EXHIBIT 2 – RATE BASE & DSP

2020 Cost of Service

Hydro 2000 Inc.
EB-2019-0041

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2.1 OVERVIEW OF RATE BASE

2.1.1 RATE BASE OVERVIEW

Hydro 2000 converted to International Financial Reporting Standards ("MIFRS") on January 1, 2014 and had prepared this application under MIFRS. The first IFRS financial statement were issued for the year ended December 31, 2015. Those financial statement had comparative figures for the year ended December 31, 2014 and an opening balance sheet as at January 1, 2014. In the process of conversion to IFRS, an inventory of poles, transformers and meters was made. Those categories were adjusted to reflect the assets still owned by Hydro 2000. Also, the net book value as of December 31, 2013 was used as the cost in the opening balance sheet. Accumulated depreciation was at zero. The new depreciation rates we adopted on January 1, 2013.

The net fixed assets used to determine the utility's Rate Base include those distribution assets associated with activities that enable the conveyance of electricity for distribution purposes. Hydro 2000 does not have non-distribution assets nor does it conduct non-distribution activities. [1]Controllable expenses include operations and maintenance, billing and collecting and administration expenses which are discussed in detail in Exhibit 4.

Hydro 2000 has calculated its 2020 test year rate base to be $1,027,058. This rate base is also used to determine the proposed revenue requirement found in Exhibit 6. Table 1 - Test Year Rate Base below presents Hydro 2000's Rate Base calculations for the Test Year.

[1] MFR - Non-distribution activities - capital expenditures and reconciliation to total capital budget

Table 1 - Test Year Rate Base

	CGAAP	IFRS		
Particulars	**Last Board Approved**	**2020**	**VAR**	**VAR**
Net Capital Assets in Service:				
Year end gross balance	1,042,597	1,170,249	127,653	12.24%
Year end Acc Depr	-493,060	-340,036	153,024	-31.04%
Average Balance	**549,537**	**757,174**	**207,637**	**37.78%**
Working Capital Allowance	423,915	269,884	-154,031	-36.34%
Total Rate Base	**973,451**	**1,027,058**	**53,607**	**5.51%**
	CGAAP	**IFRS**		
Expenses for Working Capital	**Last Board Approved**	**2020**	**VAR**	**VAR**
Eligible Distribution Expenses:				
3500-Distribution Expenses - Operation	12,775	10,000	- 2,775	-21.72%
3550-Distribution Expenses - Maintenance	2,050	41,146	39,096	1907.12%
3650-Billing and Collecting	127,734	160,231	32,497	25.44%
3700-Community Relations	717	0	- 717	-100.00%
3800-Administrative and General Expenses	258,290	296,322	38,032	14.72%
6105-Taxes other than Income Taxes				
Total Eligible Distribution Expenses	**401,566**	**507,699**	**106,133**	**26.43%**
3350-Power Supply Expenses	2,424,532	3,090,754	666,221	27.48%
Total Expenses for Working Capital	**2,826,098**	**3,598,453**	**772,354**	**27.33%**
Working Capital factor	15.0%	7.5%	-7.5%	-7.50%
Total Working Capital	**423,915**	**269,884**	**-154,031**	**-36.34%**

2.1.2 RATE BASE TREND

Table 2 - Rate Base Trend below presents Hydro 2000's Rate Base calculations for all required years, including the 2020 Test Year. Year over year variance analysis follows.

Table 2 - Rate Base Trend

	CGAAP	CGAAP	CGAAP	NEWGAAP	MIFRS	MIFRS	MIFRS	MIFRS	MIFRS	MIFRS
Particulars	**Last Board Approved**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Net Capital Assets in Service:										
Year end gross balance	1,042,597	1,167,876	1,193,328	1,272,712	766,952	778,673	828,268	862,397	978,951	1,170,249
Year end Acc Depr	-493,060	-617,558	-679,539	-737,842	-115,450	-166,027	-212,578	-256,689	-294,817	-340,036
Average Balance	549,537	549,927	532,054	524,330	593,186	632,074	614,168	610,699	644,921	757,174
Working Capital Allowance	423,915	339,939	283,948	377,358	374,966	499,930	448,614	282,822	541,387	269,884
Total Rate Base	**973,451**	**889,866**	**816,002**	**901,688**	**968,152**	**1,132,004**	**1,062,782**	**893,521**	**1,186,308**	**1,027,058**
		-8.59%	*-8.30%*	*10.50%*	*7.37%*	*16.92%*	*-6.11%*	*-15.93%*	*32.77%*	*-13.42%*

	CGAAP	CGAAP	CGAAP	CGAAP	MIFRS	MIFRS	MIFRS	MIFRS	MIFRS	MIFRS
Expenses for Working Capital	**Last Board Approved**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Eligible Distribution Expenses:										
3500-Distribution Expenses - Operation	12,775	3,936	17,166	9,576	15,920	16,705	13,384	15,998	15,959	10,000
3550-Distribution Expenses - Maintenance	2,050	65,534	13,761	300	6,015	28,132	42,888	28,940	28,068	41,146
3650-Billing and Collecting	127,734	142,613	131,905	151,230	152,424	168,966	175,254	164,389	165,283	160,231
3700-Community Relations	717	0	0	0	0	0	411	0	0	0
3800-Administrative and General Expenses	258,290	213,346	249,026	224,287	260,933	224,449	249,024	244,280	298,896	296,322
6105-Taxes other than Income Taxes	0	0	0	0		0	0	0	0	0
Total Eligible Distribution Expenses	401,566	425,427	411,858	385,393	435,292	438,252	480,961	453,606	508,206	507,699
3350-Power Supply Expenses	2,424,532	1,840,830	1,481,131	2,130,330	2,064,481	2,894,613	2,509,801	1,431,875	3,101,041	3,090,754
Total Expenses for Working Capital	2,826,098	2,266,258	1,892,988	2,515,723	2,499,773	3,332,865	2,990,762	1,885,481	3,609,247	3,598,453
Working Capital factor	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	7.5%
Total Working Capital	**423,915**	**339,939**	**283,948**	**377,358**	**374,966**	**499,930**	**448,614**	**282,822**	**541,387**	**269,884**

The Rate Base for the 2020 Test Year has increased by $133,537 over the last actual 2018, and $53,607 over the last Board Approved Rate Base.

Year over year variances are presented in the next section.

2.1.3 RATE BASE VARIANCE ANALYSIS

The following paragraphs and Table 3 – 2012 BA to 2012 Actual Rate Base Variance to Table 11- 2019-2020 Rate Base Variances provide a narrative on the changes that have driven the increase in rate base since Hydro 2000's 2012 Board Approved Cost of Service Application.

Hydro 2000's materiality threshold is $50,000.

Hydro 2000 has provided the following variances on the change in Rate Base:

- ✓ 2020 Test Year (MIFRS) against 2019 Bridge Year (MIFRS)
- ✓ 2019 Bridge Year (MIFRS) against 2018 Actual (MIFRS)
- ✓ 2018 Actual (MIFRS) against 2017 Actual (MIFRS)
- ✓ 2017 Actual (MIFRS) against 2016 Actual (MIFRS)
- ✓ 2016 Actual (MIFRS) against 2015 Actual (NewCGAAP)
- ✓ 2015 Actual (NewCGAAP) against 2014 Actual (NewCGAAP)
- ✓ 2014 Actual (NewCGAAP) against 2013 Actual (NewCGAAP)
- ✓ 2013 Actual (NewCGAAP) against 2012 Actual (CGAAP)
- ✓ 2012 (CGAAP) against 2012 Board Approved (CGAAP)

Hydro 2000 notes that in order to calculate the balance of 1576 continuity schedules from 2012 to 2019 have been completed in CGAAP. They are presented at 2.1.4.

2012 BOARD APPROVED VS. 2012 ACTUAL:

Table 3 – 2012 BA to 2012 Actual Rate Base Variance

	CGAAP	CGAAP		
Rate Base Particulars	**Last Board Approved**	**2012**	**Var**	**Var**
Net Capital Assets in Service:				
Year end gross balance	1,042,597	1,167,876	125,279	12.02%
Year end Acc Depr	-493,060	-617,558	-124,498	25.25%
Average Balance	549,537	549,927	391	0.07%
Working Capital Allowance	423,915	339,939	-83,976	-19.81%
Total Rate Base	**973,451**	**889,866**	**-83,585**	**-8.59%**
	CGAAP	**CGAAP**		
Working Capital Calculations	**Last Board Approved**	**2012**	**Var**	**Var**
Eligible Distribution Expenses:				
3500-Distribution Expenses - Operation	12,775	8,074	-4,701	-36.80%
3550-Distribution Expenses - Maintenance	2,050	65,534	63,484	3096.76%
3650-Billing and Collecting	127,734	142,613	14,879	11.65%
3700-Community Relations	717	0	-717	-100.00%
3800-Administrative and General Expenses	258,290	209,208	-49,082	-19.00%
6105-Taxes other than Income Taxes				
Total Eligible Distribution Expenses	**401,566**	**425,428**	**23,862**	**5.94%**
3350-Power Supply Expenses	2,424,532	1,840,830	-583,702	-24.07%
Total Expenses for Working Capital	**2,826,098**	**2,266,258**	**-559,840**	**-19.81%**
Working Capital factor	15.0%	15.0%	0.0%	0.00%
Total Working Capital	**423,915**	**339,939**	**-83,976**	**-19.81%**

The total Rate Base in 2012 Actual of was $83,585 or -8.59% lesser than the 2012 Board Approved. The main reason for the variance is:

- The net effect of the Capital Expenditure and accumulated depreciation resulted in a marginal increase in average net book value between the 2012 BA and 2012 Actual. The major contributor to the change in Rate Base was the working capital allowance which was -$83,976 lower than BA. The main reason for this was the 2012 Actual cost of power was -$583,702 lower than the 2012 BA. The Cost of Power was lower than Board Approved.

