the-Lake Hydro Inc.	454.9	468.3	416.3	446.5	368.0	368.0	369.0	368.3	$1,236.26	$1,272.52	$1,128.16	$1,212.31
North Bay Hydro Distribution Limited	1,034.8	1,148.4	1,227.9	1,137.1	573.0	573.0	574.0	573.3	$1,806.02	$2,004.23	$2,139.19	$1,983.15
Northern Ontario Wires Inc.	447.1	410.8	555.2	471.1	370.0	370.0	370.0	370.0	$1,208.47	$1,110.22	$1,500.64	$1,273.11
Oakville Hydro Electricity Distribution Inc.	1,487.1	904.0	1,003.9	1,131.6	1,914.0	1,914.0	2,000.0	1,942.7	$ 776.93	$ 472.29	$ 501.93	$ 583.72
Orangeville Hydro Limited	143.3	186.0	123.7	151.0	221.0	221.0	222.0	221.3	$ 648.62	$ 841.75	$ 557.13	$ 682.50
Oshawa PUC Networks Inc.	913.4	697.0	572.3	727.6	1,010.0	1,010.0	1,006.0	1,008.7	$ 904.40	$ 690.08	$ 568.92	$ 721.13
Ottawa River Power Corporation	52.9	247.1	227.0	175.7	200.0	200.0	200.0	200.0	$ 264.49	$1,235.32	$1,135.25	$ 878.35
PUC Distribution Inc.	2,314.7	2,377.1	2,224.1	2,305.3	738.0	738.0	615.0	697.0	$3,136.49	$3,220.94	$3,616.45	$3,324.62
Renfrew Hydro Inc.	103.1	104.3	120.8	109.4	81.0	81.0	81.0	81.0	$1,272.91	$1,287.42	$1,491.61	$1,350.65
Rideau St. Lawrence Distribution Inc.	247.5	326.9	310.0	294.8	107.0	107.0	107.0	107.0	$2,312.75	$3,054.91	$2,896.96	$2,754.87
Sioux Lookout Hydro Inc.	433.8	468.9	501.3	468.0	610.0	610.0	610.0	610.0	$ 711.07	$ 768.71	$ 821.87	$ 767.21
Synergy North Corporation	3,515.7	3,550.7	2,661.4	3,242.6	1,268.0	1,268.0	1,266.0	1,267.3	$2,772.62	$2,800.23	$2,102.20	$2,558.35
Tillsonburg Hydro Inc.	105.3	116.4	150.6	124.1	132.0	132.0	67.0	110.3	$ 797.69	$ 882.18	$2,247.10	$1,308.99
Toronto Hydro-Electric System Limited	35,994.7	21,869.0	23,263.6	27,042.4	10,528.0	10,528.0	10,597.0	10,551.0	$3,418.95	$2,077.22	$2,195.30	$2,563.82
Wasaga Distribution Inc.	539.8	575.6	455.8	523.7	286.0	286.0	291.0	287.7	$1,887.46	$2,012.72	$1,566.20	$1,822.13
Waterloo North Hydro Inc.	1,966.7	1,655.7	1,619.0	1,747.1	1,648.0	1,648.0	1,654.0	1,650.0	$1,193.40	$1,004.65	$ 978.86	$1,058.97
Welland Hydro-Electric System Corp.	1,598.4	1,921.9	1,704.5	1,741.6	490.0	490.0	494.0	491.3	$3,262.11	$3,922.15	$3,450.41	$3,544.89
Wellington North Power Inc.	59.9	44.1	57.6	53.9	86.0	86.0	87.0	86.3	$ 697.06	$ 512.87	$ 661.77	$ 623.90
Westario Power Inc.	950.5	825.7	767.6	848.0	560.0	560.0	577.0	565.7	$1,697.40	$1,474.45	$1,330.36	$1,500.74
Distributor Average				**$ 3,608**				**3,525.7**				**$ 1,814.20**
Maximum	63,193.0	68,950.7	70,485.2	67,543.0	123,956.0	123,956.0	124,310.0	124,074.0	$5,546.60	$5,931.69	$7,014.25	$6,164.18
Minimum	13.6	11.1	14.4	13.3	21.0	21.0	21.0	21.0	$ 264.49	$ 308.12	$ 413.53	$ 366.46
Maximum / Minimum	4,647.1	6,216.0	4,881.5	5,066.8	5,902.7	5,902.7	5,919.5	5,908.3	20.97	19.25	16.96	16.82

Table 5

Unit Cost Indexes by Distributor: Station Maintenance

Distributor	Cost ($1000)				Scale (MVa per Station)				Unit Cost ($ per Avg MVa)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	4,586.2	8,516.5	7,155.0	6,752.6	41.0	42.3	26.3	36.6	$ 111,732	$ 201,340	$ 271,878	$ 194,983
Algoma Power Inc.	114.8	87.0	46.7	82.9	17.8	15.1	15.1	16.0	$ 6,463	$ 5,770	$ 3,097	$ 5,110
Atikokan Hydro Inc.	23.1	12.9	13.6	16.5	4.0	4.0	4.0	4.0	$ 5,764	$ 3,218	$ 3,409	$ 4,130
Bluewater Power Distribution Corporation	102.4	190.3	136.0	142.9	6.4	6.4	5.5	6.1	$ 16,117	$ 29,938	$ 24,909	$ 23,654
Brantford Power Inc.	1.8	3.0		2.4								
Burlington Hydro Inc.	821.4	1,007.8	1,025.6	951.6	15.3	15.3	15.5	15.4	$ 53,817	$ 65,698	$ 66,034	$ 61,850
Canadian Niagara Power Inc.	165.3	129.3	201.7	165.4	18.5	18.5	27.3	21.4	$ 8,958	$ 7,009	$ 7,395	$ 7,787
Centre Wellington Hydro Ltd.	47.4	83.0	54.2	61.5	5.5	6.0	5.3	5.6	$ 8,615	$ 13,833	$ 10,164	$ 10,870
Chapleau Public Utilities Corporation	2.3	2.5	1.4	2.1	6.3	6.3	6.3	6.3	$ 373	$ 393	$ 226	$ 331
Cooperative Hydro Embrun Inc.	6.8	3.6	24.8	11.7	11.5	11.5	11.7	11.6	$ 595	$ 316	$ 2,126	$ 1,012
E.L.K. Energy Inc.	8.6			8.6								
Elexicon Energy Inc.	1,042.1	484.7	686.4	737.7	11.7	11.9	19.0	14.2	$ 89,083	$ 40,603	$ 36,202	$ 55,296
Energy Plus Inc.	52.3			52.3								
Entegrus Powerlines Inc.	320.1	314.9	259.7	298.2	5.7	5.1	4.7	5.2	$ 56,015	$ 61,675	$ 55,370	$ 57,687
EnWin Utilities Ltd.	27.4		20.7	24.1								
EPCOR Electricity Distribution Ontario Inc.	77.5	76.8	201.2	118.5	6.0	6.0	6.0	6.0	$ 12,909	$ 12,794	$ 33,275	$ 19,659
ERTH Power Corporation	59.8	136.8	107.1	101.3	4.3	4.9	5.0	4.7	$ 13,799	$ 27,876	$ 21,581	$ 21,085
Espanola Regional Hydro Distribution Corpora	37.5	30.3	23.4	30.4	4.5	4.5	4.5	4.5	$ 8,329	$ 6,737	$ 5,209	$ 6,758
Essex Powerlines Corporation												
Festival Hydro Inc.	15.1		0.9	8.0	5.0	5.0	5.0	5.0	$ 3,027		$ 186	$ 1,606
Fort Frances Power Corporation												
Greater Sudbury Hydro Inc.	733.7	821.9	855.6	803.7	11.3	11.3	12.0	11.5	$ 64,737	$ 72,588	$ 71,459	$ 69,595
Grimsby Power Incorporated	2.9	2.7	4.1	3.2								
Halton Hills Hydro Inc.	221.2	231.5	318.1	256.9	8.2	8.5	7.1	7.9	$ 27,081	$ 27,234	$ 44,903	$ 33,073
Hearst Power Distribution Company Limited												
Hydro 2000 Inc.					6.3	6.3	6.5	6.3				
Hydro Hawkesbury Inc.	6.1	30.4	9.6	15.3	21.5	21.5	21.3	21.4	$ 284	$ 1,412	$ 451	$ 716
Hydro One Networks Inc.	13,539.6	13,845.0	14,847.2	14,077.3	7.9	7.9		7.9	$ 1,709,935	$ 1,748,937		$ 1,729,436
Hydro Ottawa Limited	1,144.9	918.2	1,849.7	1,304.3		20.7	25.3	23.0		$ 44,341	$ 73,246	$ 58,794
Innpower Corporation	131.6	78.5	41.0	83.7	8.5	8.5	8.5	8.5	$ 15,479	$ 9,231	$ 4,827	$ 9,845
Kingston Hydro Corporation	345.9	314.6	225.9	295.4	13.2	14.0	14.3	13.8	$ 26,248	$ 22,472	$ 15,760	$ 21,494
Kitchener-Wilmot Hydro Inc.	83.7	113.5	75.3	90.9	5.6	5.7	5.7	5.6	$ 15,029	$ 20,032	$ 13,295	$ 16,119
Lakefront Utilities Inc.	43.5	65.3	61.7	56.8	12.4	12.4	12.9	12.6	$ 3,505	$ 5,254	$ 4,785	$ 4,515
Lakeland Power Distribution Ltd.	55.3	67.3	74.6	65.7	7.3	7.6	7.6	7.5	$ 7,553	$ 8,917	$ 9,816	$ 8,762
London Hydro Inc.	981.0	1,010.3	1,122.9	1,038.0	5.4	5.4	4.4	5.1	$ 181,662	$ 185,857	$ 257,885	$ 208,468
Milton Hydro Distribution Inc.	38.0	42.2	93.8	58.0	9.0	9.0	9.0	9.0	$ 4,218	$ 4,685	$ 10,427	$ 6,443
Newmarket-Tay Power Distribution Ltd.	111.2	161.7	99.2	124.0		16.5	17.9	17.2		$ 9,780	$ 5,528	$ 7,654
Niagara Peninsula Energy Inc.	41.5	22.9	8.8	24.4	9.7	10.3	10.1	10.0	$ 4,273	$ 2,224	$ 870	$ 2,456
Niagara-on-the-Lake Hydro Inc.			1.4	1.4								
North Bay Hydro Distribution Limited	92.2	127.4	118.7	112.8	8.8	8.8	8.8	8.8	$ 10,446	$ 14,434	$ 13,455	$ 12,778
Northern Ontario Wires Inc.	17.9	25.1	28.1	23.7	6.8	6.8	6.8	6.8	$ 2,639	$ 3,689	$ 4,127	$ 3,485
Oakville Hydro Electricity Distribution Inc.	165.5	65.1	204.2	144.9	10.7	10.7	10.7	10.7	$ 15,494	$ 6,060	$ 19,018	$ 13,524
Orangeville Hydro Limited	34.5	45.1	35.7	38.4	5.0	5.0	5.0	5.0	$ 6,910	$ 9,018	$ 7,138	$ 7,689
Oshawa PUC Networks Inc.	203.2	222.6	177.8	201.2	46.7	46.7	46.7	46.7	$ 4,353	$ 4,771	$ 3,811	$ 4,312
Ottawa River Power Corporation	149.4	113.0	54.4	105.6	6.6	6.6	6.5	6.6	$ 22,667	$ 17,145	$ 8,308	$ 16,040
PUC Distribution Inc.	103.2	266.9	490.8	287.0	18.6	18.6	18.6	18.6	$ 5,558	$ 14,371	$ 26,426	$ 15,452
Renfrew Hydro Inc.	64.6	52.0	38.9	51.8	5.0	5.0	6.7	5.6	$ 12,913	$ 10,395	$ 5,842	$ 9,717
Rideau St. Lawrence Distribution Inc.	41.0	41.4	45.5	42.6	4.4	4.4		4.4	$ 9,235	$ 9,313		$ 9,274
Sioux Lookout Hydro Inc.												
Synergy North Corporation	415.5	336.8	328.8	360.4	9.5	9.6	9.4	9.5	$ 43,904	$ 35,140	$ 34,811	$ 37,952
Tillsonburg Hydro Inc.	25.7	20.0	13.8	19.8	5.0	5.0		5.0	$ 5,135	$ 4,001		$ 4,568
Toronto Hydro-Electric System Limited	12,778.9	8,050.8	6,488.3	9,106.0	41.9	42.3	43.4	42.5	$ 305,022	$ 190,252	$ 149,395	$ 214,890
Wasaga Distribution Inc.	19.3	20.0	26.7	22.0	8.5	8.5	8.5	8.5	$ 2,275	$ 2,354	$ 3,140	$ 2,590
Waterloo North Hydro Inc.	244.7	221.9	174.2	213.6	5.3	5.2	5.2	5.3	$ 45,817	$ 42,404	$ 33,281	$ 40,501
Welland Hydro-Electric System Corp.	206.1	237.0	204.7	215.9	5.4	5.5	5.5	5.4	$ 38,279	$ 43,390	$ 37,472	$ 39,714
Wellington North Power Inc.	23.2	42.4	44.3	36.6	4.5	4.5	4.5	4.5	$ 5,158	$ 9,419	$ 9,839	$ 8,138
Westario Power Inc.	194.5	236.1	293.1	241.2	5.6	5.6	5.6	5.6	$ 35,017	$ 42,496	$ 52,056	$ 43,189
Distributor Average				**$ 752**				**11.3**			**$**	**68,109**
Maximum	13,539.6	13,845.0	14,847.2	14,077.3	46.7	46.7	46.7	46.7	$ 1,709,935	$ 1,748,937	$ 271,878	$ 1,729,436
Minimum	1.8	2.5	0.9	1.4	4.0	4.0	4.0	4.0	$ 284	$ 316	$ 186	$ 331
Maximum / Minimum	7,513.3	5,641.2	15,964.7	10,024.8	11.7	11.7	11.7	11.7	6,011	5,536	1,462	5,232