- The overall OM&A was relatively close to the Board Approved. Details on a year over year variances can be found in Exhibit 4.

Major capital cost drivers 2012

System Access:

- Replace Pole: $4,850

System Renewal:

- Transfer of Smart Meters to Rate Base: $196,330
- Line Transformer Replacement: $10,999
- Overhead Conductors and Devices: $6,686

2012 ACTUAL VS. 2013 ACTUAL:

Table 4 - 2012-2013 Rate Base Variances

	CGAAP	CGAAP		
Rate Base Particulars	**2012**	**2013**	**Var**	**Var**
Net Capital Assets in Service:				
Year end gross balance	1,167,876	1,193,328	25,452	2.18%
Year end Acc Depr	-617,558	-679,539	-61,981	10.04%
Average Balance	549,927	532,054	-17,874	-3.25%
Working Capital Allowance	339,939	283,948	-55,990	-16.47%
Total Rate Base	**889,866**	**816,002**	**-73,864**	**-8.30%**
	CGAAP	**CGAAP**		
Working Capital Calculations	**2012**	**2013**	**Var**	**Var**
Eligible Distribution Expenses:				
3500-Distribution Expenses - Operation	3,936	17,166	13,230	336.14%
3550-Distribution Expenses - Maintenance	65,534	13,761	-51,772	-79.00%
3650-Billing and Collecting	142,613	131,905	-10,708	-7.51%
3700-Community Relations	0	0	0	0.00%
3800-Administrative and General Expenses	213,346	249,026	35,681	16.72%
6105-Taxes other than Income Taxes				

Total Eligible Distribution Expenses	425,427	411,858	-13,570	-3.19%
3350-Power Supply Expenses	1,840,830	1,481,131	-359,700	-19.54%
Total Expenses for Working Capital	2,266,258	1,892,988	-373,269	-16.47%
Working Capital factor	15.0%	15.0%	0.0%	0.00%
Total Working Capital	**339,939**	**283,948**	**-55,990**	**-16.47%**

The total Rate Base in 2013 Actual of 816,002 was $-73,864 or -8,30% lower than 2012 Actual. The main reason for the variance is:

- The net effect of the Capital Expenditure and higher than expected accumulated depreciation resulted in a marginal decrease of -$17,874 in average net book value between 2013 and 2012 Actual. Similarly to 2012 vs. 2012BA, the major contributor to the change in Rate Base was the working capital allowance which was -$55,990 lower than 2012 Actual. The main reason for this was the 2013 Actual cost of power was -$373,269 lower than 2012 Actual. Hydro 2000 notes that utilities have little control over the cost of power.
- OM&A was also marginally lower than the previous year. Year over Year variance are presented at Exhibit 4.

Major capital cost drivers 2013

System Renewal:

- Overhead Conductors and Devices: $8,905
- Underground Conductor and Devices: $7,207
- Pole and Fixture Replacement: $9,515

2013 ACTUAL VS. 2014 ACTUAL:

Table 5 – 2013-2014 Rate Base Variances

	CGAAP	NEWGAAP		
Rate Base Particulars	**2013**	**2014**	**Var**	**Var**
Net Capital Assets in Service:	-	-		
Year end gross balance	1,193,328	1,272,712	79,385	6.65%
Year end Acc Depr	-679,539	-737,842	-58,304	8.58%
Average Balance	532,054	524,330	-7,724	-1.45%
Working Capital Allowance	283,948	377,358	93,410	32.90%
Total Rate Base	**816,002**	**901,688**	**85,686**	**10.50%**
	CGAAP	**CGAAP**		
Working Capital Calculations	**2013**	**2014**	**Var**	**Var**
Eligible Distribution Expenses:	-	-		
3500-Distribution Expenses - Operation	17,166	9,576	-7,589	-44.21%
3550-Distribution Expenses - Maintenance	13,761	300	-13,461	-97.82%
3650-Billing and Collecting	131,905	151,230	19,325	14.65%
3700-Community Relations	0	0	0	0.00%
3800-Administrative and General Expenses	249,026	224,287	-24,739	-9.93%
6105-Taxes other than Income Taxes				
Total Eligible Distribution Expenses	411,858	385,393	-26,464	-6.43%
3350-Power Supply Expenses	1,481,131	2,130,330	649,199	43.83%
Total Expenses for Working Capital	1,892,988	2,515,723	622,735	32.90%
Working Capital factor	15.0%	15.0%	0.0%	0.00%
Total Working Capital	**283,948**	**377,358**	**93,410**	**32.90%**

The total Rate Base in 2014 Actual of $901,688 is $85,686 or 10.50% greater than 2013 Actual. The main reason for the variance is:

- The capital investment in software in the amount of $38,793, which increased the asset base.
- An increase in Cost of Power of $649,735.

Major capital cost drivers 2014

System Renewal:

- Line Transformer Replacement: $8,242
- Pole and Fixture Replacement: $18,689

- Meters: $7,985

General Plan:

- Software Upgrade (Billing/Accounting and E-billing) : $38,793

2014 ACTUAL VS. 2015 ACTUAL:

Table 6 – 2014-2015 Rate Base Variances

	NEWGAAP	MIFRS		
Rate Base Particulars	**2014**	**2015**	**Var**	**Var**
Net Capital Assets in Service:	-	-		
Year end gross balance	1,272,712	766,952	-505,760	-39.74%
Year end Acc Depr	-737,842	-115,450	622,392	-84.35%
Average Balance	524,330	593,186	68,856	13.13%
Working Capital Allowance	377,358	374,966	-2,393	-0.63%
Total Rate Base	**901,688**	**968,152**	**66,464**	**7.37%**
	CGAAP	**MIFRS**		
Working Capital Calculations	**2014**	**2015**	**Var**	**Var**
Eligible Distribution Expenses:	-	-		
3500-Distribution Expenses - Operation	9,576	15,920	6,344	66.24%
3550-Distribution Expenses - Maintenance	300	6,015	5,715	1905.14%
3650-Billing and Collecting	151,230	152,424	1,194	0.79%
3700-Community Relations	0	0	0	0.00%
3800-Administrative and General Expenses	224,287	260,933	36,646	16.34%
6105-Taxes other than Income Taxes				
Total Eligible Distribution Expenses	385,393	435,292	49,899	12.95%
3350-Power Supply Expenses	2,130,330	2,064,481	-65,849	-3.09%
Total Expenses for Working Capital	2,515,723	2,499,773	-15,950	-0.63%
Working Capital factor	15.0%	15.0%	0.0%	0.00%
Total Working Capital	**377,358**	**374,966**	**-2,393**	**-0.63%**

The total Rate Base in 2015 Actual of $968,152 is $66,464 or 7.37% greater than 2014 Actual. The main reason for the variance is:

- A capital investment in computer equipment and system renewal (pole and transformer replacement) in the amount of $34,730 which increased the asset base.

- OM&A was also higher than the previous year by $49,899. Year over Year variance are presented at Exhibit 4.
- Hydro 2000 notes that 2015 was the year MIFRS was implemented and that the asset value was re-established. In the exercise, the value of assets increased by 130K.

Major capital cost drivers 2015

System Renewal:

- Line Transformer Replacement: $9,366
- Pole and Fixture Replacement: $13,946

General Plan:

- Computer Equipment: $8,450

2015 ACTUAL VS. 2016 ACTUAL:

Table 7 – 2015-2016 Rate Base Variances

	MIFRS	MIFRS		
Rate Base Particulars	**2015**	**2016**	**Var**	**Var**
Net Capital Assets in Service:	-	-		
Year end gross balance	766,952	778,673	11,721	1.53%
Year end Acc Depr	-115,450	-166,027	-50,577	43.81%
Average Balance	593,186	632,074	38,888	6.56%
Working Capital Allowance	374,966	499,930	124,964	33.33%
Total Rate Base	**968,152**	**1,132,004**	**163,852**	**16.92%**

	MIFRS	MIFRS		
Working Capital Calculations	**2015**	**2016**	**Var**	**Var**
Eligible Distribution Expenses:	-	-		
3500-Distribution Expenses - Operation	15,920	16,705	785	4.93%
3550-Distribution Expenses - Maintenance	6,015	28,132	22,117	367.67%
3650-Billing and Collecting	152,424	168,966	16,542	10.85%
3700-Community Relations	0	0	0	0.00%
3800-Administrative and General Expenses	260,933	224,449	-36,484	-13.98%
6105-Taxes other than Income Taxes				
Total Eligible Distribution Expenses	435,292	438,252	2,960	0.68%
3350-Power Supply Expenses	2,064,481	2,894,613	830,133	40.21%
Total Expenses for Working Capital	2,499,773	3,332,865	833,092	33.33%

Working Capital factor	15.0%	15.0%	0.0%	0.00%
Total Working Capital	**374,966**	**499,930**	**124,964**	**33.33%**

The total Rate Base in 2016 Actual of $1,132,004 is $163,852 or 16.92% greater than 2015 Actual. The main reason for the variance is:

- The capital investment in system renewal in the amount of $47,230, which increased the asset base. The capex is offset by $29,147 in contribution.
- An increase in Cost of Power of $830,133.