Table 6

Unit Cost Indexes by Distributor: Pole Maintenance

Distributor	Cost ($1,000)				Scale (1,000 Poles)				Unit Cost ($ / pole)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	435.2	370.4	435.8	413.8	123.5	123.5	134.1	127.0	$ 3.52	$ 3.00	$ 3.25	$ 3.26
Algoma Power Inc.	101.8	142.2	113.7	119.2	30.4	30.5	29.0	29.9	$ 3.35	$ 4.67	$ 3.92	$ 3.98
Atikokan Hydro Inc.					1.3	1.3	1.3	1.3				
Bluewater Power Distribution Corporation	5.5	11.8	6.5	8.0	15.4	15.4	15.6	15.5	$ 0.36	$ 0.76	$ 0.42	$ 0.51
Brantford Power Inc.	34.6	43.5	21.6	33.2	10.0	10.0	10.0	10.0	$ 3.45	$ 4.34	$ 2.15	$ 3.31
Burlington Hydro Inc.	86.1	219.0	44.7	116.6	14.6	14.6	15.2	14.8	$ 5.89	$ 14.96	$ 2.93	$ 7.93
Canadian Niagara Power Inc.	93.5	124.4	161.9	126.6	24.5	24.4	19.9	22.9	$ 3.82	$ 5.09	$ 8.15	$ 5.69
Centre Wellington Hydro Ltd.	50.3	60.4	26.9	45.9	1.8	1.9	1.9	1.9	$ 27.68	$ 32.51	$ 14.12	$ 24.77
Chapleau Public Utilities Corporation	0.3			0.3	0.7	0.7	0.7	0.7	$ 0.42			$ 0.42
Cooperative Hydro Embrun Inc.	5.7	3.9	5.3	5.0	0.4	0.4	0.3	0.4	$ 13.14	$ 9.06	$ 15.42	$ 12.54
E.L.K. Energy Inc.	23.9	30.1	38.9	31.0	3.3	3.3	4.5	3.7	$ 7.26	$ 9.12	$ 8.63	$ 8.33
Elexicon Energy Inc.	196.0	153.5	110.2	153.2	34.8	36.5	36.8	36.0	$ 5.63	$ 4.20	$ 3.00	$ 4.28
Energy Plus Inc.	127.3	26.1	58.6	70.7	21.8	22.3	22.5	22.2	$ 5.84	$ 1.17	$ 2.60	$ 3.20
Entegrus Powerlines Inc.	60.1	152.2	106.4	106.2	20.1	20.7	20.6	20.4	$ 2.99	$ 7.36	$ 5.18	$ 5.18
EnWin Utilities Ltd.	554.3	576.2	937.5	689.3	20.1	20.5	20.7	20.4	$ 27.63	$ 28.15	$ 45.40	$ 33.72
EPCOR Electricity Distribution Ontario Inc.	101.5	52.2	114.3	89.3	5.1	5.0	5.5	5.2	$ 20.05	$ 10.37	$ 20.95	$ 17.12
ERTH Power Corporation	74.5	85.4	64.3	74.7	10.6	10.6	10.0	10.4	$ 7.06	$ 8.09	$ 6.45	$ 7.20
Espanola Regional Hydro Distribution Corpora	14.1	16.6	10.4	13.7	2.0	2.0	2.0	2.0	$ 7.09	$ 8.33	$ 5.19	$ 6.87
Essex Powerlines Corporation	32.1	85.2	79.3	65.5	6.3	6.2		6.2	$ 5.14	$ 13.66		$ 9.40
Festival Hydro Inc.	34.2	58.9	54.3	49.2	6.0	6.0	6.1	6.0	$ 5.70	$ 9.82	$ 8.90	$ 8.14
Fort Frances Power Corporation	27.5	17.9	11.8	19.1	1.9	1.9	1.8	1.8	$ 14.74	$ 9.59	$ 6.72	$ 10.35
Greater Sudbury Hydro Inc.	242.7	190.1	87.8	173.5	12.0	12.0	11.9	12.0	$ 20.16	$ 15.85	$ 7.35	$ 14.46
Grimsby Power Incorporated	47.9	75.8	105.4	76.4	3.7	3.7	3.7	3.7	$ 13.04	$ 20.65	$ 28.59	$ 20.76
Halton Hills Hydro Inc.	24.0	1.7	16.5	14.1	9.2	9.4	9.4	9.3	$ 2.60	$ 0.18	$ 1.76	$ 1.52
Hearst Power Distribution Company Limited	100.9	49.4	61.8	70.7	1.5	1.5	1.5	1.5	$ 65.29	$ 31.98	$ 39.94	$ 45.73
Hydro 2000 Inc.	0.9	3.1	6.0	3.3	0.4	0.4	0.4	0.4	$ 2.39	$ 8.38	$ 16.33	$ 9.03
Hydro Hawkesbury Inc.	11.9	7.2	5.7	8.2	1.6	1.6	1.6	1.6	$ 7.57	$ 4.54	$ 3.56	$ 5.22
Hydro One Networks Inc.	19,975	23,009	23,076	22,020	1,624	1,626		1,625	$ 12.30	$ 14.15		$ 13.23
Hydro Ottawa Limited	691.6	600.6	415.7	569.3	48.5	48.9	48.8	48.7	$ 14.26	$ 12.28	$ 8.52	$ 11.68
Innpower Corporation	39.0	45.3	46.4	43.6	10.5	10.7	11.0	10.8	$ 3.70	$ 4.21	$ 4.20	$ 4.04
Kingston Hydro Corporation	72.3	65.7	61.1	66.4	3.5	3.5	5.0	4.0	$ 20.63	$ 18.66	$ 12.11	$ 17.13
Kitchener-Wilmot Hydro Inc.	296.7	347.1	372.2	338.6	23.1	23.2	23.3	23.2	$ 12.83	$ 14.98	$ 16.00	$ 14.60
Lakefront Utilities Inc.					3.1	3.1	3.1	3.1				
Lakeland Power Distribution Ltd.	3.6	27.1	50.5	27.0	6.3	6.3	6.4	6.3	$ 0.57	$ 4.27	$ 7.93	$ 4.26
London Hydro Inc.	695.6	640.1	566.7	634.2	27.0	27.0	26.9	27.0	$ 25.78	$ 23.72	$ 21.03	$ 23.51
Milton Hydro Distribution Inc.	360.2	334.3	145.0	279.8	9.7	9.7	9.8	9.7	$ 37.11	$ 34.40	$ 14.79	$ 28.76
Newmarket-Tay Power Distribution Ltd.	53.2	112.5	61.6	75.7	8.5	8.5	8.5	8.5	$ 6.27	$ 13.27	$ 7.24	$ 8.93
Niagara Peninsula Energy Inc.	121.0	117.0	188.6	142.2	24.8	24.8	25.0	24.9	$ 4.88	$ 4.71	$ 7.56	$ 5.72
Niagara-on-the-Lake Hydro Inc.	52.5	63.5	46.7	54.2	4.8	4.8	4.8	4.8	$ 10.99	$ 13.31	$ 9.79	$ 11.36
North Bay Hydro Distribution Limited	18.7	158.6	203.7	127.0	10.4	10.4	10.0	10.3	$ 1.79	$ 15.18	$ 20.28	$ 12.42
Northern Ontario Wires Inc.	22.7	17.0	13.5	17.7	3.0	3.0	3.0	3.0	$ 7.50	$ 5.59	$ 4.44	$ 5.84
Oakville Hydro Electricity Distribution Inc.	33.9	2.2	25.7	20.6	8.4	8.5	8.6	8.5	$ 4.02	$ 0.26	$ 2.98	$ 2.42
Orangeville Hydro Limited	5.5	5.4	0.6	3.8	1.7	1.7	1.7	1.7	$ 3.17	$ 3.14	$ 0.36	$ 2.22
Oshawa PUC Networks Inc.	391.1	334.1	141.8	289.0	10.5	12.4	11.0	11.3	$ 37.41	$ 26.98	$ 12.94	$ 25.78
Ottawa River Power Corporation	6.4	4.6	6.1	5.7	4.1	4.1	5.5	4.6	$ 1.56	$ 1.14	$ 1.10	$ 1.27
PUC Distribution Inc.	38.2	20.1	19.3	25.9	18.1	18.1		18.1	$ 2.11	$ 1.11		$ 1.61
Renfrew Hydro Inc.	3.6	3.7	2.8	3.4	1.8	1.8	1.8	1.8	$ 2.05	$ 2.08	$ 1.55	$ 1.89
Rideau St. Lawrence Distribution Inc.	23.8	50.0	26.9	33.6	2.1	2.1		2.1	$ 11.27	$ 23.57		$ 17.42
Sioux Lookout Hydro Inc.	39.1	25.1	46.6	36.9	2.7	2.7	2.7	2.7	$ 14.32	$ 9.16	$ 16.97	$ 13.48
Synergy North Corporation	363.3	363.7	548.9	425.3	23.3	23.4	23.5	23.4	$ 15.58	$ 15.55	$ 23.34	$ 18.15
Tillsonburg Hydro Inc.	15.7	16.1	26.5	19.4	2.4	2.4		2.4	$ 6.54	$ 6.60		$ 6.57
Toronto Hydro-Electric System Limited	580.6	1,160.9	2,123.3	1,288.3	179.4	180.3	181.8	180.5	$ 3.24	$ 6.44	$ 11.68	$ 7.12
Wasaga Distribution Inc.	13.2	9.8	6.9	10.0	5.2	5.2	5.2	5.2	$ 2.55	$ 1.88	$ 1.32	$ 1.92
Waterloo North Hydro Inc.	281.0	114.1	95.7	163.6	21.4	21.8	21.7	21.6	$ 13.13	$ 5.23	$ 4.41	$ 7.59
Welland Hydro-Electric System Corp.	279.2	143.5	84.8	169.2	7.8	7.9	7.9	7.9	$ 35.58	$ 18.26	$ 10.78	$ 21.54
Wellington North Power Inc.	10.0	18.1	17.4	15.1	1.9	1.9	1.9	1.9	$ 5.28	$ 9.57	$ 9.14	$ 8.00
Westario Power Inc.	126.5	170.2	150.2	149.0	10.4	10.3	10.4	10.4	$ 12.17	$ 16.51	$ 14.46	$ 14.38
Distributor Average				**$ 539**				**43.9**				**$ 10.65**
Maximum	19,975.3	23,009.0	23,076.0	22,020.1	1,623.8	1,625.6	181.8	1,624.7	$ 65.29	$ 34.40	$ 45.40	$ 45.73
Minimum	0.3	1.7	0.6	0.3	0.4	0.4	0.3	0.4	$ 0.36	$ 0.18	$ 0.36	$ 0.42
Maximum / Minimum	65,157.4	13,678.3	37,864.3	71,827.4	4,412.4	4,417.5	527.0	4,414.9	181.38	191.26	126.33	108.90

Table 7

Unit Cost Indexes by Distributor: Stations Capex

Distributor	Cost ($1,000)				Scale (MVA per station)				Unit Cost ($ per Avg MVA)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	$ 7,359	$ 1,544	$ 1,262	$ 3,388	41	42	26	36.6	$ 179,277	$ 36,509	$ 47,955	$ 87,913
Algoma Power Inc.	$ 0.45	$ 221	$ 68	$ 96	18	15	15	16.0	$ 25	$ 14,631	$ 4,510	$ 6,389
Atikokan Hydro Inc.					4	4	4	4.0				
Bluewater Power Distribution Corporation	$ 622	$ 81	$ 32	$ 245	6	6	5	6.1	$ 97,869	$ 12,696	$ 5,802	$ 38,789
Brantford Power Inc.												
Burlington Hydro Inc.	$ 282	$ 52	$ 104	$ 146	15	15	16	15.4	$ 18,452	$ 3,369	$ 6,701	$ 9,507
Canadian Niagara Power Inc.	$ 523	$ 2,179	$ 1,392	$ 1,365	18	18	27	21.4	$ 28,338	$ 118,056	$ 51,053	$ 65,816
Centre Wellington Hydro Ltd.	$ 41	$ 806		$ 423	6	6	5	5.6	$ 7,409	$ 134,281		$ 70,845
Chapleau Public Utilities Corporation	$ 53		$ 19	$ 36	6	6	6	6.3	$ 8,480		$ 3,120	$ 5,800
Cooperative Hydro Embrun Inc.	$ 0.94	$ 41		$ 21	12	12	12	11.6	$ 81	$ 3,537		$ 1,809
E.L.K. Energy Inc.												
Elexicon Energy Inc.	$ 2,846	$ 11,252	$ 2,672	$ 5,590	12	12	19	14.2	$ 243,303	$ 942,566	$ 140,931	$ 442,267
Energy Plus Inc.												
Entegrus Powerlines Inc.	$ 46	$ 145	$ 114	$ 102	6	5	5	5.2	$ 8,029	$ 28,423	$ 24,334	$ 20,262
EnWin Utilities Ltd.												
EPCOR Electricity Distribution Ontario Inc.					6	6	6	6.0				
ERTH Power Corporation					4	5	5	4.7				
Espanola Regional Hydro Distribution Corporation			$ 2.70	$ 2.70	5	5	5	4.5			$ 599	$ 599
Essex Powerlines Corporation												
Festival Hydro Inc.	$ 22	$ 17	$ 227	$ 89	5	5	5	5.0	$ 4,348	$ 3,496	$ 45,415	$ 17,753
Fort Frances Power Corporation												
Greater Sudbury Hydro Inc.	$ 3,213	$ 1,988	$ 3,265	$ 2,822	11	11	12	11.5	$ 283,481	$ 175,568	$ 272,650	$ 243,900
Grimsby Power Incorporated												
Halton Hills Hydro Inc.	$ 18	$ 598	$ 209	$ 275	8	9	7	7.9	$ 2,187	$ 70,377	$ 29,542	$ 34,035
Hearst Power Distribution Company Limited												
Hydro 2000 Inc.					6	6	7	6.3				
Hydro Hawkesbury Inc.		$ 15	$ 11	$ 13	22	22	21	21.4		$ 717	$ 527	$ 622
Hydro One Networks Inc.	$ 41,209	$ 50,469		$ 45,839	8	8		7.9	$ 5,204,337	$ 6,375,329		$ 5,789,833
Hydro Ottawa Limited	$ 11,021	$ 13,435	$ 1,116	$ 8,524		21	25	23.0		$ 648,808	$ 44,192	$ 346,500
Innpower Corporation	$ 359	$ 1,473	$ 2,837	$ 1,556	9	9	9	8.5	$ 42,184	$ 173,289	$ 333,736	$ 183,070
Kingston Hydro Corporation	$ 487	$ 1,535	$ 1,629	$ 1,217	13	14	14	13.8	$ 36,995	$ 109,633	$ 113,669	$ 86,765
Kitchener-Wilmot Hydro Inc.	$ 7.66	$ 4.73		$ 6.19	6	6	6	5.6	$ 1,376	$ 834		$ 1,105
Lakefront Utilities Inc.			$ 23	$ 23	12	12	13	12.6			$ 1,768	$ 1,768
Lakeland Power Distribution Ltd.			$ 8.08	$ 8.08	7	8	8	7.5			$ 1,063	$ 1,063
London Hydro Inc.	$ 91	$ 265	$ 225	$ 194	5	5	4	5.1	$ 16,851	$ 48,841	$ 51,770	$ 39,154
Milton Hydro Distribution Inc.	$ 0.98			$ 0.98	9	9	9	9.0	$ 109			$ 109
Newmarket-Tay Power Distribution Ltd.		$ 66	$ 462	$ 264.04		17	18	17.2		$ 3,977	$ 25,770	$ 14,874
Niagara Peninsula Energy Inc.	$ 15	$ 150	$ 7	$ 57	10	10	10	10.0	$ 1,494	$ 14,518	$ 686	$ 5,566
Niagara-on-the-Lake Hydro Inc.												
North Bay Hydro Distribution Limited	$ 3,264	$ 993	$ 579	$ 1,612	9	9	9	8.8	$ 369,968	$ 112,489	$ 65,618	$ 182,692
Northern Ontario Wires Inc.	$ 88	$ 13		$ 50	7	7	7	6.8	$ 12,924	$ 1,862		$ 7,393
Oakville Hydro Electricity Distribution Inc.	$ 854	$ 545	$ 267	$ 555	11	11	11	10.7	$ 79,972	$ 50,748	$ 24,874	$ 51,865
Orangeville Hydro Limited	$ 15	$ 20		$ 18	5	5	5	5.0	$ 2,968	$ 4,069		$ 3,519
Oshawa PUC Networks Inc.	$ 3,562			$ 3,562	47	47	47	46.7	$ 76,329			$ 76,329
Ottawa River Power Corporation	$ 95		$ 16	$ 55	7	7	7	6.6	$ 14,356		$ 2,396	$ 8,376
PUC Distribution Inc.	$ 338	$ 226	$ 11,607	$ 4,057	19	19	19	18.6	$ 18,224	$ 12,184	$ 624,974	$ 218,461
Renfrew Hydro Inc.	$ 117	$ 363	$ 40	$ 173	5	5	7	5.6	$ 23,339	$ 72,690	$ 5,983	$ 34,004
Rideau St. Lawrence Distribution Inc.	$ 29	$ 60		$ 44	4	4		4.4	$ 6,536	$ 13,419		$ 9,977
Sioux Lookout Hydro Inc.												
Synergy North Corporation					9	10	9	9.5				
Tillsonburg Hydro Inc.					5	5		5.0				
Toronto Hydro-Electric System Limited	$ 30,320	$ 16,655	$ 21,541	$ 22,838	42	42	43	42.5	$ 723,707	$ 393,570	$ 495,996	$ 537,757
Wasaga Distribution Inc.					9	9	9	8.5				
Waterloo North Hydro Inc.			$ 144	$ 144	5	5	5	5.3			$ 27,483	$ 27,483
Welland Hydro-Electric System Corp.	$ 228	$ 214	$ 310	$ 251	5	5	5	5.4	$ 42,376	$ 39,271	$ 56,695	$ 46,114
Wellington North Power Inc.		$ 3.32		$ 3.32	5	5	5	4.5		$ 738		$ 738
Westario Power Inc.	$ 1,365	$ 1,125	$ 1,060	$ 1,183	6	6	6	5.6	$ 245,680	$ 202,495	$ 188,371	$ 212,182
Distributor Average				**$ 2,671**				**11.3**			**$**	**223,325**
Maximum	$ 41,209	$ 50,469	$ 21,541	$ 45,839	46.7	46.7	46.7	46.7	$ 5,204,337	$ 6,375,329	$ 624,974	$ 5,789,833
Minimum	$ 0.45	$ 3.32	$ 2.70	$ 0.98	4.0	4.0	4.0	4.0	$ 25	$ 717	$ 527	$ 109
Maximum / Minimum	91,373	15,188	7,993	46,762	11.7	11.7	11.7	11.7	205,019	8,897	1,186	53,158

Table 8

Unit Cost Indexes by Distributor: Poles, Towers, and Fixtures Capex

Distributor	Cost ($1,000)				Scale (poles added)				Unit Cost ($ per pole)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	$ 43,588	$ 73,914	$ 47,007	$ 54,836								
Algoma Power Inc.	$ 3,526	$ 4,037	$ 2,424	$ 3,329	573.0	434.0	355.0	454.0	$ 6,154	$ 9,301	$ 6,828	$ 7,428
Atikokan Hydro Inc.	$ 384	$ 89	$ 76	$ 183	42.0	17.0	20.0	26.3	$ 9,138	$ 5,246	$ 3,805	$ 6,063
Bluewater Power Distribution Corporation	$ 2,269	$ 2,742	$ 2,750	$ 2,587	277.0	355.0	240.0	290.7	$ 8,190	$ 7,724	$ 11,460	$ 9,125
Brantford Power Inc.	$ 924	$ 981	$ 711	$ 872	157.0	182.0	62.0	133.7	$ 5,886	$ 5,392	$ 11,464	$ 7,580
Burlington Hydro Inc.	$ 2,096	$ 2,228	$ 1,791	$ 2,038	155.0	180.0	111.0	148.7	$ 13,520	$ 12,377	$ 16,132	$ 14,010
Canadian Niagara Power Inc.	$ 3,480	$ 1,713	$ 2,181	$ 2,458	695.0	310.0	483.0	496.0	$ 5,007	$ 5,527	$ 4,515	$ 5,016
Centre Wellington Hydro Ltd.	$ 194	$ 160	$ 197	$ 184	52.0	43.0	55.0	50.0	$ 3,734	$ 3,720	$ 3,579	$ 3,678
Chapleau Public Utilities Corporation	$ 46	$ 73	$ 55	$ 58	15.0	17.0	20.0	17.3	$ 3,063	$ 4,292	$ 2,769	$ 3,374
Cooperative Hydro Embrun Inc.	$ 48	$ 3	$ 25	$ 25	8.0	1.0	3.0	4.0	$ 5,997	$ 2,500	$ 8,180	$ 5,559
E.L.K. Energy Inc.	$ 49	$ 50	$ 97	$ 66	6.0	9.0	17.0	10.7	$ 8,191	$ 5,592	$ 5,726	$ 6,503
Elexicon Energy Inc.	$ 1,498	$ 1,542	$ 1,840	$ 1,626	186.0	102.0	165.0	151.0	$ 8,051	$ 15,114	$ 11,151	$ 11,439
Energy Plus Inc.	$ 497	$ 1,132	$ 1,087	$ 905	192.0	176.0	162.0	176.7	$ 2,587	$ 6,429	$ 6,713	$ 5,243
Entegrus Powerlines Inc.	$ 7,343	$ 6,787	$ 8,898	$ 7,676	523.0	755.0	783.0	687.0	$ 14,041	$ 8,990	$ 11,364	$ 11,465
EnWin Utilities Ltd.	$ 6,022	$ 5,538	$ 3,152	$ 4,904	576.0	443.0	191.0	403.3	$ 10,455	$ 12,501	$ 16,501	$ 13,152
EPCOR Electricity Distribution Ontario Inc.	$ 2,103	$ 3,487	$ 2,545	$ 2,712	468.0	457.0	364.0	429.7	$ 4,494	$ 7,630	$ 6,992	$ 6,372
ERTH Power Corporation	$ 2,392	$ 2,555	$ 2,779	$ 2,575	198.0	257.0	398.0	284.3	$ 12,080	$ 9,940	$ 6,983	$ 9,668
Espanola Regional Hydro Distribution Corpora	$ 158	$ 218	$ 236	$ 204	30.0	35.0	41.0	35.3	$ 5,255	$ 6,232	$ 5,754	$ 5,747
Essex Powerlines Corporation	$ 362	$ 666		$ 514								
Festival Hydro Inc.	$ 530	$ 495	$ 283	$ 436	102.0	91.0	51.0	81.3	$ 5,199	$ 5,437	$ 5,558	$ 5,398
Fort Frances Power Corporation	$ 60	$ 7	$ 31	$ 33	12.0	2.0	1.0	5.0	$ 4,980	$ 3,407	$ 31,254	$ 13,214
Greater Sudbury Hydro Inc.	$ 1,894	$ 2,135	$ 2,448	$ 2,159	312.0	232.0	220.0	254.7	$ 6,070	$ 9,203	$ 11,125	$ 8,799
Grimsby Power Incorporated	$ 148	$ 297	$ 390	$ 278	34.0	82.0	143.0	86.3	$ 4,341	$ 3,617	$ 2,729	$ 3,562
Halton Hills Hydro Inc.	$ 1,838	$ 1,289	$ 1,647	$ 1,591	335.0	228.0	115.0	226.0	$ 5,487	$ 5,655	$ 14,318	$ 8,487
Hearst Power Distribution Company Limited	$ 100	$ 91	$ 137	$ 110	31.0	32.0	37.0	33.3	$ 3,235	$ 2,848	$ 3,711	$ 3,265
Hydro 2000 Inc.	$ 29	$ 41	$ 24	$ 31	5.0	7.0	4.0	5.3	$ 5,827	$ 5,891	$ 5,992	$ 5,903
Hydro Hawkesbury Inc.	$ 82	$ 123	$ 63	$ 89	19.0	13.0	12.0	14.7	$ 4,289	$ 9,431	$ 5,224	$ 6,315
Hydro One Networks Inc.	$ 257,345	$ 320,924		$ 289,134								
Hydro Ottawa Limited	$ 11,013	$ 9,347	$ 8,114	$ 9,492	802.0	814.0	772.0	796.0	$ 13,733	$ 11,483	$ 10,510	$ 11,909
Innpower Corporation	$ 718	$ 3,290	$ 4,018	$ 2,675	140.0	252.0	335.0	242.3	$ 5,127	$ 13,055	$ 11,995	$ 10,059
Kingston Hydro Corporation	$ 1,037	$ 855	$ 777	$ 890	124.0	67.0	41.0	77.3	$ 8,359	$ 12,759	$ 18,957	$ 13,359
Kitchener-Wilmot Hydro Inc.	$ 2,924	$ 4,003	$ 2,758	$ 3,228	544.0	504.0	491.0	513.0	$ 5,375	$ 7,942	$ 5,616	$ 6,311
Lakefront Utilities Inc.	$ 365	$ 402	$ 397	$ 388	44.0	26.0	29.0	33.0	$ 8,296	$ 15,477	$ 13,700	$ 12,491
Lakeland Power Distribution Ltd.	$ 756	$ 989	$ 733	$ 826	94.0	95.0	95.0	94.7	$ 8,047	$ 10,416	$ 7,720	$ 8,728
London Hydro Inc.	$ 1,726	$ 1,798	$ 2,716	$ 2,080	706.0	392.0	563.0	553.7	$ 2,444	$ 4,586	$ 4,825	$ 3,952
Milton Hydro Distribution Inc.	$ 1,678	$ 954	$ 2,434	$ 1,689	207.0	117.0	347.0	223.7	$ 8,108	$ 8,150	$ 7,016	$ 7,758
Newmarket-Tay Power Distribution Ltd.	$ 438	$ 955	$ 337	$ 577	95.0	181.0	66.0	114.0	$ 4,606	$ 5,278	$ 5,108	$ 4,997
Niagara Peninsula Energy Inc.	$ 2,347	$ 2,012	$ 6,005	$ 3,455	440.0	450.0	415.0	435.0	$ 5,334	$ 4,472	$ 14,470	$ 8,092
Niagara-on-the-Lake Hydro Inc.	$ 806	$ 472	$ 266	$ 515	137.0	145.0	56.0	112.7	$ 5,880	$ 3,257	$ 4,757	$ 4,631
North Bay Hydro Distribution Limited	$ 1,025	$ 1,287	$ 1,282	$ 1,198	94.0	128.0	86.0	102.7	$ 10,906	$ 10,053	$ 14,906	$ 11,955
Northern Ontario Wires Inc.	$ 281	$ 230	$ 179	$ 230	100.0	98.0	55.0	84.3	$ 2,811	$ 2,347	$ 3,252	$ 2,804
Oakville Hydro Electricity Distribution Inc.	$ 1,571	$ 3,875	$ 3,030	$ 2,825	154.0	298.0	179.0	210.3	$ 10,199	$ 13,002	$ 16,925	$ 13,376
Orangeville Hydro Limited	$ 205	$ 196	$ 215	$ 205	40.0	25.0	36.0	33.7	$ 5,130	$ 7,853	$ 5,963	$ 6,315
Oshawa PUC Networks Inc.	$ 236	$ 7,580	$ 7,033	$ 4,950	369.0	252.0	533.0	384.7	$ 641	$ 30,078	$ 13,196	$ 14,638
Ottawa River Power Corporation	$ 170	$ 147	$ 59	$ 125	85.0	43.0	47.0	58.3	$ 1,996	$ 3,424	$ 1,261	$ 2,227
PUC Distribution Inc.	$ 1,744	$ 2,059	$ 23,408	$ 9,070								
Renfrew Hydro Inc.	$ 222	$ 231	$ 289	$ 247	40.0	26.0	26.0	30.7	$ 5,539	$ 8,898	$ 11,114	$ 8,517
Rideau St. Lawrence Distribution Inc.	$ 117	$ 120		$ 119								
Sioux Lookout Hydro Inc.	$ 164	$ 145	$ 133	$ 147	21.0	27.0	26.0	24.7	$ 7,794	$ 5,382	$ 5,122	$ 6,099
Synergy North Corporation	$ 4,440	$ 2,539	$ 3,778	$ 3,586	525.0	459.0	544.0	509.3	$ 8,457	$ 5,531	$ 6,945	$ 6,978
Tillsonburg Hydro Inc.	$ 401	$ 380		$ 390								
Toronto Hydro-Electric System Limited	$ 21,288	$ 32,866	$ 33,134	$ 29,096	3,254.0	3,525.0	3,367.0	3,382.0	$ 6,542	$ 9,324	$ 9,841	$ 8,569
Wasaga Distribution Inc.	$ 389	$ 334	$ 578	$ 434	117.0	94.0	124.0	111.7	$ 3,327	$ 3,553	$ 4,662	$ 3,847
Waterloo North Hydro Inc.	$ 4,736	$ 4,018	$ 4,183	$ 4,313	612.0	693.0	829.0	711.3	$ 7,739	$ 5,798	$ 5,046	$ 6,194
Welland Hydro-Electric System Corp.	$ 707	$ 717	$ 615	$ 680	148.0	171.0	154.0	157.7	$ 4,780	$ 4,192	$ 3,995	$ 4,322
Wellington North Power Inc.	$ 134	$ 172	$ 178	$ 161	51.0	58.0	62.0	57.0	$ 2,636	$ 2,959	$ 2,870	$ 2,822
Westario Power Inc.	$ 1,086	$ 949	$ 1,097	$ 1,044	169.0	126.0	149.0	148.0	$ 6,427	$ 7,533	$ 7,363	$ 7,108
Distributor Average				**$ 8,180**				**268.8**				**$ 7,538**
Maximum	257,344.7	320,923.7	47,007.2	289,134.2	3,254	3,525	3,367	3,382	$ 14,041	$ 30,078	$ 31,254	$ 14,638
Minimum	29.1	2.5	24.0	25.0	5.0	1.0	1.0	4.0	$ 641	$ 2,347	$ 1,261	$ 2,227
Maximum / Minimum	8,832.4	128,369.5	1,961.4	11,562.9	651	3,525	3,367	846	22	13	25	7

Table 9

Unit Cost Indexes by Distributor: Line Transformer Capex

Distributor	Cost ($1,000)				Scale (transformers added)				Unit Cost ($ per line transformer added)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	38,739.4	52,770.7	46,926.8	46,145.6	835.0	951.0	229.0	671.7	$ 46,395	$ 55,490	$ 204,920	$ 102,268
Algoma Power Inc.	402.4	413.3	608.1	474.6	70.0	95.0	69.0	78.0	$ 5,749	$ 4,350	$ 8,814	$ 6,304
Atikokan Hydro Inc.	16.8	74.7	7.7	33.1	3.0	29.0	3.0	11.7	$ 5,600	$ 2,576	$ 2,577	$ 3,584
Bluewater Power Distribution Corporation	731.7	1,527.9	1,142.6	1,134.1	103.0	160.0	86.0	116.3	$ 7,104	$ 9,549	$ 13,286	$ 9,980
Brantford Power Inc.	1,390.5	1,220.8	709.0	1,106.8	64.0	41.0	53.0	52.7	$ 21,727	$ 29,775	$ 13,378	$ 21,626
Burlington Hydro Inc.	1,444.1	1,563.5	1,325.0	1,444.2	143.0	96.0	138.0	125.7	$ 10,099	$ 16,286	$ 9,602	$ 11,996
Canadian Niagara Power Inc.	1,736.8	1,300.9	1,584.9	1,540.8	272.0	259.0	216.0	249.0	$ 6,385	$ 5,023	$ 7,337	$ 6,248
Centre Wellington Hydro Ltd.	168.7	127.6	89.0	128.4	23.0	13.0	23.0	19.7	$ 7,336	$ 9,813	$ 3,868	$ 7,006
Chapleau Public Utilities Corporation	5.3	7.7	14.5	9.2	5.0	10.0	2.0	5.7	$ 1,056	$ 771	$ 7,257	$ 3,028
Cooperative Hydro Embrun Inc.	91.3	68.1	159.1	106.1	14.0	9.0	25.0	16.0	$ 6,519	$ 7,564	$ 6,364	$ 6,816
E.L.K. Energy Inc.	387.0	247.9	273.4	302.7	45.0	31.0	29.0	35.0	$ 8,599	$ 7,996	$ 9,426	$ 8,674
Elexicon Energy Inc.	98.6	91.7	449.7	213.3	77.0	50.0	50.0	59.0	$ 1,281	$ 1,834	$ 8,993	$ 4,036
Energy Plus Inc.	384.8	1,263.6	733.1	793.8	51.0	117.0	76.0	81.3	$ 7,546	$ 10,800	$ 9,645	$ 9,330
Entegrus Powerlines Inc.	2,846.3	11,251.9	6,840.2	6,979.5	694.0	758.0	574.0	675.3	$ 4,101	$ 14,844	$ 11,917	$ 10,287
EnWin Utilities Ltd.	2,551.7	2,794.1	1,754.1	2,366.6	207.0	195.0	162.0	188.0	$ 12,327	$ 14,329	$ 10,828	$ 12,495
EPCOR Electricity Distribution Ontario Inc.	2,964.9	3,384.4	2,555.7	2,968.4	309.0	288.0	261.0	286.0	$ 9,595	$ 11,752	$ 9,792	$ 10,380
ERTH Power Corporation	1,366.9	1,254.2	1,218.9	1,280.0	155.0	169.0	136.0	153.3	$ 8,819	$ 7,422	$ 8,962	$ 8,401
Espanola Regional Hydro Distribution Corpora	19.9	58.0	63.1	47.0	7.0	15.0	15.0	12.3	$ 2,843	$ 3,868	$ 4,204	$ 3,638
Essex Powerlines Corporation	1,497.6	1,214.9		1,356.3								
Festival Hydro Inc.	305.7	415.8	305.4	342.3	44.0	59.0	42.0	48.3	$ 6,948	$ 7,047	$ 7,273	$ 7,089
Fort Frances Power Corporation	61.8	37.0	31.3	43.4		6.0	2.0	4.0		$ 6,174	$ 15,658	$ 10,916
Greater Sudbury Hydro Inc.	2,507.4	1,742.1	1,314.3	1,854.6	253.0	180.0	131.0	188.0	$ 9,911	$ 9,679	$ 10,033	$ 9,874
Grimsby Power Incorporated	312.5	408.6	226.7	315.9	40.0	54.0	23.0	39.0	$ 7,813	$ 7,566	$ 9,857	$ 8,412
Halton Hills Hydro Inc.	1,961.3	1,217.2	629.3	1,269.3	101.0	76.0	46.0	74.3	$ 19,419	$ 16,016	$ 13,681	$ 16,372
Hearst Power Distribution Company Limited	17.0	13.9	21.1	17.4	3.0	7.0	8.0	6.0	$ 5,677	$ 1,987	$ 2,641	$ 3,435
Hydro 2000 Inc.	10.7	74.9	13.5	33.1	1.0	11.0	12.0	8.0	$ 10,704	$ 6,813	$ 1,128	$ 6,215
Hydro Hawkesbury Inc.	17.4	7.0	27.5	17.3	2.0	3.0	3.0	2.7	$ 8,675	$ 2,328	$ 9,172	$ 6,725
Hydro One Networks Inc.	72,340.1	8,974.9		40,657.5								
Hydro Ottawa Limited	8,450.8	9,114.2	9,332.0	8,965.7	939.0	976.0	723.0	879.3	$ 9,000	$ 9,338	$ 12,907	$ 10,415
Innpower Corporation	570.4	1,042.2	1,405.2	1,005.9	124.0	296.0	221.0	213.7	$ 4,600	$ 3,521	$ 6,358	$ 4,827
Kingston Hydro Corporation	521.0	419.5	270.8	403.8	45.0	53.0	40.0	46.0	$ 11,578	$ 7,915	$ 6,769	$ 8,754
Kitchener-Wilmot Hydro Inc.	3,472.5	3,094.5	3,419.1	3,328.7	328.0	302.0	324.0	318.0	$ 10,587	$ 10,247	$ 10,553	$ 10,462
Lakefront Utilities Inc.	135.3	71.3	263.3	156.6	22.0	12.0	31.0	21.7	$ 6,152	$ 5,938	$ 8,494	$ 6,861
Lakeland Power Distribution Ltd.	454.8	482.0	294.2	410.3	50.0	62.0	60.0	57.3	$ 9,096	$ 7,774	$ 4,903	$ 7,258
London Hydro Inc.	5,364.3	3,740.1	4,794.6	4,633.0	762.0	492.0	544.0	599.3	$ 7,040	$ 7,602	$ 8,814	$ 7,818
Milton Hydro Distribution Inc.	2,149.1	1,593.5	1,780.3	1,840.9	200.0	154.0	124.0	159.3	$ 10,745	$ 10,347	$ 14,357	$ 11,817
Newmarket-Tay Power Distribution Ltd.	280.0	1,015.3	908.9	734.8	35.0	65.0	60.0	53.3	$ 8,000	$ 15,620	$ 15,149	$ 12,923
Niagara Peninsula Energy Inc.	2,043.0	2,722.7	2,063.2	2,276.3	227.0	279.0	226.0	244.0	$ 9,000	$ 9,759	$ 9,129	$ 9,296
Niagara-on-the-Lake Hydro Inc.	499.9	208.9	269.6	326.2	41.0	38.0	41.0	40.0	$ 12,194	$ 5,498	$ 6,576	$ 8,089
North Bay Hydro Distribution Limited	614.2	808.5	604.4	675.7	37.0	54.0	44.0	45.0	$ 16,600	$ 14,972	$ 13,737	$ 15,103
Northern Ontario Wires Inc.	101.2	106.2	18.6	75.3	20.0	38.0	8.0	22.0	$ 5,062	$ 2,794	$ 2,326	$ 3,394
Oakville Hydro Electricity Distribution Inc.	2,219.6	2,714.5	2,017.3	2,317.1	161.0	266.0	97.0	174.7	$ 13,786	$ 10,205	$ 20,796	$ 14,929
Orangeville Hydro Limited	320.2	266.3	424.2	336.9	30.0	49.0	13.0	30.7	$ 10,674	$ 5,435	$ 32,634	$ 16,247
Oshawa PUC Networks Inc.	1,897.6	4,594.0	2,455.3	2,982.3	152.0	164.0	153.0	156.3	$ 12,484	$ 28,012	$ 16,048	$ 18,848
Ottawa River Power Corporation	567.0	274.3	125.3	322.2	121.0	52.0	24.0	65.7	$ 4,686	$ 5,275	$ 5,220	$ 5,060
PUC Distribution Inc.	722.1	898.4	15,830.7	5,817.1								
Renfrew Hydro Inc.	88.6	39.3	15.9	47.9	18.0	4.0	3.0	8.3	$ 4,922	$ 9,824	$ 5,287	$ 6,678
Rideau St. Lawrence Distribution Inc.	131.1	65.5		98.3								
Sioux Lookout Hydro Inc.	49.9	60.5	121.2	77.2	7.0	13.0	19.0	13.0	$ 7,135	$ 4,658	$ 6,379	$ 6,057
Synergy North Corporation	1,293.8	1,493.9	1,628.1	1,471.9	213.0	204.0	192.0	203.0	$ 6,074	$ 7,323	$ 8,479	$ 7,292
Tillsonburg Hydro Inc.	242.0	655.5		448.8								
Toronto Hydro-Electric System Limited	62,025.7	79,730.9	84,980.4	75,579.0	2,900.0	2,746.0	2,716.0	2,787.3	$ 21,388	$ 29,035	$ 31,289	$ 27,237
Wasaga Distribution Inc.	210.8	549.7	226.4	329.0	47.0	75.0	28.0	50.0	$ 4,485	$ 7,329	$ 8,086	$ 6,633
Waterloo North Hydro Inc.	3,158.4	3,688.9	2,853.2	3,233.5	305.0	356.0	301.0	320.7	$ 10,356	$ 10,362	$ 9,479	$ 10,066
Welland Hydro-Electric System Corp.	303.0	753.9	903.5	653.5	90.0	108.0	110.0	102.7	$ 3,367	$ 6,981	$ 8,214	$ 6,187
Wellington North Power Inc.	98.2	78.7	128.7	101.9	20.0	15.0	16.0	17.0	$ 4,909	$ 5,245	$ 8,046	$ 6,067
Westario Power Inc.	518.1	440.1	415.2	457.8	111.0	93.0	79.0	94.3	$ 4,668	$ 4,732	$ 5,255	$ 4,885
Distributor Average				**$ 4,072**				**191.0**			**$**	**10,930**
Maximum	72,340.1	79,730.9	84,980.4	75,579.0	2,900.0	2,746.0	2,716.0	2,787.3	$ 46,395	$ 55,490	$ 204,920	$ 102,268
Minimum	5.3	7.0	7.7	9.2	1.0	3.0	2.0	2.7	$ 1,056	$ 771	$ 1,128	$ 3,028
Maximum / Minimum	13,707.1	11,414.7	10,991.6	8,246.0	2,900.0	915.3	1,358.0	1,045.3	$ 43.95	$ 72.02	$ 181.72	$ 33.78