Major capital cost drivers 2016

System Renewal:

- Line Transformer Replacement: $18,339
- Pole and Fixture Replacement: $24,730

2016 ACTUAL VS. 2017 ACTUAL:

Table 8 - 2016-2017 Rate Base Variances

	MIFRS	MIFRS		
Rate Base Particulars	**2016**	**2017**	**Var**	**Var**
Net Capital Assets in Service:	-	-		
Year end gross balance	778,673	828,268	49,595	6.37%
Year end Acc Depr	-166,027	-212,578	-46,551	28.04%
Average Balance	632,074	614,168	-17,906	-2.83%
Working Capital Allowance	499,930	448,614	-51,315	-10.26%
Total Rate Base	**1,132,004**	**1,062,782**	**-69,222**	**-6.11%**
	MIFRS	**MIFRS**		
Working Capital Calculations	**2016**	**2017**	**Var**	**Var**
Eligible Distribution Expenses:	-	-		
3500-Distribution Expenses - Operation	16,705	13,384	-3,321	-19.88%
3550-Distribution Expenses - Maintenance	28,132	42,888	14,756	52.45%
3650-Billing and Collecting	168,966	175,254	6,288	3.72%
3700-Community Relations	0	411	411	0.00%
3800-Administrative and General Expenses	224,449	249,024	24,576	10.95%

6105-Taxes other than Income Taxes	0	0		
Total Eligible Distribution Expenses	438,252	480,961	42,709	9.75%
3350-Power Supply Expenses	2,894,613	2,509,801	-384,812	-13.29%
Total Expenses for Working Capital	3,332,865	2,990,762	-342,103	-10.26%
Working Capital factor	15.0%	15.0%	0.0%	0.00%
Total Working Capital	**499,930**	**448,614**	**-51,315**	**-10.26%**

The total Rate Base in 2017 Actual of $1,062,782 is $-69,222 or -6.11% lesser than 2016 Actual. The main reason for the variance is:

- The capital investment in software and system renewal (Poles and Fixtures and Meters) in the amount of $45,046, which increased the asset base.
- A decrease in Cost of Power of $384,812

Major capital cost drivers 2017

System Renewal:

- Line Transformer Replacement: $15,862
- Meter Replacement: $10,845

General Plan:

- Software: $6,772

2017 ACTUAL VS. 2018 ACTUAL:

Table 9 - 2017-2018 Rate Base Variances

	MIFRS	MIFRS		
Rate Base Particulars	**2017**	**2018**	**Var**	**Var**
Net Capital Assets in Service:	-	-		
Year end gross balance	828,268	862,397	34,129	4.12%
Year end Acc Depr	-212,578	-256,689	-44,111	20.75%
Average Balance	614,168	610,699	-3,469	-0.56%
Working Capital Allowance	448,614	282,822	-165,792	-36.96%
Total Rate Base	**1,062,782**	**893,521**	**-169,261**	**-15.93%**

	MIFRS	**MIFRS**		
Working Capital Calculations	**2017**	**2018**	**Var**	**Var**
Eligible Distribution Expenses:	-	-		
3500-Distribution Expenses - Operation	13,384	15,998	2,614	19.53%
3550-Distribution Expenses - Maintenance	42,888	28,940	-13,949	-32.52%
3650-Billing and Collecting	175,254	164,389	-10,865	-6.20%
3700-Community Relations	411	0	-411	-100.00%
3800-Administrative and General Expenses	249,024	244,279	-4,745	-1.91%
6105-Taxes other than Income Taxes	0	0		
Total Eligible Distribution Expenses	480,961	453,606	-27,355	-5.69%
3350-Power Supply Expenses	2,509,801	1,431,875	-1,077,926	-42.95%
Total Expenses for Working Capital	2,990,762	1,885,481	-1,105,281	-36.96%
Working Capital factor	15.0%	15.0%	0.0%	0.00%
Total Working Capital	**448,614**	**282,822**	**-165,792**	**-36.96%**

The total Rate Base in 2018 of $893,521 is projected to be -$169,261 or -15.93% lesser than 2017 Actual. The main reason for the variance is:

- The capital investment in system renewal (Poles and Fixtures and Line Transformers in the amount of $43,677 which increased the asset base.
- A decrease in Cost of Power of $1,077,926

Major capital cost drivers 2018

System Renewal:

- Line Transformer Replacement: $10,704
- Pole and Fixture Replacement: $29,137

2018 ACTUAL VS. 2019 BRIDGE:

Table 10 - 2018-2019 Rate Base Variances

	MIFRS	**MIFRS**		
Rate Base Particulars	**2018**	**2019**	**Var**	**Var**
Net Capital Assets in Service:	-	-		
Year end gross balance	862,397	978,951	116,554	13.52%
Year end Acc Depr	-256,689	-294,817	-38,128	14.85%
Average Balance	**610,699**	**644,921**	**34,222**	**5.60%**
Working Capital Allowance	282,822	541,387	258,565	91.42%
Total Rate Base	**893,521**	**1,186,308**	**292,787**	**32.77%**
	MIFRS	**MIFRS**		
Working Capital Calculations	**2018**	**2019**	**Var**	**Var**
Eligible Distribution Expenses:	-	-		
3500-Distribution Expenses - Operation	15,998	15,959	-39	-0.24%
3550-Distribution Expenses - Maintenance	28,940	28,068	-871	-3.01%
3650-Billing and Collecting	164,389	165,283	894	0.54%
3700-Community Relations	0	0	0	0.00%
3800-Administrative and General Expenses	244,279	298,896	54,616	22.36%
6105-Taxes other than Income Taxes	0	0		
	0	0		
Total Eligible Distribution Expenses	**453,606**	**508,206**	**54,600**	**12.04%**
3350-Power Supply Expenses	1,431,875	3,101,041	1,669,166	116.57%
Total Expenses for Working Capital	**1,885,481**	**3,609,247**	**1,723,765**	**91.42%**
Working Capital factor	15.0%	15.0%	0.0%	0.00%
Total Working Capital	**282,822**	**541,387**	**258,565**	**91.42%**

The total Rate Base in 2019 Bridge of $1,186,308 is projected to be $292,787 or 32.777% more than the 2018 Actual. The main reason for the variance is:

- The capital investment in software and system renewal (Poles and Fixtures and Line Transformers in the amount of $129,248, which increased the asset base.
- An increase in Cost of Power of $1,669,166

Major capital cost drivers 2019

System Renewal:

- Overhead Conductors and Devices: $10,500

- Underground Conductor and Devices: $3,300
- Line Transformer Replacement: $74,948
- Pole and Fixture Replacement: $41,236
- Meter Replacement: $17,749

2019 BRIDGE VS. 2020 TEST YEAR:

Table 11- 2019-2020 Rate Base Variances

	MIFRS	MIFRS		
Rate Base Particulars	**2019**	**2020**	**Var**	**Var**
Net Capital Assets in Service:	-	-		
Year end gross balance	978,951	1,170,249	191,298	19.54%
Year end Acc Depr	-294,817	-340,036	-45,219	15.34%
Average Balance	644,921	757,174	112,253	17.41%
Working Capital Allowance	541,387	269,884	-271,503	-50.15%
Total Rate Base	**1,186,308**	**1,027,058**	**-159,250**	**-13.42%**
	MIFRS	**MIFRS**		
Working Capital Calculations	**2019**	**2020**	**Var**	**Var**
<u>*Eligible Distribution Expenses:*</u>	-	-		
3500-Distribution Expenses - Operation	15,959	10,000	-5,959	-37.34%
3550-Distribution Expenses - Maintenance	28,068	41,146	13,078	46.59%
3650-Billing and Collecting	165,283	160,231	-5,052	-3.06%
3700-Community Relations	0	0	0	0.00%
3800-Administrative and General Expenses	298,896	296,322	-2,574	-0.86%
6105-Taxes other than Income Taxes	0	0		
	0	0		
Total Eligible Distribution Expenses	508,206	507,699	-507	-0.10%
3350-Power Supply Expenses	3,101,041	3,090,754	-10,287	-0.33%
Total Expenses for Working Capital	3,609,247	3,598,453	-10,794	-0.30%
Working Capital factor	15.0%	7.5%	-7.5%	-50.00%
Total Working Capital	**541,387**	**269,884**	**-271,503**	**-50.15%**

The total Rate Base in 2020 Test Year of $1,027,058 is forecast to be -$159,250 -13.42% less than the 2019 Bridge Year. The main reason for the variance is:

- The level of yearly capital spending for 2020, in the amount of $121,554 is supported by the utility 's new Distribution System Plan. The budget takes into consideration the replacement of assets at a steady pace to avoid rate shock and unexpected failure of these assets all while ensuring the proper functioning of the Hydro 2000s distribution system. The expenditure, for the most part, relates to aging asset replacement. Details regarding capital planning can be found in the Distribution System Plan in Section 2.5.2 of this Exhibit.

- The net reduction in rate base is attributable to the change in capital allowance factor from 15% to 7.5%.

Major capital cost drivers 2020

System Renewal:

- Overhead Conductors and Devices: $14,500
- Underground Conductor and Devices: $7,300
- Line Transformer Replacement: $72,900
- Pole and Fixture Replacement: $40,000
- Meter Replacement: $17,098

General Plan:

- Software: $36,000

Table 12- 2012-2020 Rate Base Variances

	CGAAP	**MIFRS**		
Rate Base Particulars	**Last Board Approved**	**2020**	**Var**	**Var**
Net Capital Assets in Service:				
Year end gross balance	1,042,597	1,170,249	127,653	12.24%
Year end Acc Depr	-493,060	-340,036	153,024	-31.04%
Average Balance	549,537	757,174	207,637	37.78%
Working Capital Allowance	423,915	269,884	-154,031	-36.34%
Total Rate Base	**973,451**	**1,027,058**	**53,607**	**5.51%**
	-	-		
	-	-		
	CGAAP	**MIFRS**		
Working Capital Calculations	**Last Board Approved**	**2020**	**Var**	**Var**
Eligible Distribution Expenses:				
3500-Distribution Expenses - Operation	12,775	10,000	-2,775	-21.72%
3550-Distribution Expenses - Maintenance	2,050	41,146	39,096	1907.12%
3650-Billing and Collecting	127,734	160,231	32,497	25.44%

3700-Community Relations	717	0	-717	0.00%
3800-Administrative and General Expenses	258,290	296,322	38,032	14.72%
6105-Taxes other than Income Taxes	0	0		
	0	0		
Total Eligible Distribution Expenses	401,566	507,699	106,133	26.43%
3350-Power Supply Expenses	2,424,532	3,090,754	666,221	27.48%
Total Expenses for Working Capital	2,826,098	3,598,453	772,354	27.33%
Working Capital factor	15.0%	7.5%	-7.5%	-50.00%
Total Working Capital	**423,915**	**269,884**	**-154,031**	**-36.34%**

Increased Power Supply Expenses

- Hydro 2000 has forecasted an increase in the 2020 Power Supply Expenses over 2012 Board approved of $666,221.

Increased Distribution Expenses

- The 2020 forecast for OM&A reflects an increase of $106,333 from the 2012 Board Approved. The details of the increases in OM&A are provided in Exhibit 4, but some of the highlights include:
  - increased in operation costs as a result of the DSP and taking a more proactive approach to asset management.
  - increased billing expenses due to increase costs from billing supplies.
  - increases to regulatory expenses and outside services

The Working Capital Allowance has decreased by -$154,031, over the 2012 Board Approved. The reason for the decrease from the 2012 Board Approved to the 2020 Test Year is due to the change in Working Capital Allowance rate from 15% to 7.5%.

2.1.4 FIXED ASSET CONTINUITY SCHEDULE

This Schedule presents a continuity schedule of its investment in capital assets, the associated accumulated amortization, and the net book value for each Capital USoA account for the 2012 to 2018 Actuals and 2019 Bridge Year and 2020 Test Year.

Hydro 2000 attests that the OEB Appendices 2-BA continuity statements presented at the next page reconcile with the calculated depreciation expenses, under Exhibit 4 – Operating Costs[2], and presented by asset account. The utility also attests that the netbook value balances reported on Appendix 2-BA reconcile with the rate base calculation. [3] [4] [5] The Excel version of the OEB Appendices is filed in conjunction with this application. [6] The utility notes that it has not applied for an ACM or ICM in the years between its 2012 Cost of Service and this application. [7]

Information on year-over-year variance and explanation where variances are greater than the materiality threshold are summarized in the previous section 2.1.3 and explained in detail in Appendix A of the Distribution System Plan. Hydro 2000 notes that under previous management and corporate governance, the utility's approach to capital investment was reactive as opposed to proactive, and involved responding to a failed asset or reliance on a visual inspections to establish wear and tear requiring action. As of 2018 and under new management and a new board of directors, Hydro 2000 is relying and will continue to rely on its DSP and capital forecasting to prioritize and manage its distribution system proactively and prudently.

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[2] MFR - Continuity statements must reconcile to calculated depreciation expenses and presented by asset account
[3] MFR - Opening and closing balances, average of opening and closing balances for gross assets and accumulated depreciation; working capital allowance (historical actuals, bridge and test year forecast)
[4] MFR - Continuity statements (year end balance, including interest during construction and overheads).
Explanation for any restatement (e.g. due to change in accounting standards)
Year over year variance analysis; explanation where variance greater than materiality threshold
Hist. OEB-Approved vs Hist. Actual
Hist. Act. vs. preceding Hist. Act.
Hist. Act. vs. Bridge
Bridge vs. Test
[5] MFR - Opening and closing balances of gross assets and accumulated depreciation must correspond to fixed asset continuity statements. If not, an explanation must be provided (e.g.. WIP, ARO). Reconciliation must be between net book value balances reported on Appendix 2-BA and balances included in rate base calculation
[6] MFR - Completed Fixed Asset Continuity Schedule (Appendix 2-BA) - in Application and Excel format
[7] Summary of approved and actual costs for any ICM(s) and/ or ACM approved in previous IRM applications

Hydro 2000 does not have any Asset Retirement Obligation related to decommissioning or asset retirement obligations,[8]

[8] MFR - All asset disposals clearly identified in the Chapter 2 Appendices for all historical, bridge and test years and if any amounts related to gains or losses on disposals have been included in Account 1575 IFRS - CGAAP Transitional PP&E Amount

Year 2012 **Former CGAAP – without changes to the policies**

			Cost				Accumulated Depreciation						
CCA Class	OEB	Description	Opening Balance	Additions	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$100,736	$401	$29,761	$130,898	$44,199	$40,320	$11,352	$95,871	$35,027	$115,817	$70,035
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$3,481	$624	$0	$4,105	$348	$759	$0	$1,107	$2,998	$3,793	$727
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$285,875	$4,850	$0	$290,725	$142,203	$16,482	$0	$158,685	$132,040	$288,300	$150,444
47	1835	Overhead Conductors & Devices	$288,199	$6,686	$0	$294,884	$142,178	$16,614	$0	$158,791	$136,093	$291,542	$150,485
47	1840	Underground Conduit	$13,405	$0	$0	$13,405	$3,216	$536	$0	$3,752	$9,653	$13,405	$3,484
47	1845	Underground Conductors & Devices	$93,348	$801	$0	$94,149	$43,615	$4,952	$0	$48,567	$45,582	$93,748	$46,091
47	1850	Line Transformers	$114,134	$10,999	$0	$125,133	$48,403	$6,378	$0	$54,781	$70,352	$119,634	$51,592
47	1855	Services (Overhead & Underground)	$70,177	$1,464	$0	$71,641	$14,471	$2,837	$0	$17,308	$54,333	$70,909	$15,890
47	1860	Meters	$57,560	$3,033	$0	$60,593	$39,400	$3,913	$0	$43,313	$17,280	$59,077	$41,357
47	1860	Meters (Smart Meters)	$0	$193,297	$0	$193,297	$0	$12,886	$44,900	$57,786	$135,511	$96,648	$28,893
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$20,390	$1,309	$0	$21,699	$3,792	$2,371	$0	$6,163	$15,536	$21,045	$4,978
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$10,453	$0	-$10,453	$0	$10,453	$0	-$10,453	$0	$0	$5,227	$5,227
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$14,366	$0	-$14,366	$0	$14,366	$0	-$14,366	$0	$0	$7,183	$7,183
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$17,479	$11,681	-$10,892	$18,268	$6,816	$2,595	-$4,840	$4,571	$13,697	$17,873	$5,693
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$148,764	-$2,157	$0	-$150,921	-$27,124	-$6,013	$0	-$33,137	-$117,784	-$149,843	-$30,131
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
						$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$940,839	$232,987	-$5,950	$1,167,876	$486,336	$104,829	$26,593	$617,558	$550,318	$1,054,357	$551,947
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as				$0				$0	$0	$ 502,411	
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$0				$0	$0		
		Total PP&E	$940,839	$232,987	-$5,950	$1,167,876	$486,336	$104,829	$26,593	$617,558	$550,318		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 104,829					