Table 10

Unit Cost Indexes by Distributor: Meter Capex

Distributor	Cost ($1,000)				Scale (1,000 customers)				Unit Cost ($ per customer)			
	2018	2019	2020	Average	2018	2019	2020	Average	2018	2019	2020	Average
Alectra Utilities Corporation	$ 13,425	$ 16,732	$ 16,061	$ 15,406	1,046.8	1,054.6	1,062.0	1,054.5	$ 12.82	$ 15.87	$ 15.12	$ 14.60
Algoma Power Inc.	$ 43	$ 47	$ 302	$ 131	11.7	11.7	12.1	11.9	$ 3.64	$ 4.02	$ 24.92	$ 10.86
Atikokan Hydro Inc.	$ 21	$ 15	$ 30	$ 22	1.6	1.6	1.6	1.6	$ 12.87	$ 9.28	$ 18.33	$ 13.49
Bluewater Power Distribution Corporation	$ 274	$ 292	$ 462	$ 343	36.7	36.7	36.9	36.8	$ 7.48	$ 7.95	$ 12.50	$ 9.31
Brantford Power Inc.	$ 163	$ 286	$ 176	$ 208	39.9	40.1	40.7	40.2	$ 4.07	$ 7.14	$ 4.33	$ 5.18
Burlington Hydro Inc.	$ 612	$ 509	$ 762	$ 628	67.9	68.2	68.6	68.2	$ 9.00	$ 7.47	$ 11.11	$ 9.19
Canadian Niagara Power Inc.	$ 297	$ 377	$ 480	$ 385	29.2	29.5	29.7	29.5	$ 10.16	$ 12.81	$ 16.14	$ 13.04
Centre Wellington Hydro Ltd.	$ 34	$ 101	$ 38	$ 58	7.0	7.2	7.3	7.2	$ 4.83	$ 14.16	$ 5.17	$ 8.05
Chapleau Public Utilities Corporation	$ 11		$ 3.13	$ 7	1.2	1.2	1.2	1.2	$ 9.00		$ 2.56	$ 5.78
Cooperative Hydro Embrun Inc.	$ 18	$ 16	$ 9	$ 14	2.3	2.4	2.4	2.4	$ 7.61	$ 6.92	$ 3.71	$ 6.08
E.L.K. Energy Inc.	$ 92	$ 42	$ 71	$ 69	12.4	12.5	12.6	12.5	$ 7.46	$ 3.38	$ 5.62	$ 5.49
Elexicon Energy Inc.	$ 231	$ 125	$ 4.82	$ 120	17.4	17.9	18.2	17.8	$ 13.24	$ 7.00	$ 0.26	$ 6.84
Energy Plus Inc.	$ 279	$ 333	$ 253	$ 288	23.1	23.4	23.6	23.3	$ 12.08	$ 14.23	$ 10.74	$ 12.35
Entegrus Powerlines Inc.	$ 1,589	$ 1,089	$ 1,287	$ 1,322	164.7	167.7	169.5	167.3	$ 9.65	$ 6.50	$ 7.60	$ 7.91
EnWin Utilities Ltd.	$ 648	$ 578	$ 1,045	$ 757	89.0	89.6	90.1	89.5	$ 7.28	$ 6.45	$ 11.60	$ 8.44
EPCOR Electricity Distribution Ontario Inc.	$ 529	$ 684	$ 266	$ 493	65.4	66.5	67.3	66.4	$ 8.10	$ 10.28	$ 3.95	$ 7.44
ERTH Power Corporation	$ 1,126	$ 1,328	$ 1,351	$ 1,269	59.2	59.8	60.6	59.9	$ 19.03	$ 22.21	$ 22.29	$ 21.18
Espanola Regional Hydro Distribution Corpora	$ 0.88	$ 0.12	$ 36	$ 12	3.3	3.3	3.3	3.3	$ 0.27	$ 0.04	$ 10.71	$ 3.67
Essex Powerlines Corporation	$ 375	$ 425		$ 400	30.0	30.4	30.7	30.4	$ 12.48	$ 13.98		$ 13.23
Festival Hydro Inc.	$ 247	$ 375	$ 264	$ 295	21.4	21.4	21.7	21.5		$ 17.55	$ 12.17	$ 14.86
Fort Frances Power Corporation		$ 65	$ 8	$ 37	3.7	3.8	3.8	3.8		$ 17.27	$ 2.19	$ 9.73
Greater Sudbury Hydro Inc.	$ 121	$ 148	$ 446	$ 238	47.6	47.7	47.9	47.7	$ 2.54	$ 3.10	$ 9.31	$ 4.98
Grimsby Power Incorporated	$ 149	$ 132	$ 61	$ 114	11.6	11.6	11.7	11.6	$ 12.90	$ 11.38	$ 5.18	$ 9.82
Halton Hills Hydro Inc.	$ 326	$ 638	$ 531	$ 498	22.4	22.5	22.6	22.5	$ 14.51	$ 28.33	$ 23.54	$ 22.13
Hearst Power Distribution Company Limited	$ 24			$ 24	2.7	2.7	2.7	2.7	$ 9.06			$ 9.06
Hydro 2000 Inc.	$ 3.84	$ 18	$ 10	$ 11	1.3	1.2	1.3	1.3	$ 3.04	$ 14.27	$ 8.20	$ 8.50
Hydro Hawkesbury Inc.	$ 14	$ 13	$ 46	$ 24	5.5	5.5	5.5	5.5	$ 2.58	$ 2.32	$ 8.42	$ 4.44
Hydro One Networks Inc.	$ 74,579	$ 85,447		$ 80,013	1,385.2	1,395.9	1,413.5	1,398.2	$ 53.84	$ 61.21		$ 57.53
Hydro Ottawa Limited	$ 2,940	$ 5,261	$ 3,561	$ 3,921	335.3	339.8	346.3	340.5	$ 8.77	$ 15.48	$ 10.28	$ 11.51
Innpower Corporation	$ 303	$ 187	$ 262	$ 251	18.2	18.6	19.3	18.7	$ 16.71	$ 10.03	$ 13.60	$ 13.45
Kingston Hydro Corporation	$ 223	$ 308	$ 361	$ 297	27.7	27.8	27.7	27.7	$ 8.06	$ 11.08	$ 13.03	$ 10.73
Kitchener-Wilmot Hydro Inc.	$ 1,168	$ 655	$ 439	$ 754	96.8	97.7	99.0	97.9	$ 12.06	$ 6.70	$ 4.44	$ 7.73
Lakefront Utilities Inc.	$ 161	$ 137	$ 89	$ 129	10.5	10.5	10.6	10.5	$ 15.40	$ 13.03	$ 8.39	$ 12.27
Lakeland Power Distribution Ltd.	$ 260	$ 356	$ 134	$ 250	13.6	13.8	13.9	13.8	$ 19.07	$ 25.86	$ 9.58	$ 18.17
London Hydro Inc.	$ 1,269	$ 1,605	$ 1,481	$ 1,452	159.0	160.6	162.1	160.6	$ 7.98	$ 9.99	$ 9.13	$ 9.04
Milton Hydro Distribution Inc.	$ 1,486	$ 1,216	$ 1,280	$ 1,327	39.6	40.4	41.2	40.4	$ 37.55	$ 30.10	$ 31.05	$ 32.90
Newmarket-Tay Power Distribution Ltd.	$ 164	$ 121	$ 386	$ 224	43.5	43.9	44.2	43.9	$ 3.78	$ 2.74	$ 8.73	$ 5.08
Niagara Peninsula Energy Inc.	$ 1,055	$ 1,195	$ 787	$ 1,012	55.6	56.1	57.0	56.2	$ 18.99	$ 21.32	$ 13.81	$ 18.04
Niagara-on-the-Lake Hydro Inc.	$ 116	$ 127	$ 149	$ 131	9.5	9.6	9.6	9.6	$ 12.28	$ 13.29	$ 15.47	$ 13.68
North Bay Hydro Distribution Limited	$ 124	$ 114	$ 72	$ 103	24.2	24.2	24.3	24.2	$ 5.11	$ 4.69	$ 2.96	$ 4.25
Northern Ontario Wires Inc.	$ 13	$ 1.80	$ 31	$ 15	5.9	6.0	5.9	5.9	$ 2.17	$ 0.30	$ 5.18	$ 2.55
Oakville Hydro Electricity Distribution Inc.	$ 1,172	$ 1,556	$ 667	$ 1,132	72.1	73.1	74.0	73.1	$ 16.25	$ 21.28	$ 9.01	$ 15.51
Orangeville Hydro Limited	$ 144	$ 106	$ 74	$ 108	12.6	12.7	12.7	12.6	$ 11.44	$ 8.34	$ 5.86	$ 8.54
Oshawa PUC Networks Inc.	$ 665	$ 1,072	$ 1,005	$ 914	58.7	59.2	59.5	59.1	$ 11.32	$ 18.11	$ 16.90	$ 15.44
Ottawa River Power Corporation	$ 107	$ 101	$ 53	$ 87	11.2	11.3	11.4	11.3	$ 9.54	$ 8.96	$ 4.67	$ 7.72
PUC Distribution Inc.	$ 146	$ 77	$ 5,537	$ 1,920	33.6	33.6	33.8	33.7	$ 4.34	$ 2.28	$ 164.07	$ 56.89
Renfrew Hydro Inc.	$ 51	$ 18	$ 66	$ 45	4.3	4.3	4.3	4.3	$ 11.91	$ 4.08	$ 15.21	$ 10.40
Rideau St. Lawrence Distribution Inc.	$ 97	$ 74		$ 85	5.9	5.9	5.9	5.9	$ 16.34	$ 12.44		$ 14.39
Sioux Lookout Hydro Inc.	$ 11	$ 36	$ 9	$ 19	2.8	2.8	2.8	2.8	$ 4.05	$ 12.59	$ 3.31	$ 6.65
Synergy North Corporation	$ 538	$ 822	$ 599	$ 653	56.5	56.7	56.9	56.7	$ 9.52	$ 14.49	$ 10.54	$ 11.51
Tillsonburg Hydro Inc.	$ 104	$ 148		$ 126	7.1	7.1	7.7	7.3	$ 14.61	$ 20.79		$ 17.70
Toronto Hydro-Electric System Limited	$ 24,359	$ 14,491	$ 19,983	$ 19,611	772.6	777.9	779.2	776.6	$ 31.53	$ 18.63	$ 25.65	$ 25.27
Wasaga Distribution Inc.	$ 139	$ 235	$ 76	$ 150	13.8	14.0	14.2	14.0	$ 10.12	$ 16.79	$ 5.33	$ 10.75
Waterloo North Hydro Inc.	$ 522	$ 1,184	$ 829	$ 845	57.5	57.9	58.4	57.9	$ 9.09	$ 20.47	$ 14.19	$ 14.58
Welland Hydro-Electric System Corp.	$ 100	$ 63	$ 49	$ 71	23.4	23.7	24.1	23.7	$ 4.29	$ 2.68	$ 2.03	$ 3.00
Wellington North Power Inc.	$ 211	$ 142	$ 100	$ 151	3.8	3.8	3.9	3.8	$ 55.34	$ 37.20	$ 25.85	$ 39.46
Westario Power Inc.	$ 301	$ 183	$ 413	$ 299	23.5	23.8	24.0	23.8	$ 12.80	$ 7.69	$ 17.26	$ 12.58
Distributor Average				**$ 2,443**				**92.2**				**$ 13.21**
Maximum	74,579	85,447	19,983	80,013	1,385.2	1,395.9	1,413.5	1,398.2	$ 55.34	$ 61.21	$ 164.07	$ 57.53
Minimum	0.9	0.1	3.1	7.0	1.2	1.2	1.2	1.2	$ 0.27	$ 0.04	$ 0.26	$ 2.55
Maximum / Minimum	84,822.7	719,673.6	6,390.5	11,435.7	1,146.7	1,142.3	1,155.7	1,148.3	207.9	1,706.0	620.2	22.6

3. Econometric Models and Benchmarking Results

The unit cost method used in Section 2 adjusts raw cost levels for the scale of operation. The econometric method builds upon using operating scale to *also* account for the effects of prevailing input prices and other business conditions. For example, input price conditions such as local differences in wage rates can help explain differences in cost levels. Even after adjusting for scale, one would expect that costs would be higher in Toronto than in other areas of Ontario. Other business conditions such as age of plant and differences in accounting for certain O&M items could also be relevant. The econometric method also has the advantage of being able to account for the effects of more than one scale variable in cost categories where multiple scale variables are relevant.

The econometric method differs from the unit cost method in the standard by which performance is evaluated. The unit cost work directly compares distributors to each other in the dollars per unit scale measure. The econometric method compares each company's actual cost to the company's cost predicted by an econometric model. The model uses data from all distributors to determine how each different cost driver – scale variables and business conditions - affects distributors' cost level on average. The result is an equation that allows the different values for each cost driver to be "plugged in" to calculate a level of cost associated with a given set of circumstances. Rather than being directly compared to all other distributors, each distributor is compared versus the average cost associated with a single hypothetical distributor that faces the exact same circumstances[5].

The econometric models for each of the cost areas have been updated to include 2020 data, revised data[6] and a change in specification for one explanatory variable. The parameter estimates and benchmarking scores are provided below in Tables 11-30 following a brief discussion of each. Each

[5] Additional discussion of the econometric methods can be found in earlier reports by PEG.

[6] These include data revisions made by the distributors and some estimated values of business condition variables. PEG used estimates for missing explanatory variables based on previously reported data. PEG also made estimates for certain reported values where they appeared to be in units inconsistent with other data or clearly inconsistent with previously reported values. Examples include changes in reporting standards to include secondary circuit km of line, a very large decrease in the total number of poles, or a doubling of the number of stations.

results table reports an average cost performance score which is the percent by which actual cost was above or below predicted cost. The number reflects an average of up to three recent annual cost performance scores[7]. For most distributors this average reflects 2018-2020 results.

Billing O&M

Our econometric work resulted in the updated model for billing O&M shown in Table 11. The model identified the number of customers as the appropriate scale variable. For a distributor of average scale, a 1% increase in the number of customers results in a 0.91% increase in predicted cost. This suggests that a distributor of average scale should expect some scale economies from increasing its scale of operations, because cost increases less than the relative size increase.

The econometric work accounts for other relevant business conditions such as customer density, accounting practices such as the percentage distribution cost recorded as miscellaneous or supervision and the impact of pension accounting, and the overall industry trend in cost over time. The pension variable, indicating whether the distributor includes more than just salaries and wages, has a positive relationship with cost. Two allocation variables were included to measure the impact of suspected accounting issues with the itemization of expenses. One version is the ratio of supervision and engineering expense to total O&M. The second is the ratio of miscellaneous O&M to total O&M. To the extent that a distributor reported higher than average amounts in these broad categories, one may expect lower values in the billing account due to a lack of itemization of expenses. Both have negative signs and are statistically significant which suggests that some distributors may be putting less effort into itemizing O&M expenses as others. The very small negative value of the trend variable parameter suggests that cost declines for reasons other than those measured by the business condition variables. These reasons include productivity growth.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 12 below.