Year 2012 **Former CGAAP - without changes to the policies**

			Cost				Accumulated Depreciation						
CCA Class	OEB	Description	Opening Balance	Additions	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$100,736	$401	$29,761	$130,898	$44,199	$40,320	$11,352	$95,871	$35,027	$115,817	$70,035
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$3,481	$624	$0	$4,105	$348	$759	$0	$1,107	$2,998	$3,793	$727
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$285,875	$4,850	$0	$290,725	$142,203	$16,482	$0	$158,685	$132,040	$288,300	$150,444
47	1835	Overhead Conductors & Devices	$288,199	$6,686	$0	$294,884	$142,178	$16,614	$0	$158,791	$136,093	$291,542	$150,485
47	1840	Underground Conduit	$13,405	$0	$0	$13,405	$3,216	$536	$0	$3,752	$9,653	$13,405	$3,484
47	1845	Underground Conductors & Devices	$93,348	$801	$0	$94,149	$43,615	$4,952	$0	$48,567	$45,582	$93,748	$46,091
47	1850	Line Transformers	$114,134	$10,999	$0	$125,133	$48,403	$6,378	$0	$54,781	$70,352	$119,634	$51,592
47	1855	Services (Overhead & Underground)	$70,177	$1,464	$0	$71,641	$14,471	$2,837	$0	$17,308	$54,333	$70,909	$15,890
47	1860	Meters	$57,560	$3,033	$0	$60,593	$39,400	$3,913	$0	$43,313	$17,280	$59,077	$41,357
47	1860	Meters (Smart Meters)	$0	$0	$193,297	$193,297	$0	$12,886	$44,900	$57,786	$135,511	$96,648	$28,893
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$20,390	$1,309	$0	$21,699	$3,792	$2,371	$0	$6,163	$15,536	$21,045	$4,978
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$10,453	$0	-$10,453	$0	$10,453	$0	-$10,453	$0	$0	$5,227	$5,227
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$14,366	$0	-$14,366	$0	$14,366	$0	-$14,366	$0	$0	$7,183	$7,183
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$17,479	$11,681	-$10,892	$18,268	$6,816	$2,595	-$4,840	$4,571	$13,697	$17,873	$5,693
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$148,764	-$2,157	$0	-$150,921	-$27,124	-$6,013	$0	-$33,137	-$117,784	-$149,843	-$30,131
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
						$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$940,839	$39,690	$187,347	$1,167,878	$486,336	$104,629	$26,593	$617,558	$550,318	$1,054,357	$551,947
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as				$0.00				$0.00	$0.00		
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$0.00				$0.00	$0.00		
		Total PP&E	$940,839	$39,690	$187,347	$1,167,878	$486,336	$104,629	$26,593	$617,558	$550,318		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 104,629					

Year 2013 **CGAAP - with changes to policies**

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$130,898	$352	$0	$131,250	$95,871	$16,761	$0	$112,632	$18,618	$131,074	$104,252
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$4,105	$0	$0	$4,105	$1,107	$821	$0	$1,928	$2,177	$4,105	$1,517
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$290,725	$9,515	$0	$300,240	$158,685	$9,318	$0	$168,003	$132,237	$295,482	$163,344
47	1835	Overhead Conductors & Devices	$294,884	$8,905	$0	$303,789	$158,791	$7,050	$0	$165,841	$137,948	$299,337	$162,316
47	1840	Underground Conduit	$13,405	$0	$0	$13,405	$3,752	$268	$0	$4,020	$9,385	$13,405	$3,886
47	1845	Underground Conductors & Devices	$94,149	$7,207	$0	$101,355	$48,567	$4,258	$0	$52,824	$48,531	$97,752	$50,695
47	1850	Line Transformers	$125,133	$1,293	$0	$126,426	$54,781	$3,823	$0	$58,604	$67,822	$125,780	$56,693
47	1855	Services (Overhead & Underground)	$71,641	$948	$0	$72,589	$17,308	$2,406	$0	$19,714	$52,875	$72,115	$18,511
47	1860	Meters	$60,593	$0	$0	$60,593	$43,313	$1,012	$0	$44,325	$16,268	$60,593	$43,819
47	1860	Meters (Smart Meters)	$193,297	$0	$0	$193,297	$57,786	$12,886	$0	$70,672	$122,625	$193,297	$64,229
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$21,699	$360	$0	$22,059	$6,163	$1,899	$0	$8,062	$13,997	$21,879	$7,113
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$18,268	$211	$0	$18,479	$4,571	$5,541	$0	$10,112	$8,367	$18,373	$7,341
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$150,921	-$3,338	$0	-$154,259	-$33,137	-$4,061	$0	-$37,198	-$117,061	-$152,590	-$35,168
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0		$0	$0	$0	$0	$0	$0
			$0			$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$1,167,876	$25,452	$0	$1,193,328	$617,558	$61,981	$0	$679,539	$513,789	$1,180,602	$648,548
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -	$ 532,054	
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$ -				$ -	$ -		
		Total PP&E	$1,167,876	$25,452	$0	$1,193,328	$617,558	$61,981	$0	$679,539	$513,789		

Year 2014 **CGAAP - with changes to policies**

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Accumulated Depreciation: Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$131,250	$38,793	$0	$170,043	$112,632	$15,984	$0	$128,616	$41,427	$150,647	$120,624
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$4,105	$0	$0	$4,105	$1,928	$821	$0	$2,749	$1,356	$4,105	$2,338
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$300,240	$18,689	$0	$318,929	$168,003	$9,631	$0	$177,634	$141,295	$309,584	$172,818
47	1835	Overhead Conductors & Devices	$303,789	$1,374	$0	$305,163	$165,841	$7,135	$0	$172,976	$132,187	$304,476	$169,409
47	1840	Underground Conduit	$13,405	$0	$0	$13,405	$4,020	$268	$0	$4,288	$9,117	$13,405	$4,154
47	1845	Underground Conductors & Devices	$101,355	$3,809	$0	$105,164	$52,824	$4,441	$0	$57,265	$47,899	$103,260	$55,045
47	1850	Line Transformers	$126,426	$8,242	$0	$134,668	$58,604	$3,239	$0	$61,843	$72,825	$130,547	$60,224
47	1855	Services (Overhead & Underground)	$72,589	$0	$0	$72,589	$19,714	$2,421	$0	$22,135	$50,454	$72,589	$20,924
47	1860	Meters	$60,593	$0	$0	$60,593	$44,325	$1,012	$0	$45,337	$15,256	$60,593	$44,831
47	1860	Meters (Smart Meters)	$193,297	$7,985	$0	$201,282	$70,672	$13,152	$0	$83,824	$117,458	$197,289	$77,248
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$22,059	$230	$0	$22,289	$8,062	$1,893	$0	$9,955	$12,334	$22,174	$9,009
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$18,479	$263	$0	$18,741	$10,112	$2,405	$0	$12,516	$6,225	$18,610	$11,314
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$154,259	$0	$0	-$154,259	-$37,198	-$4,098	$0	-$41,296	-$112,963	-$154,259	-$39,247
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0			$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$1,193,328	$79,385	$0	$1,272,712	$679,539	$58,304	$0	$737,842	$534,870	$1,233,020	$706,691
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -	$ 524,330	
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$ -				$ -	$ -		
		Total PP&E	$1,193,328	$79,385	$0	$1,272,712	$679,539	$58,304	$0	$737,842	$534,870		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 58,304					

Year 2014 **Former CGAAP - without changes to the policies**

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Accumulated Depreciation: Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$131,250	$38,793	$0	$170,043	$112,632	$15,984	$0	$128,616	$41,427	$150,647	$120,624
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$4,105	$0	$0	$4,105	$1,928	$821	$0	$2,749	$1,356	$4,105	$2,338
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$300,240	$18,689	$0	$318,929	$175,454	$9,635	$0	$185,089	$133,840	$309,584	$180,271
47	1835	Overhead Conductors & Devices	$303,789	$1,374	$0	$305,163	$175,715	$10,462	$0	$186,177	$118,986	$304,476	$180,946
47	1840	Underground Conduit	$13,405	$0	$0	$13,405	$4,288	$536	$0	$4,824	$8,581	$13,405	$4,556
47	1845	Underground Conductors & Devices	$101,355	$3,809	$0	$105,164	$53,677	$5,331	$0	$59,008	$46,156	$103,260	$56,343
47	1850	Line Transformers	$126,426	$8,242	$0	$134,668	$60,899	$3,494	$0	$64,393	$70,275	$130,547	$62,646
47	1855	Services (Overhead & Underground)	$72,589	$0	$0	$72,589	$20,195	$2,905	$0	$23,100	$49,489	$72,589	$21,647
47	1860	Meters	$60,593	$0	$0	$60,593	$44,325	$1,012	$0	$45,337	$15,256	$60,593	$44,831
47	1860	Meters (Smart Meters)	$193,297	$7,985	$0	$201,282	$70,672	$13,152	$0	$83,824	$117,458	$197,289	$77,248
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$22,059	$230	$0	$22,289	$8,062	$1,893	$0	$9,955	$12,334	$22,174	$9,009
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$18,479	$263	$0	$18,741	$10,112	$2,405	$0	$12,516	$6,225	$18,610	$11,314
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$154,259	$0	$0	-$154,259	-$39,266	-$6,196	$0	-$45,462	-$108,797	-$154,259	-$42,364
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0			$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$1,193,328	$79,385	$0	$1,272,712	$698,693	$61,434	$0	$760,126	$512,586	$1,233,020	$729,410
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as negative)				$0.00				$0.00	$0.00		
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$0.00				$0.00	$0.00		
		Total PP&E	$1,193,328	$79,385	$0	$1,272,712	$698,693	$61,434	$0	$760,126	$512,586		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 61,434					

Year 2014 IFRS

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Accumulated Depreciation: Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$18,618	$38,793	$0	$57,411	$0	$15,984	$0	$15,984	$41,427	$38,015	$7,992
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$2,177	$0	$0	$2,177	$0	$821	$0	$821	$1,356	$2,177	$411
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$258,109	$18,689	$0	$276,798	$0	$11,015	$0	$11,015	$265,783	$267,454	$5,508
47	1835	Overhead Conductors & Devices	$137,948	$1,374	$0	$139,322	$0	$7,135	$0	$7,135	$132,187	$138,635	$3,568
47	1840	Underground Conduit	$9,385	$0	$0	$9,385	$0	$268	$0	$268	$9,117	$9,385	$134
47	1845	Underground Conductors & Devices	$48,531	$3,809	$0	$52,340	$0	$4,441	$0	$4,441	$47,899	$50,435	$2,220
47	1850	Line Transformers	$87,715	$8,242	$0	$95,956	$0	$4,860	$0	$4,860	$91,096	$91,835	$2,430
47	1855	Services (Overhead & Underground)	$52,875	$0	$0	$52,875	$0	$2,421	$0	$2,421	$50,454	$52,875	$1,211
47	1860	Meters	$12,302	$0	$0	$12,302	$0	$831	$0	$831	$11,471	$12,302	$415
47	1860	Meters (Smart Meters)	$137,517	$7,985	$0	$145,502	$0	$13,282	$0	$13,282	$132,220	$141,510	$6,641
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$13,997	$230	$0	$14,227	$0	$1,893	$0	$1,893	$12,334	$14,112	$947
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$8,367	$263	$0	$8,630	$0	$2,405	$0	$2,405	$6,225	$8,496	$1,202
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$117,061	$0		-$117,061	$0	-$4,098	$0	-$4,098	-$112,963	-$117,061	-$2,049
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$670,480	$79,385	$0	$749,864	$0	$61,257	$0	$61,257	$688,607	$710,172	$30,629
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socializ				$0				$0	$0		
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$ -				$ -	$ -	$ 679,543	
		Total PP&E	$670,480	$79,385	$0	$749,864	$0	$61,257	$0	$61,257	$688,607		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 61,257					

Year 2014 **Former CGAAP - without changes to the policies**

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$131,250	$38,793	$0	$170,043	$112,632	$15,984	$0	$128,616	$41,427	$150,647	$120,624
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$4,105	$0	$0	$4,105	$1,928	$821	$0	$2,749	$1,356	$4,105	$2,338
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$300,240	$18,689	$0	$318,929	$175,454	$9,635	$0	$185,089	$133,840	$309,584	$180,271
47	1835	Overhead Conductors & Devices	$303,789	$1,374	$0	$305,163	$175,715	$10,462	$0	$186,177	$118,986	$304,476	$180,946
47	1840	Underground Conduit	$13,405	$0	$0	$13,405	$4,288	$536	$0	$4,824	$8,581	$13,405	$4,556
47	1845	Underground Conductors & Devices	$101,355	$3,809	$0	$105,164	$53,677	$5,331	$0	$59,008	$46,156	$103,260	$56,343
47	1850	Line Transformers	$126,426	$8,242	$0	$134,668	$60,899	$3,494	$0	$64,393	$70,275	$130,547	$62,646
47	1855	Services (Overhead & Underground)	$72,589	$0	$0	$72,589	$20,195	$2,905	$0	$23,100	$49,489	$72,589	$21,647
47	1860	Meters	$60,593	$0	$0	$60,593	$44,325	$1,012	$0	$45,337	$15,256	$60,593	$44,831
47	1860	Meters (Smart Meters)	$193,297	$7,985	$0	$201,282	$70,672	$13,152	$0	$83,824	$117,458	$197,289	$77,248
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$22,059	$230	$0	$22,289	$8,062	$1,893	$0	$9,955	$12,334	$22,174	$9,009
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$18,479	$263	$0	$18,741	$10,112	$2,405	$0	$12,516	$6,225	$18,610	$11,314
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$154,259	$0	$0	-$154,259	-$39,266	-$6,196	$0	-$45,462	-$108,797	-$154,259	-$42,364
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$1,193,328	$79,385	$0	$1,272,712	$698,693	$61,434	$0	$760,126	$512,586	$1,233,020	$729,410
		Less Socialized Renewable Energy Generation Investments *(input as negative)*Less Socialized				$0				$0	$0		
		Less Other Non Rate-Regulated Utility Assets *(input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)*				$0.00				$0.00	$0.00		
		Total PP&E	$1,193,327.95	$79,384.53	$0.00	$1,272,712.48	$698,692.95	$61,433.53	$0.00	$760,126.46	$512,586.00		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 61,434					

Year 2015 IFRS

CCA Class	OEB	Description	Cost				Accumulated Depreciation						
			Opening Balance	Additions	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$57,411	$2,142	$0	$59,553	$15,984	$12,776	$0	$28,760	$30,793	$58,482	$22,372
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$2,177	$0	$0	$2,177	$821	$821	$0	$1,642	$535	$2,177	$1,232
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$276,798	$13,946	-$41	$290,703	$11,015	$10,815	-$24	$21,806	$268,896	$283,750	$16,411
47	1835	Overhead Conductors & Devices	$139,322	$1,700	$0	$141,022	$7,135	$7,171	$0	$14,306	$126,716	$140,172	$10,721
47	1840	Underground Conduit	$9,385	$0	$0	$9,385	$268	$268	$0	$536	$8,849	$9,385	$402
47	1845	Underground Conductors & Devices	$52,340	$0	$0	$52,340	$4,441	$4,505	$0	$8,946	$43,394	$52,340	$6,693
47	1850	Line Transformers	$95,956	$9,366	$0	$105,322	$4,860	$4,450	$0	$9,310	$96,012	$100,639	$7,085
47	1855	Services (Overhead & Underground)	$52,875	$0	$0	$52,875	$2,421	$2,421	$0	$4,842	$48,033	$52,875	$3,632
47	1860	Meters	$12,302	$0	-$7,414	$4,888	$831	$216	-$615	$431	$4,457	$8,595	$631
47	1860	Meters (Smart Meters)	$145,502	$2,234	-$13,623	$134,113	$13,282	$12,263	-$1,297	$24,247	$109,866	$139,808	$18,765
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$14,227	$329	$0	$14,556	$1,893	$1,915	$0	$3,808	$10,748	$14,392	$2,851
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$8,630	$8,450	$0	$17,080	$2,405	$2,607	$0	$5,012	$12,068	$12,855	$3,708
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$117,061	$0	$0	-$117,061	-$4,098	-$4,098	$0	-$8,196	-$108,865	-$117,061	-$6,147
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$749,864	$38,167	-$21,079	$766,952	$61,257	$56,129	-$1,936	$115,450	$651,502	$758,408	$88,354
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -	$ 670,054	
		Less Other Non Rate-Regulated Utility Assets *(input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)*				$ -				$ -	$ -		
		Total PP&E	$749,864	$38,167	-$21,079	$766,952	$61,257	$56,129	-$1,936	$115,450	$651,502		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 56,129					

Year 2015 **Former CGAAP - without changes to the policies**

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$170,043	$2,142	$0	$172,185	$128,616	$12,907	$0	$141,523	$30,662	$171,114	$135,070
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$4,105	$0	$0	$4,105	$2,749	$821	$0	$3,570	$535	$4,105	$3,159
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$318,929	$13,946	$0	$332,875	$185,089	$7,434	$0	$192,523	$140,352	$325,902	$188,806
47	1835	Overhead Conductors & Devices	$305,163	$1,700	$0	$306,863	$186,177	$6,537	$0	$192,714	$114,149	$306,013	$189,446
47	1840	Underground Conduit	$13,405	$0	$0	$13,405	$4,824	$536	$0	$5,360	$8,045	$13,405	$5,092
47	1845	Underground Conductors & Devices	$105,164	$0	$0	$105,164	$59,008	$4,860	$0	$63,868	$41,296	$105,164	$61,438
47	1850	Line Transformers	$134,668	$9,366	$0	$144,034	$64,393	$3,846	$0	$68,239	$75,795	$139,351	$66,316
47	1855	Services (Overhead & Underground)	$72,589	$0	$0	$72,589	$23,100	$2,905	$0	$26,005	$46,584	$72,589	$24,552
47	1860	Meters	$60,593	$0	$0	$60,593	$45,337	$1,012	$0	$46,349	$14,244	$60,593	$45,843
47	1860	Meters (Smart Meters)	$201,282	$2,234	$0	$203,516	$83,824	$13,492	$0	$97,316	$106,200	$202,399	$90,570
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$22,289	$329	$0	$22,618	$9,955	$1,920	$0	$11,875	$10,743	$22,454	$10,915
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$18,741	$8,450	$0	$27,191	$12,516	$3,276	$0	$15,792	$11,399	$22,966	$14,154
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$154,259	$0	$0	-$154,259	-$45,462	-$6,196	$0	-$51,658	-$102,601	-$154,259	-$48,560
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$1,272,712	$38,167	$0	$1,310,879	$760,126	$53,350	$0	$813,476	$497,403	$1,291,796	$786,801
		Less Socialized Renewable Energy Generation Investments *(input as negative)* Less Socialized				$0				$0	$0		
		Less Other Non Rate-Regulated Utility Assets *(input as negative)* Less Other Non Rate-Regulated Utility Assets *(input as negative)*				$0.00				$0.00	$0.00		
		Total PP&E	$1,272,712.48	$38,166.67	$0.00	$1,310,879.15	$760,126.48	$53,349.67	$0.00	$813,476.15	$497,403.00		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)								$0			
		Total						$ 53,350					