[7] Missing data prohibited the calculation of results for all three years in some cases. The method used to determine the average was to start with the latest results available and go back up to three years and then average the result. Distributors that did not have any available results for 2018-2020 do not have results presented. Missing results can be due to a distributor reporting zero or negative cost values or otherwise not providing all data necessary for the model.

The percentage of distributors with a cost performance within 50% is 79% which was improved from the previous work. There are several possible reasons to explain why some results seem extreme. The first is that there is an unknown or unmeasurable business condition that affects billing O&M which is not included in the current model. The second is that there is an accounting issue that resulted in significantly more or less cost being recorded in the billing account. A third possible explanation is that the distributor is significantly better or worse at performing the billing function relative to other distributors. Overall, the billing O&M econometric models were slightly improved by the inclusion of 2020 data.

Meter O&M

Our econometric work resulted in the model for Meter O&M cost shown in Table 13. The model identified the total number of poles and the number of customers as relevant scale variables. The total number of poles is a proxy for the geographical dispersion of meters. For a distributor of average scale, a 1% increase in the number of customers results in an increase in predicted cost of 0.34% whereas a 1% increase in total number of poles results in an increase of 0.55%. A 1% increase in overall scale (i.e., 1% increase in both poles and customers) results in an expected cost increase of 0.89%. This suggests that a distributor of average scale should expect some cost savings as a result of increasing its scale of operations because on average, size increases more than cost. The inclusion of 2020 data resulted in a little more weight being placed on poles and a little less on customers.

The econometric work was able to account for other relevant business conditions such as the percentage distribution cost recorded as miscellaneous, the impact of pension accounting, and the average industry unexplained trend in cost over time. As in the other models, there was a negative relationship between the cost allocation variable and meter O&M cost, which suggests that distributors recording more cost in the miscellaneous account will tend to have less cost recorded in the accounts we are benchmarking. The pension variable once again had a positive relationship with cost. The negative value on the trend variable suggests that cost should decline by 2.4% per year for reasons other than measured by the business condition variables. The impact of the scale variables is discussed above.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 14. The

explanatory power of the model as measured by R-squared is 0.837 and almost identical to the previous work. The percentage of distributors with a cost performance within 50% of predicted cost was 61%.

Vegetation Management

Our econometric work resulted in the model for vegetation management cost shown in Table 15. The model identified the total number of poles as the relevant scale variable. For a distributor of average scale, a 1% increase in the total number of poles results in an increase in predicted cost of 1.017%. This suggests that a distributor of average scale should not expect cost savings from increasing its scale of operations because size increases less than cost.

The econometric work was able to account for other relevant business conditions such as overhead line km per pole, whether the percentage of the system with vegetation challenges exceeded 60%, the percentage of distribution cost recorded as supervision, the impact of pension accounting, and the overall trend in cost over time.

The model found a negative relationship between the cost allocation variable and cost which suggests that distributors that have more cost recorded in supervision and engineering will tend to have less cost recorded in the accounts we are benchmarking. The pension variable also has a positive relationship with cost. The negative value on the trend variable suggests that cost should decline by 0.3% per year for reasons other than those measured by the model's business condition variables. The impact of the scale variables is discussed above and the company-by-company benchmark results are shown in Table 16. The percentage of distributors with a cost performance within 50% of predicted cost was 49%.

Lines O&M

The econometric work resulted in the model for lines O&M cost shown in Table 17. The explanatory power of the model as measured by R-squared was 0.884 which was the same as the early work. The percentage of distributors with cost performance within 50% was 58%. The scale variables are the same as in the previous econometric work which included both poles and customers.

The econometric work was able to account for other relevant business conditions such accounting practice differences which were also included in the model. The impact of pension accounting and the propensity for distributors to not itemize but rather record expenses as supervision or miscellaneous were also considered. The variables measuring the percent of total distribution O&M

recorded as supervision or miscellaneous respectively each had negative signs. This means that the more distributors tended to record expenses in these general categories, the less cost was observed in the more itemized account being benchmarked. The negative value on the trend variable suggest that cost should decrease by 0.8% per year for reasons other than measured by the business condition variables. The impact of the scale variables is discussed above.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 18.

Distribution Station Equipment O&M

The econometric work resulted in the model for distribution station O&M cost shown in Table 19. The model identified the number of substations as the most important scale variable. For a distributor of average scale, a 1% increase in the number of substations results in an increase in predicted cost of 1.15%. This suggests that a distributor of average scale should expect no additional scale economies from increasing the scale its substation operations.

The econometric work accounts for other relevant business conditions such as average station capacity (in MVA), whether company outsourced station maintenance, the percentage of distribution cost reported as miscellaneous, the impact of pension accounting, and the unexplained trend in cost over time. The model found a negative relationship between the cost allocation variable and cost which suggests that distributors that have more cost recorded in miscellaneous will tend to have less cost reported as substation O&M. The pension variable once again had a positive relationship with reported substation cost. The trend variable parameter indicates that cost should decrease by 2.0% each year for reasons other than measured by the business condition variables.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 20. As can be seen there are a fair number of distributors with actual cost that differs from that predicted by the model by more than 50%. The explanatory power of the model as measured by R-squared was 0.820, higher than the result for the previous work. The percentage of distributors with cost performance within 50% was 85%.

Maintenance of Poles, Towers and Fixtures

Our new econometric work resulted in the model for poles, towers and fixtures maintenance ("Poles Maintenance") shown in Table 21. The model identified the total number of poles as the most relevant scale variable. For a distributor of average scale, a 1% increase in the total number of poles results in an increase in predicted maintenance cost of 0.784%. This suggests that a distributor of average scale should expect some cost savings as a result of increasing its scale of operations because size increases more than cost. The 0.550 R-squared statistic is much lower than that for billing and the lowest by far of all of the new O&M cost models that we developed. However, it is improved from the early work due to the inclusion of the 2020 data.

The econometric work was able to account for some other relevant business conditions including the percentage of poles over 50 years old, the percent of poles made of wood and made of steel, the impact of pension accounting, and the unexplained trend in cost over time. The model found a positive relationship between age and cost which suggests that older poles will tend to require more maintenance. The positive O&M costs associated with wood poles are much larger than those associated with steel poles. The pension variable also has a positive relationship with cost. The negative value of the trend variable suggests that cost should decline by 2.7% per year for reasons other than measured by the business condition variables. The impact of the scale variables is discussed above.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 22 below. The percentage of distributors with cost performance within 50% was 36%.

Capital Expenditures: Distribution Station Equipment

The econometric work resulted in the model for distribution station equipment capex ("station capex") shown in Table 23. The model identified number of station transformers and number of line transformers as potentially relevant scale variables. The explanatory power of the model as measured by R-squared was 0.507.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 24. There are a fair number of distributors with actual cost differing from that predicted by the model by more than 50%. The percentage of distributors with cost performance within 50% was only 13%. There are

several possible reasons to explain these differences. The first is that there is an unknown or unmeasurable business condition that affects distribution station capex that is not included in the current model. The second is that there is an accounting issue that resulted in significantly more or less cost being recorded in this account. A third possible explanation is that the distributor is significantly better or worse at performing this function relative to other distributors.

Capital Expenditures: Poles, Towers, and Fixtures

The econometric work resulted in the model for poles, towers and fixtures capital expenditures ("poles capex")[8] shown in Table 25. The model identified the total number of poles as the relevant scale variable. In the context of capital investment, the interpretation of scale is a little different than for O&M. For O&M an above-average total number of poles should imply that cost will be higher than average, assuming an average level of O&M per pole. For capital expenditures, the source of demand for poles can come from several sources which include system replacement as well as system augmentation. Assuming a certain percentage of system assets reach the end of their useful life and need to be replaced each year, a scale measure such as number of customers or km of line measures the need for pole replacement because customers and km should be correlated with poles. A larger total number of poles will need to be replaced on larger systems than on smaller systems. The same is true for system augmentation. To the extent that a system gets larger or needs to be reinforced by a certain percentage, a larger than average scale variable will imply more investment.

The econometric work was able to account for other relevant business conditions such as the km of line per pole, the share of aged poles, customer growth[9] and the overall trend in cost over time. The model found a positive relationship between each of these variables and cost. Higher values of km

[8] The data used for capital expenditure are the plant additions from the capital continuity schedules provided by distributors. It is technically a little different from capital expenditures because of timing. The capital expenditure comes first when the asset is being constructed and is later recognized as plant in service when completed.

[9] The customer growth variable as previously defined lost statistical significance when 2020 data were added and had a negative sign in some models. A small change to the definition of customer growth was made that resulted in consistently positive coefficients. PEG kept all the explanatory variables included in the 10 econometric models consistent with that in the previous report with this one exception. PEG believes that the change made to the definition of customer growth was the smallest change possible that allowed for sensible parameter estimates after the inclusion of 2020 data and other data revisions. This only affects three of the capex econometric models.

per pole may be correlated with more structures made of steel instead of wood. Higher values of the percent of poles over 50 years old will imply a greater probability that poles will need to be replaced. Higher customer growth is correlated with an expansion of the area served which increases the total number of poles needed. The positive value on the trend variable suggests that poles, towers, and fixtures capex should increase by 2.4% per year for reasons not measured by the included business condition variables.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 26. As can be seen that there are a fair number of distributors with actual cost that differs from that predicted by the model by more than 50%. The percentage of distributors with cost performance within 50% was 68%. The explanatory power of the model as measured by R-squared was 0.831.

Capital Expenditures: Line Transformers

The econometric work resulted in the model for line transformer capital expenditures ("transformer capex") shown in Table 27. The research identified the number of customers and km of line as the potentially relevant scale variables. For a distributor of average scale, a 1% increase in the number of customers increases predicted capex by 0.769% whereas a 1% increase in km of line increases predicted capex by 0.323%.

The econometric work was able to account for other relevant business conditions such as customer growth. The trend variable suggests that capex should increase by 1.9% per year for reasons other than the changes in the model's business condition variables.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 28. As can be seen there are a fair number of distributors with actual cost that differs from that predicted by the model by more than 50%. The percentage of distributors with cost performance less than 50% was 75%. The explanatory power of the model as measured by R-squared was 0.856.

Capital Expenditures: Meters

The econometric work resulted in the model for meter capital expenditures ("meter capex") shown in Table 29. The model identified the number of customers and km of line as the relevant scale variables. The relationship between number of customers and number of installed meters should be

close. The km of line serves as a measure of service territory size and provides a more accurate statistical cost relationship than service territory area. The model indicates that, for a distributor of average scale, a 1% increase in the number of customers results in an increase in predicted meter capex of 0.714% whereas a 1% increase in the km of line results in an increase in predicted capex of 0.370%.

The econometric work was able to account for other relevant business conditions. A positive relationship was found between customer growth and cost. Higher customer growth implies system expansion which increases the number of meters required. The -0.027 value of the trend variable parameter suggests that capex should fall by 2.7% annually for reasons other than changes in the values of the model's business condition variables.

The econometric model produced cost predictions for each year for each distributor. The average difference between actual cost and that predicted by the model is presented in Table 30. As can be seen there are a fair number of distributors with actual cost that differs from that predicted by the model by more than 50%. The explanatory power of the model as measured by R-squared was 0.659. The percentage of distributors with cost performance within 50% was 54%.

Table 11

Econometric Model of Billing O&M

VARIABLE KEY

Scale Variables:

yn = Number of customers

Business Conditions:

ynperykm = Customers per km of line
penload = Pensions allocated to O&M
pctmscbill = Percentage of O&M that is miscellaneous
pctsupbill = Percentage of O&M that is supervision
trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
yn	0.910	42.100	0.000
I(yn * yn/2)	0.128	12.151	0.000
ynperykm	0.034	1.770	0.077
penload	0.044	3.383	0.000
pctmscbill	-0.049	-6.825	0.000
pctsupbill	-0.034	-4.441	0.000
trend	-0.003	-0.816	0.415
Constant	3.011	80.602	0.000
System Rbar-Squared	0.896		
Sample Period	2012-2019		
Number of Observations	528		

Table 12

Cost Performance Results: Billing O&M

Distributor	Average Actual Cost ($1000)	Average Predicted Cost	Average Actual Less Predicted 2018-2020
Alectra Utilities Corporation	$ 25,046,071	$ 36,115,313	-36.6%
Algoma Power Inc.	$ 192,499	$ 323,789	-52.0%
Atikokan Hydro Inc.	$ 139,589	$ 153,962	-9.8%
Bluewater Power Distribution	$ 978,118	$ 885,924	9.9%
Brantford Power Inc.	$ 1,002,623	$ 667,390	40.7%
Burlington Hydro Inc.	$ 842,170	$ 1,430,789	-53.0%
Canadian Niagara Power Inc.	$ 430,311	$ 602,754	-33.7%
Centre Wellington Hydro Ltd.	$ 259,947	$ 284,143	-8.9%
Chapleau Public Utilities Corporation	$ 80,138	$ 120,874	-41.1%
Cooperative Hydro Embrun Inc.	$ 198,730	$ 181,807	8.9%
E.L.K. Energy Inc.	$ 312,057	$ 429,743	-32.0%
Elexicon Energy Inc.	$ 4,441,707	$ 3,274,086	30.5%
Energy Plus	$ 1,546,722	$ 1,184,283	26.7%
Entegrus Powerlines Inc.	$ 1,239,624	$ 1,086,334	13.2%
ENWIN Utilities Ltd.	$ 1,482,849	$ 2,234,384	-41.0%
EPCOR	$ 498,836	$ 517,638	-3.7%
ERTH Power	$ 1,686,789	$ 662,209	93.5%
Espanola Regional Hydro Distribution	$ 193,955	$ 181,749	6.5%
Essex Powerlines Corporation	$ 734,022	$ 763,978	-4.0%
Festival Hydro Inc.	$ 587,610	$ 525,875	11.1%
Fort Frances Power Corporation	$ 169,790	$ 220,647	-26.2%
Greater Sudbury Hydro Inc.	$ 1,702,519	$ 1,010,160	52.2%
Grimsby Power Incorporated	$ 434,706	$ 417,244	4.1%
Halton Hills Hydro Inc.	$ 367,441	$ 668,184	-59.8%
Hearst Power Distribution Company Limited	$ 212,450	$ 153,041	32.8%
Hydro 2000 Inc.	$ 144,849	$ 139,588	3.7%
Hydro Hawkesbury Inc.	$ 235,214	$ 300,214	-24.4%
Hydro One Networks	$ 44,734,701	$ 27,378,267	49.1%
Hydro Ottawa Limited	$ 8,202,389	$ 8,326,352	-1.5%
Innpower Corporation	$ 387,009	$ 383,925	0.8%
Kingston Hydro Corporation	$ 359,273	$ 899,720	-91.8%
Kitchener-Wilmot Hydro Inc.	$ 2,286,044	$ 1,985,405	14.1%

Table 12 (continued)

Cost Performance Results: Billing O&M

Distributor	Average Actual Cost ($1000)	Average Predicted Cost	Average Actual Less Predicted 2018-2020
Lakefront Utilities Inc.	$ 221,906	$ 402,724	-59.6%
Lakeland Power Distribution Ltd.	$ 483,189	$ 343,920	34.0%
London Hydro Inc.	$ 1,822,571	$ 3,449,564	-63.8%
Milton Hydro Distribution Inc.	$ 1,519,297	$ 1,061,038	35.9%
Newmarket-Tay Power Distribution	$ 771,619	$ 1,138,528	-38.9%
Niagara Peninsula Energy Inc.	$ 3,012,873	$ 1,095,153	101.2%
Niagara-on-the-Lake Hydro Inc.	$ 322,360	$ 376,407	-15.5%
North Bay Hydro Distribution Limited	$ 423,997	$ 664,295	-44.9%
Northern Ontario Wires Inc.	$ 236,811	$ 227,981	3.8%
Oakville Hydro Electricity Distribution	$ 1,494,722	$ 1,686,980	-12.1%
Orangeville Hydro Limited	$ 354,481	$ 445,704	-22.9%
Oshawa PUC Networks Inc.	$ 1,173,386	$ 1,703,856	-37.3%
Ottawa River Power Corporation	$ 485,699	$ 443,009	9.2%
PUC Distribution Inc.	$ 423,183	$ 905,788	-76.1%
Renfrew Hydro Inc.	$ 305,787	$ 253,126	18.9%
Rideau St. Lawrence Distribution Inc.	$ 370,606	$ 291,529	24.0%
Sioux Lookout Hydro Inc.	$ 197,640	$ 176,346	11.4%
Synergy North Corporation	$ 1,579,252	$ 1,447,664	8.7%
Tillsonburg Hydro Inc.	$ 494,027	$ 254,319	66.4%
Toronto Hydro-Electric System	$ 16,152,865	$ 23,809,804	-38.8%
Wasaga Distribution Inc.	$ 549,772	$ 467,549	16.2%
Waterloo North Hydro Inc.	$ 1,618,742	$ 1,299,071	22.0%
Welland Hydro-Electric System Corp.	$ 912,804	$ 724,529	23.1%
Wellington North Power Inc.	$ 107,039	$ 172,465	-47.7%
Westario Power Inc.	$ 346,414	$ 681,731	-67.7%

Table 13

Econometric Model of Meter O&M

VARIABLE KEY

Scale Variables:

yn = Number of customers

npoles = Number of poles

Business Conditions:

pctmscdx = Percent of distribution O&M that is miscellaneous

penload = Pensions allocated to O&M

trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
yn	0.337	8.197	0.000
I(yn * yn/2)	-0.083	-6.199	0.000
npoles	0.545	14.873	0.000
pctmscdx	-0.049	-3.490	0.001
penload	0.096	4.105	0.000
trend	-0.024	-3.942	0.000
Constant	3.081	59.702	0.000
System Rbar-Squared	0.837		
Sample Period	2012-2019		
Number of Observations	528		