Year 2016 IFRS

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Accumulated Depreciation: Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$59,553	$1,179	$0	$60,732	$28,760	$9,796	$0	$38,556	$22,176	$60,142	$33,658
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$2,177	$0	$0	$2,177	$1,642	$474	$0	$2,116	$61	$2,177	$1,879
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$290,703	$24,730	$0	$315,433	$21,806	$11,874	$0	$33,680	$281,753	$303,068	$27,743
47	1835	Overhead Conductors & Devices	$141,022	$1,710	$0	$142,732	$14,306	$4,087	$0	$18,393	$124,339	$141,877	$16,349
47	1840	Underground Conduit	$9,385	$0	$0	$9,385	$536	$268	$0	$804	$8,581	$9,385	$670
47	1845	Underground Conductors & Devices	$52,340	$1,785	$0	$54,124	$8,946	$4,545	$0	$13,490	$40,634	$53,232	$11,218
47	1850	Line Transformers	$105,322	$18,339	$0	$123,661	$9,310	$4,597	$0	$13,907	$109,754	$114,492	$11,609
47	1855	Services (Overhead & Underground)	$52,875	$0	$0	$52,875	$4,842	$2,421	$0	$7,263	$45,612	$52,875	$6,053
47	1860	Meters	$4,888	$0	$0	$4,888	$431	$216	$0	$647	$4,241	$4,888	$539
47	1860	Meters (Smart Meters)	$134,113	$667	-$8,101	$126,679	$24,247	$11,936	-$1,660	$34,524	$92,155	$130,396	$29,386
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$14,556	$0	$0	$14,556	$3,808	$1,937	$0	$5,745	$8,811	$14,556	$4,777
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$17,080	$560	$0	$17,640	$5,012	$4,186	$0	$9,198	$8,442	$17,360	$7,105
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$117,061	-$29,147	$0	-$146,208	-$8,196	-$4,098	$0	-$12,294	-$133,914	-$131,635	-$10,245
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$766,952	$19,822	-$8,101	$778,673	$115,450	$52,237	-$1,660	$166,027	$612,646	$772,813	$140,739
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -	$ 632,074	
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$ -				$ -	$ -		
		Total PP&E	$766,952	$19,822	-$8,101	$778,673	$115,450	$52,237	-$1,660	$166,027	$612,646		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 52,237					

Year 2016 **Former CGAAP - without changes to the policies**

			Cost				Accumulated Depreciation						
CCA Class	OEB	Description	Opening Balance	Additions	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$172,185	$1,179	$0	$173,364	$141,523	$9,737	$0	$151,260	$22,104	$172,775	$146,392
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$4,105	$0	$0	$4,105	$3,570	$474	$0	$4,044	$61	$4,105	$3,807
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$332,875	$24,730	$0	$357,605	$192,523	$8,208	$0	$200,731	$156,874	$345,240	$196,627
47	1835	Overhead Conductors & Devices	$306,863	$1,710	$0	$308,573	$192,714	$6,606	$0	$199,320	$109,253	$307,718	$196,017
47	1840	Underground Conduit	$13,405	$0	$0	$13,405	$5,360	$536	$0	$5,896	$7,509	$13,405	$5,628
47	1845	Underground Conductors & Devices	$105,164	$1,785	$0	$106,948	$63,868	$4,896	$0	$68,763	$38,185	$106,056	$66,316
47	1850	Line Transformers	$144,034	$18,339	$0	$162,373	$68,239	$4,400	$0	$72,639	$89,734	$153,203	$70,439
47	1855	Services (Overhead & Underground)	$72,589	$0	$0	$72,589	$26,005	$2,905	$0	$28,910	$43,679	$72,589	$27,457
47	1860	Meters	$60,593	$0	$0	$60,593	$46,349	$1,012	$0	$47,361	$13,232	$60,593	$46,855
47	1860	Meters (Smart Meters)	$203,516	$667	$0	$204,184	$97,316	$13,589	$0	$110,906	$93,278	$203,850	$104,111
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$22,618	$0	$0	$22,618	$11,875	$1,937	$0	$13,812	$8,806	$22,618	$12,844
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$27,191	$560	$0	$27,752	$15,792	$4,177	$0	$19,970	$7,782	$27,471	$17,881
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$154,259	-$29,147	$0	-$183,406	-$51,658	-$6,779	$0	-$58,437	-$124,969	-$168,832	-$55,047
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$1,310,879	$19,822	$0	$1,330,701	$813,476	$51,697	$0	$865,173	$465,528	$1,320,790	$839,325
		Less Socialized Renewable Energy Generation Investments *(input as negative)*Less Socialized				$0				$0	$0		
		Less Other Non Rate-Regulated Utility Assets *(input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)*				$0.00				$0.00	$0.00		
		Total PP&E	$1,310,879.15	$19,822.25	$0.00	$1,330,701.40	$813,476.15	$51,697.25	$0.00	$865,173.40	$465,528.00		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)								$0			
		Total						$ 51,697					

Year 2017 IFRS

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$60,732	$6,771	$0	$67,503	$38,556	$9,324	$0	$47,880	$19,623	$64,117	$43,218
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$2,177	$0	$0	$2,177	$2,116	$61	$0	$2,177	$0	$2,177	$2,147
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$315,433	$15,862	$0	$331,295	$33,680	$12,193	$0	$45,873	$285,421	$323,364	$39,776
47	1835	Overhead Conductors & Devices	$142,732	$6,010	$0	$148,742	$18,393	$2,825	$0	$21,218	$127,524	$145,737	$19,805
47	1840	Underground Conduit	$9,385	$433	$0	$9,818	$804	$275	$0	$1,079	$8,739	$9,601	$941
47	1845	Underground Conductors & Devices	$54,124	$3,280	$0	$57,404	$13,490	$3,036	$0	$16,526	$40,878	$55,764	$15,008
47	1850	Line Transformers	$123,661	$8,617	$0	$132,278	$13,907	$4,924	$0	$18,831	$113,447	$127,970	$16,369
47	1855	Services (Overhead & Underground)	$52,875	$330	$0	$53,205	$7,263	$2,431	$0	$9,694	$43,511	$53,040	$8,479
47	1860	Meters	$4,888	$0	$0	$4,888	$647	$216	$0	$863	$4,025	$4,888	$755
47	1860	Meters (Smart Meters)	$126,679	$10,845	-$2,553	$134,972	$34,524	$11,822	-$774	$45,572	$89,399	$130,825	$40,048
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$14,556	$0	$0	$14,556	$5,745	$1,924	$0	$7,669	$6,887	$14,556	$6,707
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$17,640	$0	$0	$17,640	$9,198	$3,066	$0	$12,264	$5,376	$17,640	$10,731
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$146,208	$0	$0	-$146,208	-$12,294	-$4,772	$0	-$17,066	-$129,142	-$146,208	-$14,680
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$778,673	$52,147	-$2,553	$828,268	$166,027	$47,324	-$774	$212,578	$615,690	$803,470	$189,300
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -	$ 614,168	
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$ -				$ -	$ -		
		Total PP&E	$778,673	$52,147	-$2,553	$828,268	$166,027	$47,324	-$774	$212,578	$615,690		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 47,324					

Year 2017 **Former CGAAP - without changes to the policies**

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$173,364	$6,771	$0	$180,135	$151,260	$9,211	$0	$160,471	$19,664	$176,749	$155,865
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$4,105	$0	$0	$4,105	$4,044	$61	$0	$4,105	$0	$4,105	$4,074
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$357,605	$15,862	$0	$373,467	$200,731	$9,019	$0	$209,750	$163,717	$365,536	$205,240
47	1835	Overhead Conductors & Devices	$308,573	$6,010	$0	$314,583	$199,320	$6,759	$0	$206,079	$108,504	$311,578	$202,699
47	1840	Underground Conduit	$13,405	$433	$0	$13,837	$5,896	$546	$0	$6,441	$7,396	$13,621	$6,168
47	1845	Underground Conductors & Devices	$106,948	$3,280	$0	$110,228	$68,763	$2,339	$0	$71,102	$39,126	$108,588	$69,933
47	1850	Line Transformers	$162,373	$8,617	$0	$170,989	$72,639	$4,939	$0	$77,577	$93,412	$166,681	$75,108
47	1855	Services (Overhead & Underground)	$72,589	$330	$0	$72,919	$28,910	$2,912	$0	$31,822	$41,097	$72,754	$30,366
47	1860	Meters	$60,593	$113	$0	$60,706	$47,361	$1,016	$0	$48,377	$12,329	$60,650	$47,869
47	1860	Meters (Smart Meters)	$204,184	$10,732	$0	$214,916	$110,906	$13,969	$0	$124,875	$90,041	$209,550	$117,890
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$22,618	$0	$0	$22,618	$13,812	$1,924	$0	$15,736	$6,882	$22,618	$14,774
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$27,752	$0	$0	$27,752	$19,970	$3,066	$0	$23,036	$4,716	$27,752	$21,503
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$183,406	$0	$0	-$183,406	-$58,437	-$7,362	$0	-$65,799	-$117,607	-$183,406	-$62,118
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$1,330,701	$52,147	$0	$1,382,849	$865,173	$48,398	$0	$913,572	$469,277	$1,356,775	$889,373
		Less Socialized Renewable Energy Generation Investments *(input as negative)Less Socialized*				$0				$0	$0		
		Less Other Non Rate-Regulated Utility Assets *(input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)*				$0.00				$0.00	$0.00		
		Total PP&E	$1,330,701.40	$52,147.21	$0.00	$1,382,848.61	$865,173.40	$48,398.21	$0.00	$913,571.61	$469,277.00		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)								$0			
		Total						$ 48,398					