Table 14

Cost Performance Results: Meter O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020
Alectra Utilities Corporation	$ 9,429,932	$ 6,806,574	32.6%
Algoma Power Inc.	$ 873,120	$ 515,982	52.6%
Atikokan Hydro Inc.	$ 88,322	$ 37,750	85.0%
Bluewater Power Distribution	$ 773,135	$ 775,458	-0.3%
Brantford Power Inc.	$ 837,949	$ 572,468	38.1%
Burlington Hydro Inc.	$ 780,618	$ 1,123,367	-36.4%
Canadian Niagara Power Inc.	$ 822,988	$ 1,009,229	-20.4%
Centre Wellington Hydro Ltd.	$ 208,453	$ 104,034	69.5%
Chapleau Public Utilities Corporation	$ 42,138	$ 17,339	88.8%
Cooperative Hydro Embrun Inc.	$ 9,234	$ 34,638	-132.2%
E.L.K. Energy Inc.	$ 243,468	$ 204,995	17.2%
Elexicon Energy Inc.	$ 1,448,298	$ 2,610,101	-58.9%
Energy Plus	$ 1,338,699	$ 1,176,682	12.9%
Entegrus Powerlines Inc.	$ 470,791	$ 1,160,277	-90.2%
ENWIN Utilities Ltd.	$ 1,359,132	$ 1,385,202	-1.9%
EPCOR	$ 459,471	$ 303,711	41.4%
ERTH Power	$ 508,982	$ 639,325	-22.8%
Espanola Regional Hydro Distribution	$ 84,227	$ 70,282	18.1%
Essex Powerlines Corporation	$ 327,653	$ 466,825	-35.4%
Festival Hydro Inc.	$ 619,289	$ 361,250	53.9%
Fort Frances Power Corporation	$ 76,342	$ 77,729	-1.8%
Greater Sudbury Hydro Inc.	$ 802,714	$ 673,844	17.5%
Grimsby Power Incorporated	$ 274,333	$ 225,505	19.6%
Halton Hills Hydro Inc.	$ 103,352	$ 558,994	-168.8%
Hearst Power Distribution Company	$ 31,446	$ 56,219	-58.1%
Hydro 2000 Inc.	$ 10,421	$ 23,497	-81.3%
Hydro Hawkesbury Inc.	$ 44,372	$ 96,699	-77.9%
Hydro One Networks	$ 29,592,537	$ 16,937,366	55.8%
Hydro Ottawa Limited	$ 2,314,142	$ 3,212,466	-32.8%
Innpower Corporation	$ 291,745	$ 455,721	-44.6%
Kingston Hydro Corporation	$ 668,104	$ 337,459	68.3%
Kitchener-Wilmot Hydro Inc.	$ 1,634,186	$ 1,367,720	17.8%

Table 14 (continued)

Cost Performance Results: Meter O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020
Lakefront Utilities Inc.	$ 285,706	$ 191,706	39.9%
Lakeland Power Distribution Ltd.	$ 188,547	$ 300,470	-46.6%
London Hydro Inc.	$ 3,201,820	$ 1,553,825	72.3%
Milton Hydro Distribution Inc.	$ 673,967	$ 554,009	19.6%
Newmarket-Tay Power Distribution	$ 859,661	$ 572,228	40.7%
Niagara Peninsula Energy Inc.	$ 1,032,264	$ 1,244,525	-18.7%
Niagara-on-the-Lake Hydro Inc.	$ 188,134	$ 231,633	-20.8%
North Bay Hydro Distribution Limited	$ 579,494	$ 508,851	13.0%
Northern Ontario Wires Inc.	$ 261,435	$ 112,414	84.4%
Oakville Hydro Electricity Distribution	$ 1,300,695	$ 779,501	51.2%
Orangeville Hydro Limited	$ 248,480	$ 136,915	59.6%
Oshawa PUC Networks Inc.	$ 931,998	$ 977,825	-4.8%
Ottawa River Power Corporation	$ 169,492	$ 238,366	-34.1%
PUC Distribution Inc.	$ 711,187	$ 837,093	-16.3%
Renfrew Hydro Inc.	$ 44,063	$ 89,624	-71.0%
Rideau St. Lawrence Distribution Inc.	$ 84,666	$ 118,713	-33.8%
Sioux Lookout Hydro Inc.	$ 85,060	$ 88,887	-4.4%
Synergy North Corporation	$ 524,223	$ 1,310,178	-91.6%
Tillsonburg Hydro Inc.	$ 96,992	$ 101,456	-4.5%
Toronto Hydro-Electric System	$ 5,468,456	$ 8,256,464	-41.2%
Wasaga Distribution Inc.	$ 209,549	$ 292,937	-33.5%
Waterloo North Hydro Inc.	$ 865,984	$ 1,063,017	-20.5%
Welland Hydro-Electric System Corp.	$ 296,852	$ 501,816	-52.5%
Wellington North Power Inc.	$ 146,986	$ 70,692	73.2%
Westario Power Inc.	$ 518,561	$ 518,043	0.1%
Average	**$ 1,325,331**	**$ 1,123,682**	**-3.8%**

Table 15

Econometric Model of Vegetation Management O&M

VARIABLE KEY

Scale Variables:

npoles = Total number of poles

Business Conditions:

ykmohpernpol = overhead km per pole
vegDE = 60% or more vegetation
pctsupdx = Percent of distribution O&M that is supervision
penload = Pensions allocated to O&M
trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
npoles	1.017	32.898	0.000
I(npoles *npoles/2)	-0.022	-1.254	0.211
ykmohpernpol	0.173	3.940	0.000
vegDE	0.072	1.946	0.052
pctsupdx	-0.148	-5.265	0.000
penload	0.081	2.766	0.006
trend	-0.003	-0.344	0.731
Constant*	2.768	34.593	0.000
System Rbar-Squared	0.864		
Sample Period	2012-2019		
Number of Observations	481		

Table 16

Cost Performance Results: Vegetation Management O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020
Alectra Utilities Corporation	$ 5,162,966	$ 5,406,010	-4.6%
Algoma Power Inc.	$ 3,610,461	$ 1,136,366	115.6%
Atikokan Hydro Inc.	$ 43,065	$ 47,309	-9.4%
Bluewater Power Distribution	$ 231,307	$ 495,588	-76.2%
Brantford Power Inc.	$ 396,299	$ 205,443	65.7%
Burlington Hydro Inc.	$ 628,432	$ 633,480	-0.8%
Canadian Niagara Power Inc.	$ 500,283	$ 1,067,607	-75.8%
Centre Wellington Hydro Ltd.	$ 47,324	$ 49,800	-5.1%
Cooperative Hydro Embrun Inc.	$ 10,960	$ 17,694	-47.9%
E.L.K. Energy Inc.	$ 59,480	$ 95,073	-46.9%
Elexicon Energy Inc.	$ 1,063,508	$ 1,445,670	-30.7%
Energy Plus	$ 524,338	$ 669,905	-24.5%
Entegrus Powerlines Inc.	$ 222,129	$ 709,285	-116.1%
ENWIN Utilities Ltd.	$ 1,001,674	$ 577,916	55.0%
EPCOR	$ 146,547	$ 141,083	3.8%
ERTH Power	$ 232,943	$ 516,355	-79.6%
Espanola Regional Hydro Distribution	$ 84,849	$ 49,446	54.0%
Essex Powerlines Corporation	$ 446,180	$ 243,160	60.7%
Festival Hydro Inc.	$ 140,004	$ 172,031	-20.6%
Fort Frances Power Corporation	$ 70,824	$ 43,475	48.8%
Greater Sudbury Hydro Inc.	$ 618,432	$ 331,354	62.4%
Grimsby Power Incorporated	$ 74,437	$ 125,833	-52.5%
Halton Hills Hydro Inc.	$ 220,467	$ 343,349	-44.3%
Hearst Power Distribution Company	$ 9,898	$ 56,053	-173.4%
Hydro 2000 Inc.	$ 5,097	$ 17,612	-124.0%
Hydro Hawkesbury Inc.	$ 67,733	$ 48,066	34.3%
Hydro One Networks	$ 141,396,425	$ 22,232,773	185.0%
Hydro Ottawa Limited	$ 3,421,803	$ 2,048,623	51.3%
Innpower Corporation	$ 202,891	$ 415,577	-71.7%
Kingston Hydro Corporation	$ 339,051	$ 138,677	89.4%
Kitchener-Wilmot Hydro Inc.	$ 1,062,262	$ 638,522	50.9%

Table 16 (continued)

Cost Performance Results: Vegetation Management O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020
Lakefront Utilities Inc.	$ 55,703	$ 98,793	-57.3%
Lakeland Power Distribution Ltd.	$ 194,040	$ 169,367	13.6%
London Hydro Inc.	$ 1,134,412	$ 762,704	39.7%
Milton Hydro Distribution Inc.	$ 390,795	$ 442,828	-12.5%
Newmarket-Tay Power Distribution	$ 175,088	$ 274,318	-44.9%
Niagara Peninsula Energy Inc.	$ 354,127	$ 886,831	-91.8%
Niagara-on-the-Lake Hydro Inc.	$ 66,782	$ 175,114	-96.4%
North Bay Hydro Distribution Limited	$ 565,478	$ 347,120	48.8%
Northern Ontario Wires Inc.	$ 96,611	$ 80,053	18.8%
Oakville Hydro Electricity Distribution	$ 425,272	$ 183,595	84.0%
Orangeville Hydro Limited	$ 115,483	$ 36,420	115.4%
Ottawa River Power Corporation	$ 162,004	$ 142,682	12.7%
Rideau St. Lawrence Distribution Inc.	$ 63,886	$ 55,484	14.1%
Sioux Lookout Hydro Inc.	$ 79,680	$ 139,774	-56.2%
Synergy North Corporation	$ 854,541	$ 614,964	32.9%
Tillsonburg Hydro Inc.	$ 65,783	$ 58,578	11.6%
Toronto Hydro-Electric System	$ 3,121,749	$ 7,166,328	-83.1%
Wasaga Distribution Inc.	$ 159,823	$ 163,378	-2.2%
Waterloo North Hydro Inc.	$ 345,571	$ 639,188	-61.5%
Welland Hydro-Electric System Corp.	$ 222,014	$ 273,894	-21.0%
Wellington North Power Inc.	$ 65,153	$ 38,196	53.4%
Westario Power Inc.	$ 198,633	$ 390,512	-67.6%
Average	**$ 3,121,182**	**$ 979,794**	**-4.2%**

Table 17

Econometric Model of Lines O&M

VARIABLE KEY

Scale Variables:

yn = Number of customers
npoles = Number of poles

Business Conditions:

agetrf20 = % line transformers under 20 years old
pctmscdx = % distribution O&M miscellaneous
pctsupdx = % distribution O&M supervision
penload = Pensions allocated to O&M
trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
yn	0.617	11.178	0.000
I(yn * yn/2)	0.237	7.164	0.000
npoles	0.349	5.074	0.000
I(npoles *npoles/2)	-0.257	-6.637	0.000
agetrf20	-0.025	-0.660	0.510
pctmscdx	-0.170	-11.396	0.000
pctsupdx	-0.103	-5.014	0.000
penload	0.072	3.726	0.000
trend	0.008	1.415	0.158
Constant	3.887	57.117	0.000
System Rbar-Squared	0.884		
Sample Period	2012-2020		
Number of Observations	513		

Table 18

Cost Performance Results: Lines O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020
Alectra Utilities Corporation	$ 42,102,910	$ 75,801,408	-58.8%
Algoma Power Inc.	$ 1,160,937	$ 2,545,246	-78.5%
Atikokan Hydro Inc.	$ 378,128	$ 133,118	104.4%
Bluewater Power Distribution	$ 1,675,912	$ 1,508,865	10.5%
Brantford Power Inc.	$ 1,217,042	$ 929,994	26.9%
Burlington Hydro Inc.	$ 4,146,440	$ 2,827,096	38.3%
Canadian Niagara Power Inc.	$ 1,319,668	$ 2,266,825	-54.1%
Centre Wellington Hydro Ltd.	$ 253,144	$ 158,374	46.9%
Chapleau Public Utilities Corporation	$ 184,925	$ 54,269	122.6%
Cooperative Hydro Embrun Inc.	$ 13,331	$ 46,808	-125.6%
E.L.K. Energy Inc.	$ 616,342	$ 416,465	39.2%
Elexicon Energy Inc.	$ 4,439,995	$ 7,804,132	-56.4%
Energy Plus	$ 2,838,572	$ 3,133,972	-9.9%
Entegrus Powerlines Inc.	$ 1,587,972	$ 2,402,375	-41.4%
ENWIN Utilities Ltd.	$ 3,959,782	$ 3,216,163	20.8%
EPCOR	$ 719,528	$ 508,058	34.8%
ERTH Power	$ 909,083	$ 1,328,009	-37.9%
Espanola Regional Hydro Distribution	$ 306,717	$ 172,591	57.5%
Essex Powerlines Corporation	$ 818,220	$ 893,486	-8.8%
Festival Hydro Inc.	$ 1,235,873	$ 694,043	57.7%
Fort Frances Power Corporation	$ 46,685	$ 150,419	-117.0%
Greater Sudbury Hydro Inc.	$ 1,352,026	$ 1,265,673	6.6%
Grimsby Power Incorporated	$ 284,733	$ 358,723	-23.1%
Halton Hills Hydro Inc.	$ 611,718	$ 1,161,273	-64.1%
Hearst Power Distribution Company	$ 205,781	$ 120,520	53.5%
Hydro 2000 Inc.	$ 17,322	$ 80,800	-154.0%
Hydro Hawkesbury Inc.	$ 79,960	$ 221,524	-101.9%
Hydro One Networks	$ 67,542,974	$ 411,792	510.0%
Hydro Ottawa Limited	$ 6,400,067	$ 10,322,319	-47.8%
Innpower Corporation	$ 471,302	$ 849,373	-58.9%
Kingston Hydro Corporation	$ 896,713	$ 518,394	54.8%
Kitchener-Wilmot Hydro Inc.	$ 4,280,771	$ 3,408,026	22.8%

Table 18 (continued)

Cost Performance Results: Lines O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020
Lakefront Utilities Inc.	$ 506,329	$ 342,129	39.2%
Lakeland Power Distribution Ltd.	$ 882,597	$ 546,136	48.0%
London Hydro Inc.	$ 4,987,102	$ 3,757,880	28.3%
Milton Hydro Distribution Inc.	$ 895,745	$ 1,079,934	-18.7%
Newmarket-Tay Power Distribution	$ 1,183,905	$ 854,549	32.6%
Niagara Peninsula Energy Inc.	$ 2,583,599	$ 1,797,116	36.3%
Niagara-on-the-Lake Hydro Inc.	$ 446,508	$ 478,883	-7.0%
North Bay Hydro Distribution Limited	$ 1,137,056	$ 1,401,359	-20.9%
Northern Ontario Wires Inc.	$ 471,050	$ 194,798	88.3%
Oakville Hydro Electricity Distribution	$ 1,131,626	$ 1,342,664	-17.1%
Orangeville Hydro Limited	$ 151,018	$ 122,903	20.6%
Oshawa PUC Networks Inc.	$ 643,729	$ 2,163,058	-121.2%
Ottawa River Power Corporation	$ 175,670	$ 578,599	-119.2%
PUC Distribution Inc.	$ 2,305,298	$ 1,700,990	30.4%
Renfrew Hydro Inc.	$ 109,402	$ 147,678	-30.0%
Rideau St. Lawrence Distribution Inc.	$ 294,771	$ 190,986	43.4%
Sioux Lookout Hydro Inc.	$ 468,000	$ 239,719	66.9%
Synergy North Corporation	$ 3,242,583	$ 2,754,870	16.3%
Tillsonburg Hydro Inc.	$ 124,099	$ 112,740	9.6%
Toronto Hydro-Electric System	$ 27,042,439	$ 46,173,564	-53.5%
Wasaga Distribution Inc.	$ 523,739	$ 666,468	-24.1%
Waterloo North Hydro Inc.	$ 1,747,144	$ 1,932,825	-10.1%
Welland Hydro-Electric System Corp.	$ 1,741,597	$ 995,812	55.9%
Wellington North Power Inc.	$ 53,876	$ 155,040	-105.7%
Westario Power Inc.	$ 847,951	$ 1,268,795	-40.3%
Average	**$ 3,610,025**	**$ 3,451,046**	**2.1%**

Table 19

Econometric Model of Station Maintenance O&M

VARIABLE KEY

Scale Variables:

nstation = Number of stations

Business Conditions:

mvaperstat = Station capacity
statyes = Affirmed outsourcing
pctmscdx = Percent of distribution O&M that is miscellaneous
penload = Pensions allocated to O&M
trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
nstation	1.150	40.887	0.000
I(nstation* nstation/2)	-0.027	-1.074	0.283
mvaperstat	0.287	6.681	0.000
statyes	-0.200	-8.193	0.000
pctmscdx	0.005	0.175	0.861
penload	0.170	3.896	0.000
trend	-0.020	-1.849	0.065
Constant*	1.832	19.498	< 2e-16
System Rbar-Squared	0.820		
Sample Period	2012-2019		
Number of Observations	420		

Table 20

Cost Performance Results: Station Maintenance O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020
Alectra Utilities Corporation	$ 6,752,583	$ 4,830,380	33.5%
Algoma Power Inc.	$ 82,862	$ 146,230	-56.8%
Atikokan Hydro Inc.	$ 16,521	$ 37,138	-81.0%
Bluewater Power Distribution	$ 142,883	$ 136,459	4.6%
Burlington Hydro Inc.	$ 951,606	$ 516,023	61.2%
Canadian Niagara Power Inc.	$ 165,448	$ 166,610	-0.7%
Centre Wellington Hydro Ltd.	$ 61,528	$ 36,252	52.9%
Chapleau Public Utilities Corporation	$ 2,066	$ 6,383	-112.8%
Cooperative Hydro Embrun Inc.	$ 11,748	$ 14,108	-18.3%
Elexicon Energy Inc.	$ 737,736	$ 1,003,838	-30.8%
ENWIN Utilities Ltd.	$ 24,073	$ 110,842	-152.7%
EPCOR	$ 118,485	$ 116,955	1.3%
ERTH Power	$ 121,185	$ 62,949	65.5%
Espanola Regional Hydro Distribution	$ 30,413	$ 18,245	51.1%
Festival Hydro Inc.	$ 8,032	$ 25,774	-116.6%
Greater Sudbury Hydro Inc.	$ 803,744	$ 378,525	75.3%
Halton Hills Hydro Inc.	$ 256,906	$ 134,924	64.4%
Hydro Hawkesbury Inc.	$ 15,349	$ 16,627	-8.0%
Hydro One Networks	$ 14,077,266	$ 40,551,030	-105.8%
Hydro Ottawa Limited	$ 1,304,252	$ 1,578,744	-19.1%
Innpower Corporation	$ 83,687	$ 88,862	-6.0%
Kingston Hydro Corporation	$ 295,447	$ 233,338	23.6%
Kitchener-Wilmot Hydro Inc.	$ 90,862	$ 50,267	59.2%

Table 20 (continued)

Cost Performance Results: Station Maintenance O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020
Lakefront Utilities Inc.	$ 56,837	$ 54,119	4.9%
Lakeland Power Distribution Ltd.	$ 65,732	$ 73,448	-11.1%
London Hydro Inc.	$ 1,038,049	$ 442,791	85.2%
Milton Hydro Distribution Inc.	$ 57,991	$ 40,580	35.7%
Newmarket-Tay Power Distribution	$ 123,996	$ 201,391	-48.5%
Niagara Peninsula Energy Inc.	$ 24,412	$ 218,778	-219.3%
North Bay Hydro Distribution Limited	$ 112,750	$ 199,971	-57.3%
Northern Ontario Wires Inc.	$ 23,697	$ 42,921	-59.4%
Oakville Hydro Electricity Distribution	$ 144,932	$ 216,430	-40.1%
Orangeville Hydro Limited	$ 38,444	$ 17,274	80.0%
Oshawa PUC Networks Inc.	$ 223,665	$ 159,357	33.9%
Ottawa River Power Corporation	$ 105,591	$ 137,355	-26.3%
PUC Distribution Inc.	$ 286,958	$ 168,062	53.5%
Renfrew Hydro Inc.	$ 51,815	$ 47,308	9.1%
Synergy North Corporation	$ 360,366	$ 141,758	93.3%
Tillsonburg Hydro Inc.	$ 19,816	$ 2,521	206.2%
Toronto Hydro-Electric System	$ 9,105,999	$ 5,032,583	59.3%
Wasaga Distribution Inc.	$ 22,012	$ 35,395	-47.5%
Waterloo North Hydro Inc.	$ 213,600	$ 55,540	134.7%
Welland Hydro-Electric System Corp.	$ 215,916	$ 131,222	49.8%
Wellington North Power Inc.	$ 36,623	$ 33,740	8.2%
Westario Power Inc.	$ 241,227	$ 204,739	16.4%

Table 21

Econometric Model of Poles Maintenance O&M

VARIABLE KEY

Scale Variables:

npoles = Number of poles

Business Conditions:

pctwood = Percent of poles that are wood
pctsteel = Percent of poles that are steel
oldpol50 = % poles over 50 years old
penload = Pensions allocated to O&M
trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
npoles	0.784	12.524	0.000
I(npoles *npoles/2)	0.013	0.409	0.683
pctwood	0.123	0.914	0.361
pctsteel	0.011	0.439	0.661
oldpol50	0.336	5.759	0.000
penload	0.124	2.167	0.031
trend	-0.027	-1.998	0.046
Constant	0.335	1.640	0.102
System Rbar-Squared	0.550		
Sample Period	2012-2019		
Number of Observations	471		

Table 22

Cost Performance Results: Poles Maintenance O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Alectra Utilities Corporation	$ 413,815	$ 424,715	-2.6%
Algoma Power Inc.	$ 119,232	$ 142,747	-18.0%
Bluewater Power Distribution	$ 7,954	$ 109,696	-262.4%
Brantford Power Inc.	$ 33,209	$ 42,855	-25.5%
Burlington Hydro Inc.	$ 116,588	$ 157,377	-30.0%
Canadian Niagara Power Inc.	$ 126,609	$ 116,758	8.1%
Centre Wellington Hydro Ltd.	$ 45,866	$ 14,321	116.4%
Chapleau Public Utilities Corporation	$ 307	$ 7,650	-321.7%
Cooperative Hydro Embrun Inc.	$ 4,970	$ 4,699	5.6%
E.L.K. Energy Inc.	$ 30,968	$ 15,689	68.0%
Elexicon Energy Inc.	$ 153,222	$ 199,914	-26.6%
Energy Plus	$ 70,653	$ 126,063	-57.9%
Entegrus Powerlines Inc.	$ 106,246	$ 101,571	4.5%
ENWIN Utilities Ltd.	$ 689,328	$ 89,722	203.9%
EPCOR	$ 89,332	$ 25,620	124.9%
ERTH Power	$ 99,598	$ 114,564	-14.0%
Espanola Regional Hydro Distribution	$ 13,701	$ 32,638	-86.8%
Essex Powerlines Corporation	$ 65,542	$ 35,898	60.2%
Festival Hydro Inc.	$ 49,157	$ 25,946	63.9%
Fort Frances Power Corporation	$ 19,080	$ 13,690	33.2%
Greater Sudbury Hydro Inc.	$ 173,532	$ 95,809	59.4%
Grimsby Power Incorporated	$ 76,367	$ 37,923	70.0%
Halton Hills Hydro Inc.	$ 14,055	$ 132,682	-224.5%
Hearst Power Distribution Company	$ 70,685	$ 25,463	102.1%
Hydro 2000 Inc.	$ 3,324	$ 9,462	-104.6%
Hydro Hawkesbury Inc.	$ 8,245	$ 14,668	-57.6%
Hydro One Networks	$ 22,020,124	$ 354,147	413.0%
Hydro Ottawa Limited	$ 569,291	$ 356,521	46.8%
Innpower Corporation	$ 43,560	$ 51,271	-16.3%
Kingston Hydro Corporation	$ 66,410	$ 35,088	63.8%
Kitchener-Wilmot Hydro Inc.	$ 338,644	$ 119,815	103.9%

Table 22 (continued)

Cost Performance Results: Poles Maintenance O&M

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Lakeland Power Distribution Ltd.	$ 27,038	$ 52,627	-66.6%
London Hydro Inc.	$ 634,153	$ 124,001	163.2%
Milton Hydro Distribution Inc.	$ 279,827	$ 76,644	129.5%
Newmarket-Tay Power Distribution	$ 75,742	$ 56,562	29.2%
Niagara Peninsula Energy Inc.	$ 142,222	$ 195,466	-31.8%
Niagara-on-the-Lake Hydro Inc.	$ 54,244	$ 43,358	22.4%
North Bay Hydro Distribution Limited	$ 127,019	$ 109,327	15.0%
Northern Ontario Wires Inc.	$ 17,725	$ 26,628	-40.7%
Oakville Hydro Electricity Distribution	$ 20,598	$ 94,556	-152.4%
Orangeville Hydro Limited	$ 3,814	$ 23,515	-181.9%
Oshawa PUC Networks Inc.	$ 458,728	$ 89,430	163.5%
Ottawa River Power Corporation	$ 5,696	$ 45,453	-207.7%
PUC Distribution Inc.	$ 25,865	$ 129,011	-160.7%
Renfrew Hydro Inc.	$ 3,372	$ 14,667	-147.0%
Sioux Lookout Hydro Inc.	$ 36,902	$ 19,207	65.3%
Synergy North Corporation	$ 425,306	$ 119,320	127.1%
Tillsonburg Hydro Inc.	$ 19,438	$ 20,578	-5.7%
Toronto Hydro-Electric System	$ 1,288,270	$ 1,654,172	-25.0%
Wasaga Distribution Inc.	$ 9,982	$ 87,862	-217.5%
Waterloo North Hydro Inc.	$ 163,590	$ 84,383	66.2%
Welland Hydro-Electric System Corp.	$ 169,173	$ 96,924	55.7%
Wellington North Power Inc.	$ 15,146	$ 13,870	8.8%
Westario Power Inc.	$ 148,957	$ 18,041	211.1%

Table 23

Econometric Model of Distribution Station Capex

VARIABLE KEY

Scale Variables:

nstattrf = Number of station transformers

numtrf = Number of line transformers

Business Conditions:

trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
nstattrf	0.925	5.350	0.000
I(nstattrf * nstattr/2)	0.008	0.148	0.882
numtrf	0.344	2.313	0.022
trend	0.015	0.458	0.647
Constant	9.263	42.366	0.000
System Rbar-Squared	0.507		
Sample Period	2012-2020		
Number of Observations	287		

Table 24

Cost Performance Results: Distribution Station Capex

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Alectra Utilities Corporation	$ 3,388,324	$ 19,055,114	-172.7%
Algoma Power Inc.	$ 96,391	$ 1,288,734	-259.3%
Bluewater Power Distribution	$ 244,770	$ 577,853	-85.9%
Burlington Hydro Inc.	$ 145,793	$ 887,304	-180.6%
Canadian Niagara Power Inc.	$ 1,364,664	$ 271,419	161.5%
Centre Wellington Hydro Ltd.	$ 423,220	$ 210,796	69.7%
Chapleau Public Utilities Corporation	$ 36,250	$ 13,058	102.1%
Cooperative Hydro Embrun Inc.	$ 20,806	$ 4,222	159.5%
Elexicon Energy Inc.	$ 5,590,048	$ 2,013,728	102.1%
Entegrus Powerlines Inc.	$ 101,705	$ 343,118	-121.6%
Espanola Regional Hydro Distribution	$ 2,695	$ 51,801	-295.6%
Festival Hydro Inc.	$ 88,765	$ 37,412	86.4%
Greater Sudbury Hydro Inc.	$ 2,821,778	$ 507,818	171.5%
Halton Hills Hydro Inc.	$ 275,106	$ 294,170	-6.7%
Hydro Hawkesbury Inc.	$ 15,406	$ 65,545	-144.8%
Hydro One Networks	$ 45,838,773	$ 148,284,139	-117.4%
Hydro Ottawa Limited	$ 8,523,844	$ 4,599,131	61.7%
Innpower Corporation	$ 1,556,092	$ 200,323	205.0%
Kingston Hydro Corporation	$ 1,217,112	$ 278,728	147.4%
Kitchener-Wilmot Hydro Inc.	$ 6,195	$ 13,869	-80.6%

Table 24 (continued)

Cost Performance Results: Distribution Station Capex

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Lakefront Utilities Inc.	$ 22,807	$ 60,405	-97.4%
Lakeland Power Distribution Ltd.	$ 8,075	$ 121,483	-271.1%
London Hydro Inc.	$ 193,968	$ 1,160,599	-178.9%
Milton Hydro Distribution Inc.	$ 980	$ 95,207	-457.6%
Newmarket-Tay Power Distribution	$ 264,041	$ 506,287	-65.1%
Niagara Peninsula Energy Inc.	$ 57,048	$ 663,743	-245.4%
North Bay Hydro Distribution Limited	$ 1,611,987	$ 280,402	174.9%
Northern Ontario Wires Inc.	$ 50,271	$ 129,080	-94.3%
Oakville Hydro Electricity Distribution	$ 555,462	$ 363,508	42.4%
Orangeville Hydro Limited	$ 17,593	$ 32,411	-61.1%
Oshawa PUC Networks Inc.	$ 3,562,026	$ 244,468	267.9%
Ottawa River Power Corporation	$ 55,151	$ 182,014	-119.4%
PUC Distribution Inc.	$ 4,057,130	$ 1,445,530	103.2%
Renfrew Hydro Inc.	$ 173,330	$ 51,224	121.9%
Rideau St. Lawrence Distribution Inc.	$ 44,344	$ 40,853	8.2%
Toronto Hydro-Electric System	$ 22,838,485	$ 5,162,635	148.7%
Waterloo North Hydro Inc.	$ 143,830	$ 97,967	38.4%
Welland Hydro-Electric System Corp.	$ 250,768	$ 155,171	48.0%
Wellington North Power Inc.	$ 3,323	$ 32,913	-229.3%
Westario Power Inc.	$ 1,183,439	$ 283,774	142.8%
Average	**$ 2,671,295**	**$ 4,752,699**	**-23.0%**

* All distributor results are for 2018-2020 except: Centre Wellington 2017-2019; Cooperative Hydro Embrun 2017-2019; Espanola 2020 only; HON 2017-2019; Hydro Hawkesbury 2017 and 2019 only; Kitchener-Wilmot 2017-2019; Lakeland 2020 only; Milton Hydro 2018 only; Northern Ontario Wires Inc. 2017-2019; Orangeville Hydro 2017-2019; Oshawa 2016-2018; Rideau St. Lawrence 2017-2019; Wellington North Power 2017 and 2019 only.

Table 25

Econometric Model of Poles, Towers and Fixtures Capex

VARIABLE KEY

Scale Variables:

npoles = Total Number of poles

Business Conditions:

ykmpernpol = km line per pole

oldpol50 = % poles over 50 years old

ynadd3 = 3-year change in customer numbers

trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
npoles	1.083	47.303	0.000
I(npoles * npole/2)	-0.071	-4.898	0.000
ykmpernpol	0.263	4.237	0.000
oldpol50	0.048	1.199	0.231
ynadd3	1.816	1.237	0.217
trend	0.024	2.698	0.007
Constant	10.710	139.889	0.000
System Rbar-Squared	0.831		
Sample Period	2012-2019		
Number of Observations	485		

Table 26

Cost Performance Results: Poles, Towers and Fixtures Capex

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Alectra Utilities Corporation	$ 54,836,401	$ 35,422,748	43.7%
Algoma Power Inc.	$ 3,329,013	$ 4,223,550	-23.8%
Atikokan Hydro Inc.	$ 183,019	$ 110,122	50.8%
Bluewater Power Distribution	$ 2,587,019	$ 1,797,696	36.4%
Brantford Power Inc.	$ 872,023	$ 1,086,608	-22.0%
Burlington Hydro Inc.	$ 2,038,108	$ 2,070,980	-1.6%
Canadian Niagara Power Inc.	$ 2,457,900	$ 3,351,162	-31.0%
Centre Wellington Hydro Ltd.	$ 183,654	$ 142,317	25.5%
Chapleau Public Utilities Corporation	$ 58,093	$ 44,525	26.6%
Cooperative Hydro Embrun Inc.	$ 25,005	$ 31,440	-22.9%
E.L.K. Energy Inc.	$ 65,607	$ 305,114	-153.7%
Elexicon Energy Inc.	$ 7,676,069	$ 5,393,031	35.3%
Energy Plus	$ 2,711,770	$ 2,813,985	-3.7%
Entegrus Powerlines Inc.	$ 2,575,256	$ 3,231,508	-22.7%
ENWIN Utilities Ltd.	$ 4,903,765	$ 3,330,103	38.7%
EPCOR	$ 1,626,340	$ 478,228	122.4%
ERTH Power	$ 905,274	$ 1,744,524	-65.6%
Espanola Regional Hydro Distribution	$ 203,907	$ 143,260	35.3%
Essex Powerlines Corporation	$ 514,160	$ 774,745	-41.0%
Festival Hydro Inc.	$ 436,168	$ 546,770	-22.6%
Fort Frances Power Corporation	$ 32,608	$ 175,661	-168.4%
Greater Sudbury Hydro Inc.	$ 2,158,741	$ 1,457,212	39.3%
Grimsby Power Incorporated	$ 278,125	$ 503,242	-59.3%
Halton Hills Hydro Inc.	$ 1,591,330	$ 1,329,190	18.0%
Hearst Power Distribution Company	$ 109,579	$ 174,277	-46.4%
Hydro 2000 Inc.	$ 31,446	$ 12,772	90.1%
Hydro Hawkesbury Inc.	$ 102,052	$ 116,220	-13.0%
Hydro One Networks	$ 289,134,204	$ 143,579,796	70.0%
Hydro Ottawa Limited	$ 9,491,561	$ 8,326,166	13.1%
Innpower Corporation	$ 2,675,361	$ 1,977,996	30.2%
Kitchener-Wilmot Hydro Inc.	$ 889,560	$ 364,209	89.3%

Table 26 (continued)

Cost Performance Results: Poles, Towers and Fixtures Capex

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Lakefront Utilities Inc.	$ 388,228	$ 266,025	37.8%
Lakeland Power Distribution Ltd.	$ 826,438	$ 571,421	36.9%
London Hydro Inc.	$ 2,079,948	$ 4,234,828	-71.1%
Milton Hydro Distribution Inc.	$ 1,688,784	$ 1,757,704	-4.0%
Newmarket-Tay Power Distribution	$ 576,662	$ 1,195,423	-72.9%
Niagara Peninsula Energy Inc.	$ 3,454,781	$ 4,705,627	-30.9%
Niagara-on-the-Lake Hydro Inc.	$ 514,745	$ 550,965	-6.8%
North Bay Hydro Distribution Limited	$ 1,197,956	$ 1,116,967	7.0%
Northern Ontario Wires Inc.	$ 230,008	$ 317,067	-32.1%
Oakville Hydro Electricity Distribution	$ 2,824,972	$ 1,319,824	76.1%
Orangeville Hydro Limited	$ 205,385	$ 144,588	35.1%
Oshawa PUC Networks Inc.	$ 4,949,843	$ 2,987,258	50.5%
Ottawa River Power Corporation	$ 125,382	$ 512,019	-140.7%
PUC Distribution Inc.	$ 9,070,460	$ 3,842,115	85.9%
Renfrew Hydro Inc.	$ 247,286	$ 101,956	88.6%
Rideau St. Lawrence Distribution Inc.	$ 118,608	$ 165,973	-33.6%
Sioux Lookout Hydro Inc.	$ 147,384	$ 348,989	-86.2%
Synergy North Corporation	$ 3,585,538	$ 2,712,603	27.9%
Tillsonburg Hydro Inc.	$ 390,354	$ 176,453	79.4%
Toronto Hydro-Electric System	$ 29,095,905	$ 33,535,260	-14.2%
Wasaga Distribution Inc.	$ 433,762	$ 640,659	-39.0%
Waterloo North Hydro Inc.	$ 4,312,510	$ 2,563,876	52.0%
Welland Hydro-Electric System Corp.	$ 679,827	$ 952,261	-33.7%
Wellington North Power Inc.	$ 161,339	$ 164,269	-1.8%
Westario Power Inc.	$ 1,044,133	$ 1,124,329	-7.4%
Average	**$ 8,268,453**	**$ 5,197,636**	**1.2%**

* Resutls for Essex Powerlines, Hydro One, Hydro Hawkesbury, Rideau St. Lawrence and Tillsonburg Hydro are for 2017-2019.

Table 27

Econometric Model of Line Transformers Capex

VARIABLE KEY

Scale Variables:

yn = Number of customers

ykm = Total km of line

Business Conditions:

ynadd3 = 3-year change in customer numbers

trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
yn	0.769	19.946	0.000
I(yn * yn/2)	-0.133	-6.742	0.000
ykm	0.323	10.587	0.000
ynadd3	6.598	5.457	0.000
trend	0.019	2.457	0.014
Constant	10.159	207.944	0.000
System Rbar-Squared	0.856		
Sample Period	2012-2020		
Number of Observations	481		

Table 28

Cost Performance Results: Line Transformers Capex

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Alectra Utilities Corporation	$ 46,145,623	$ 46,516,268	-0.8%
Algoma Power Inc.	$ 474,605	$ 433,756	9.0%
Atikokan Hydro Inc.	$ 33,074	$ 23,261	35.2%
Bluewater Power Distribution	$ 1,134,075	$ 979,040	14.7%
Brantford Power Inc.	$ 1,106,762	$ 956,417	14.6%
Burlington Hydro Inc.	$ 1,444,212	$ 2,037,174	-34.4%
Canadian Niagara Power Inc.	$ 1,540,845	$ 971,738	46.1%
Centre Wellington Hydro Ltd.	$ 128,417	$ 135,814	-5.6%
Chapleau Public Utilities Corporation	$ 9,166	$ 10,099	-9.7%
Cooperative Hydro Embrun Inc.	$ 106,149	$ 24,236	147.7%
E.L.K. Energy Inc.	$ 302,731	$ 226,976	28.8%
Elexicon Energy Inc.	$ 6,979,453	$ 6,619,174	5.3%
Energy Plus	$ 2,968,369	$ 2,100,158	34.6%
Entegrus Powerlines Inc.	$ 1,280,024	$ 2,422,690	-63.8%
ENWIN Utilities Ltd.	$ 2,366,632	$ 3,719,048	-45.2%
EPCOR	$ 213,329	$ 633,232	-108.8%
ERTH Power	$ 793,839	$ 618,861	24.9%
Espanola Regional Hydro Distribution	$ 46,992	$ 48,763	-3.7%
Essex Powerlines Corporation	$ 1,356,254	$ 1,460,424	-7.4%
Festival Hydro Inc.	$ 342,315	$ 447,972	-26.9%
Fort Frances Power Corporation	$ 43,394	$ 43,786	-0.9%
Greater Sudbury Hydro Inc.	$ 1,854,633	$ 1,267,044	38.1%
Grimsby Power Incorporated	$ 315,932	$ 332,795	-5.2%
Halton Hills Hydro Inc.	$ 1,269,275	$ 824,850	43.1%
Hearst Power Distribution Company	$ 17,356	$ 29,843	-54.2%
Hydro 2000 Inc.	$ 33,061	$ 7,556	147.6%
Hydro Hawkesbury Inc.	$ 12,167	$ 70,935	-176.3%
Hydro One Networks	$ 40,657,499	$ 38,597,337	5.2%
Hydro Ottawa Limited	$ 8,965,699	$ 10,521,345	-16.0%
Innpower Corporation	$ 1,005,942	$ 1,127,412	-11.4%
Kingston Hydro Corporation	$ 403,754	$ 570,097	-34.5%
Kitchener-Wilmot Hydro Inc.	$ 3,328,722	$ 3,002,930	10.3%

Table 28 (continued)

Cost Performance Results: Line Transformers Capex

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Lakefront Utilities Inc.	$ 156,641	$ 230,893	-38.8%
Lakeland Power Distribution Ltd.	$ 410,329	$ 309,191	28.3%
London Hydro Inc.	$ 4,633,001	$ 4,978,880	-7.2%
Milton Hydro Distribution Inc.	$ 1,840,948	$ 2,307,767	-22.6%
Newmarket-Tay Power Distribution	$ 734,754	$ 1,481,093	-70.1%
Niagara Peninsula Energy Inc.	$ 2,276,283	$ 2,500,633	-9.4%
Niagara-on-the-Lake Hydro Inc.	$ 326,153	$ 225,285	37.0%
North Bay Hydro Distribution Limited	$ 675,697	$ 554,322	19.8%
Northern Ontario Wires Inc.	$ 75,338	$ 144,313	-65.0%
Oakville Hydro Electricity Distribution	$ 2,317,110	$ 2,716,436	-15.9%
Orangeville Hydro Limited	$ 336,918	$ 252,861	28.7%
Oshawa PUC Networks Inc.	$ 2,982,308	$ 1,769,501	52.2%
Ottawa River Power Corporation	$ 322,177	$ 339,374	-5.2%
PUC Distribution Inc.	$ 5,817,082	$ 2,082,978	102.7%
Renfrew Hydro Inc.	$ 47,916	$ 63,272	-27.8%
Rideau St. Lawrence Distribution Inc.	$ 98,322	$ 73,277	29.4%
Sioux Lookout Hydro Inc.	$ 77,230	$ 57,042	30.3%
Synergy North Corporation	$ 1,471,917	$ 1,510,689	-2.6%
Tillsonburg Hydro Inc.	$ 448,760	$ 127,165	126.1%
Toronto Hydro-Electric System	$ 75,579,012	$ 21,416,864	126.1%
Wasaga Distribution Inc.	$ 328,954	$ 351,749	-6.7%
Waterloo North Hydro Inc.	$ 3,233,512	$ 1,821,333	57.4%
Welland Hydro-Electric System Corp.	$ 653,471	$ 664,675	-1.7%
Wellington North Power Inc.	$ 101,864	$ 60,681	51.8%
Westario Power Inc.	$ 457,781	$ 603,285	-27.6%
Average	**$ 4,071,645**	**$ 3,042,537**	**6.8%**

* Resutls for Essex Powerlines, Hydro One, Hydro Hawkesbury, Rideau St. Lawrence and Tillsonburg Hydro are for 2017-2019.

Table 29

Econometric Model of Meter Capex

VARIABLE KEY

Scale Variables:

yn = Number of customers

ykm = Total km of line

Business Conditions:

ynadd3 = 3-year change in customer numbers

trend = Time trend

EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	T-STATISTIC	P-VALUE
yn	0.714	8.242	0.000
I(yn * yn/2)	-0.032	-0.793	0.428
ykm	0.370	4.901	0.000
ynadd3	2.332	0.995	0.320
trend	-0.027	-1.644	0.101
Constant	9.357	90.272	0.000
System Rbar-Squared	0.659		
Sample Period	2012-2020		
Number of Observations	469		

Table 30

Cost Performance Results: Meter Capex

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Alectra Utilities Corporation	$ 15,405,859	$ 23,992,659	-44.3%
Algoma Power Inc.	$ 130,650	$ 297,533	-82.3%
Atikokan Hydro Inc.	$ 22,000	$ 9,385	85.2%
Bluewater Power Distribution	$ 342,664	$ 327,586	4.5%
Brantford Power Inc.	$ 208,303	$ 303,382	-37.6%
Burlington Hydro Inc.	$ 627,570	$ 615,758	1.9%
Canadian Niagara Power Inc.	$ 384,743	$ 335,485	13.7%
Centre Wellington Hydro Ltd.	$ 57,642	$ 57,873	-0.4%
Chapleau Public Utilities Corporation	$ 6,997	$ 9,369	-29.2%
Cooperative Hydro Embrun Inc.	$ 14,289	$ 11,617	20.7%
E.L.K. Energy Inc.	$ 68,513	$ 85,715	-22.4%
Elexicon Energy Inc.	$ 1,321,765	$ 1,785,981	-30.1%
Energy Plus	$ 492,927	$ 677,468	-31.8%
Entegrus Powerlines Inc.	$ 1,268,534	$ 706,708	58.5%
ENWIN Utilities Ltd.	$ 756,822	$ 1,204,871	-46.5%
EPCOR	$ 120,252	$ 340,901	-104.2%
ERTH Power	$ 288,355	$ 172,292	51.5%
Espanola Regional Hydro Distribution	$ 12,217	$ 200,495	-279.8%
Essex Powerlines Corporation	$ 399,884	$ 331,681	18.7%
Festival Hydro Inc.	$ 295,259	$ 132,668	80.0%
Fort Frances Power Corporation	$ 36,707	$ 34,191	7.1%
Greater Sudbury Hydro Inc.	$ 238,230	$ 486,501	-71.4%
Grimsby Power Incorporated	$ 113,998	$ 135,528	-17.3%
Halton Hills Hydro Inc.	$ 498,405	$ 283,840	56.3%
Hearst Power Distribution Company	$ 24,429	$ 49,292	-70.2%
Hydro 2000 Inc.	$ 10,673	$ 4,757	80.8%
Hydro Hawkesbury Inc.	$ 13,576	$ 21,376	-45.4%
Hydro One Networks	$ 80,012,767	$ 16,464,165	158.1%
Hydro Ottawa Limited	$ 3,920,810	$ 3,565,478	9.5%
Innpower Corporation	$ 250,842	$ 306,379	-20.0%
Kingston Hydro Corporation	$ 297,338	$ 166,146	58.2%
Kitchener-Wilmot Hydro Inc.	$ 753,830	$ 1,000,412	-28.3%

Table 30 (continued)

Cost Performance Results: Meter Capex

Distributor	Average Actual Cost ($1000)	Average Predicted	Average Actual Less Predicted 2018-2020*
Lakefront Utilities Inc.	$ 129,192	$ 74,463	55.1%
Lakeland Power Distribution Ltd.	$ 249,864	$ 114,883	77.7%
London Hydro Inc.	$ 1,451,578	$ 1,495,785	-3.0%
Milton Hydro Distribution Inc.	$ 1,327,249	$ 533,183	91.2%
Newmarket-Tay Power Distribution	$ 223,574	$ 452,027	-70.4%
Niagara Peninsula Energy Inc.	$ 1,012,490	$ 730,090	32.7%
Niagara-on-the-Lake Hydro Inc.	$ 130,717	$ 82,851	45.6%
North Bay Hydro Distribution Limited	$ 103,005	$ 199,693	-66.2%
Northern Ontario Wires Inc.	$ 15,108	$ 97,927	-186.9%
Oakville Hydro Electricity Distribution	$ 1,131,676	$ 765,443	39.1%
Orangeville Hydro Limited	$ 107,926	$ 90,237	17.9%
Oshawa PUC Networks Inc.	$ 914,055	$ 470,545	66.4%
Ottawa River Power Corporation	$ 87,369	$ 112,860	-25.6%
PUC Distribution Inc.	$ 1,919,976	$ 1,324,868	37.1%
Renfrew Hydro Inc.	$ 45,040	$ 28,037	47.4%
Rideau St. Lawrence Distribution Inc.	$ 85,040	$ 51,015	51.1%
Sioux Lookout Hydro Inc.	$ 18,918	$ 60,650	-116.5%
Synergy North Corporation	$ 652,902	$ 484,650	29.8%
Tillsonburg Hydro Inc.	$ 126,140	$ 66,513	64.0%
Toronto Hydro-Electric System	$ 19,610,878	$ 8,216,008	87.0%
Wasaga Distribution Inc.	$ 150,172	$ 118,366	23.8%
Waterloo North Hydro Inc.	$ 845,304	$ 582,131	37.3%
Welland Hydro-Electric System Corp.	$ 70,825	$ 205,658	-106.6%
Wellington North Power Inc.	$ 150,931	$ 31,213	157.6%
Westario Power Inc.	$ 299,173	$ 200,742	39.9%
Average	**$ 2,443,087**	**$ 1,240,480**	**3.0%**

* Resutls for Essex Powerlines, Hydro One, Hearst, Hydro Hawkesbury, Rideau St. Lawrence and Tillsonburg Hydro are for 2017-2019.

4. Interpretation of Results and Applications of APB

4.1. Noteworthy Limitations

The unit cost metrics and econometric models that have been developed have several potential applications. These tools also have limitations which the users of these results should consider. Although some of these models have significant explanatory power, no statistical model will be perfect and cannot replace sound judgement. In general, statistical models can be important tools the regulatory community can use in the discovery process to help determine just and reasonable rates. In addition to being a regulatory tool, the models can also be used as part of a process to discover best practices which leads to better productivity and cost efficiency.

Econometric cost models will have some limitations that should be noted. The first is that the measurement of input prices may differ from the actual experience of distributors. The O&M price indexes are taken from PEG's total cost benchmarking work for OEB staff and contain assignments of distributors to cities with available data. It also assumes that labor cost is a substantial 75% of OM&A cost. An issue that is relevant for 2020 is that the average weekly earnings data used in both the APB and total cost benchmarking work was unusually rapid for 2020 due to a large reduction in lower paying jobs. This has the effect of producing better than expected cost performance for 2020. This effect is expected to reverse in 2021. The capital expenditure models assume that all distributors face the same construction costs which assumes that crews doing such construction operate regionally and are not necessarily based near where the work is being done.

The econometric models contain variables that attempt to capture the average impact of accounting issues associated with the classification of expenses. To the extent that the actual impact of accounting differs, the impact on the results could be considered. Although the inclusion of estimated data provides a good basis for the estimation of an econometric model, some care should be exercised when interpreting particular results based on estimates.

A final factor that should be considered is that some relevant business conditions will not be measured in the models. Some are difficult or impossible to model. Additional analysis to quantify the cost impact should be considered to explain differences between actual and predicted cost that is

currently interpreted as management performance. For example, some distributors were asked to physically move a significant amount of assets to allow for highway projects. This is a case in which there is a clearly relevant business condition beyond the control of management that has an impact on cost. A distributor facing questions related to benchmarking results in a rate case could undertake to provide an estimate of the incremental cost of this unmeasured business condition. It could be used to explain the cost performance results, thereby reducing the amount of any cost performance deficiency that is attributed to management performance.

4.2. Increasing the Effectiveness of Regulation

A major goal of APB is to provide tools to the regulatory community that will help focus a limited amount of attention and other resources to areas that appear to deserve additional inquiry. Results are useful for identifying chronically good and bad cost performance and notable declines in performance in test years that could indicate strategic behavior.

The benchmarking results presented in this report can assist this effort. Examining the results of the unit cost and econometric models for a particular cost area could act as a screening tool to help determine where to focus effort. PEG prefers to characterize this screening as identifying areas that are *not* worth spending much effort. Should APB suggest that a distributor tends to have lower than expected cost in a certain area, this should provide some evidence that additional time spent examining this cost area would be unlikely to uncover a significant cost control problem by management. Unless there is relevant information not addressed by the model, it would be reasonable for a reviewer to ignore this area and presume that management is doing an acceptable job.

As for areas in which a distributor is performing significantly worse than predicted by the model, some care should be taken to put the result in context. There are many reasons why a distributor might perform poorly in a statistical model, and only one reason is poor management performance. Other reasons include:

- Differences in accounting arising from inconsistent application of the OEB's accounting guidance in the Accounting Procedures Handbook ("APH")
- Measurable business conditions with significant cost impact not included in the econometric model

- Other random, exogenous events that are difficult or impossible to measure for all distributors

By attempting to account for many measurable reasons for differences in cost, it is hoped that the limited amount of regulatory attention can be focused on areas in which a distributor has special circumstances.

4.3. Continuous Improvement in Existing and New APB Models

Just as the APB results presented here are a starting point for analysis and not an end in themselves, the models themselves can also be improved and additional cost areas considered. With a detailed benchmarking program such as APB, the areas that could be potentially benchmarked were too numerous. A goal of a previous OEB staff discussion paper was identify a small number of cost areas to be benchmarked. The near-term goal of APB was to make a set of relevant models available. Improvement in the data and methods used to generate these benchmarking results will continue over time. Areas for improvement in both the unit cost and econometric work have been identified while producing this report and will be explored in future updates. Input from distributors and other parties making use of these results is vital to making APB a useful resource for Ontario regulation.