Year **2018** **IFRS**

			Cost				Accumulated Depreciation						
CCA Class	OEB	Description	Opening Balance	Additions	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$67,503	$0	$0	$67,503	$47,880	$9,814	$0	$57,694	$9,809	$67,503	$52,787
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$2,177	$0	$0	$2,177	$2,177	$0	$0	$2,177	$0	$2,177	$2,177
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$331,295	$29,137	-$4,441	$355,990	$45,873	$12,329	-$641	$57,561	$298,429	$343,642	$51,717
47	1835	Overhead Conductors & Devices	$148,742	$0	$0	$148,742	$21,218	$2,866	$0	$24,084	$124,658	$148,742	$22,651
47	1840	Underground Conduit	$9,818	$0	$0	$9,818	$1,079	$277	$0	$1,356	$8,462	$9,818	$1,217
47	1845	Underground Conductors & Devices	$57,404	$0	$0	$57,404	$16,526	$1,936	$0	$18,462	$38,942	$57,404	$17,494
47	1850	Line Transformers	$132,278	$10,704	$0	$142,982	$18,831	$4,937	$0	$23,768	$119,214	$137,630	$21,299
47	1855	Services (Overhead & Underground)	$53,205	$1,320	$0	$54,525	$9,694	$2,446	$0	$12,140	$42,385	$53,865	$10,917
47	1860	Meters	$4,888	$0	$0	$4,888	$863	$216	$0	$1,079	$3,809	$4,888	$971
47	1860	Meters (Smart Meters)	$134,972	$3,837	-$2,677	$136,132	$45,572	$11,926	-$959	$56,539	$79,593	$135,552	$51,055
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$14,556	$0	$0	$14,556	$7,669	$1,896	$0	$9,565	$4,991	$14,556	$8,617
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$17,640	$0	$0	$17,640	$12,264	$1,877		$14,141	$3,499	$17,640	$13,202
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0			$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$146,208	-$3,750	$0	-$149,958	-$17,066	-$4,808	$0	-$21,874	-$128,084	-$148,083	-$19,470
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$828,268	$41,247	-$7,118	$862,397	$212,578	$45,712	-$1,600	$256,689	$605,708	$845,332	$234,634
		Less Socialized Renewable Energy Generation Investments (input as negative)**Less Socialized Renewable Energy Generation Investments** (input as negative)				$ -				$ -	$ -	$ 610,699	
		Less Other Non Rate-Regulated Utility Assets *(input as negative)**Less Other Non Rate-Regulated Utility Assets** (input as negative)*				$ -				$ -	$ -		
		Total PP&E	$828,268	$41,247	-$7,118	$862,397	$212,578	$45,712	-$1,600	$256,689	$605,708		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 45,712					

Year 2018 **Former CGAAP - without changes to the policies**

			Cost				Accumulated Depreciation						
CCA Class	OEB	Description	Opening Balance	Additions	Disposals	Closing Balance	Opening Balance	Additions	Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$180,135	$0	$0	$180,135	$160,471	$9,814	$0	$170,285	$9,850	$180,135	$165,378
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$4,105	$0	$0	$4,105	$4,105	$0	$0	$4,105	$0	$4,105	$4,105
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$373,467	$29,137	$0	$402,603	$209,750	$9,920	$0	$219,669	$182,934	$388,035	$214,709
47	1835	Overhead Conductors & Devices	$314,583	$0	$0	$314,583	$206,079	$6,879	$0	$212,958	$101,625	$314,583	$209,518
47	1840	Underground Conduit	$13,837	$0	$0	$13,837	$6,441	$553	$0	$6,994	$6,843	$13,837	$6,718
47	1845	Underground Conductors & Devices	$110,228	$0	$0	$110,228	$71,102	$2,325	$0	$73,427	$36,801	$110,228	$72,265
47	1850	Line Transformers	$170,989	$10,704	$0	$181,693	$77,577	$5,326	$0	$82,903	$98,790	$176,341	$80,240
47	1855	Services (Overhead & Underground)	$72,919	$1,320	$0	$74,239	$31,822	$2,944	$0	$34,766	$39,473	$73,579	$33,294
47	1860	Meters	$60,706	$0	$0	$60,706	$48,377	$1,020	$0	$49,397	$11,309	$60,706	$48,887
47	1860	Meters (Smart Meters)	$214,316	$3,837	$0	$218,752	$124,875	$14,454	$0	$139,328	$79,424	$216,534	$132,102
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$22,618	$0	$0	$22,618	$15,736	$1,896	$0	$17,632	$4,986	$22,618	$16,684
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$27,752	$0	$0	$27,752	$23,036	$1,877	$0	$24,913	$2,839	$27,752	$23,974
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$183,406	-$3,750	$0	-$187,156	-$65,799	-$7,437	$0	-$73,236	-$113,920	-$185,281	-$69,517
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$1,382,849	$41,247	$0	$1,424,096	$913,572	$49,570	$0	$963,142	$460,954	$1,403,472	$938,357
		Less Socialized Renewable Energy Generation Investments *(input as negative)* **Less Socialized**				$0				$0	$0		
		Less Other Non Rate-Regulated Utility Assets *(input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)*				$0.00				$0.00	$0.00		
		Total PP&E	$1,382,848.61	$41,247.14	$0.00	$1,424,095.75	$913,571.61	$49,570.14	$0.00	$963,141.75	$460,954.00		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)								$0			
		Total						$ 49,570					

Year 2019 IFRS

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$67,503	$0	$0	$67,503	$57,694	$1,936	$0	$59,630	$7,873	$67,503	$58,662
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$2,177	$0	$0	$2,177	$2,177	$0	$0	$2,177	$0	$2,177	$2,177
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$355,990	$41,236	$0	$397,226	$57,561	$13,168	$0	$70,729	$326,497	$376,608	$64,145
47	1835	Overhead Conductors & Devices	$148,742	$10,500	$0	$159,242	$24,084	$2,954	$0	$27,037	$132,205	$153,992	$25,560
47	1840	Underground Conduit	$9,818		$0	$9,818	$1,356	$277	$0	$1,633	$8,185	$9,818	$1,494
47	1845	Underground Conductors & Devices	$57,404	$3,300	$0	$60,704	$18,462	$1,991	$0	$20,453	$40,251	$59,054	$19,458
47	1850	Line Transformers	$142,982	$74,948	$0	$217,930	$23,768	$6,008	$0	$29,776	$188,154	$180,456	$26,772
47	1855	Services (Overhead & Underground)	$54,525	$9,083	$0	$63,608	$12,140	$2,619	$0	$14,759	$48,849	$59,067	$13,450
47	1860	Meters	$4,888		$0	$4,888	$1,079	$525	$0	$1,604	$3,284	$4,888	$1,341
47	1860	Meters (Smart Meters)	$136,132	$17,749	-$5,000	$148,881	$56,539	$12,237	-$2,000	$66,775	$82,106	$142,506	$61,657
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$14,556	$900	$0	$15,456	$9,565	$1,904	$0	$11,469	$3,987	$15,006	$10,517
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$17,640	$0	$0	$17,640	$14,141	$1,826	$0	$15,967	$1,673	$17,640	$15,054
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$149,958	-$36,162	$0	-$186,120	-$21,874	-$5,317	$0	-$27,191	-$158,929	-$168,039	-$24,533
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$862,397	$121,554	-$5,000	$978,951	$256,689	$40,128	-$2,000	$294,817	$684,134	$920,874	$275,753
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -	$ 644,921	
		Less Other Non Rate-Regulated Utility Assets *(input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)*				$ -				$ -	$ -		
		Total PP&E	$862,397	$121,554	-$5,000	$978,951	$256,689	$40,128	-$2,000	$294,817	$684,134		
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 40,128					

Year 2020 IFRS

CCA Class	OEB	Description	Cost: Opening Balance	Cost: Additions	Cost: Disposals	Cost: Closing Balance	Accumulated Depreciation: Opening Balance	Accumulated Depreciation: Additions	Accumulated Depreciation: Disposals	Closing Balance	Net Book Value	AVG Gross Bal	AVG AccDep
12	1611	Computer Software (Formally known as Account 1925)	$67,503	$36,000	$0	$103,503	$59,630	$5,012	$0	$64,642	$38,861	$85,503	$62,136
CEC	1612	Land Rights (Formally known as Account 1906 and 1806)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
N/A	1805	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1808	Buildings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1810	Leasehold Improvements	$2,177	$500	$0	$2,677	$2,177	$50	$0	$2,227	$450	$2,427	$2,202
47	1815	Transformer Station Equipment >50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1820	Distribution Station Equipment <50 kV	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1825	Storage Battery Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1830	Poles, Towers & Fixtures	$397,226	$40,000	$0	$437,226	$70,729	$14,071	$0	$84,800	$352,426	$417,226	$77,765
47	1835	Overhead Conductors & Devices	$159,242	$14,500	$0	$173,742	$27,037	$3,162	$0	$30,199	$143,543	$166,492	$28,618
47	1840	Underground Conduit	$9,818	$0	$0	$9,818	$1,633	$277	$0	$1,910	$7,908	$9,818	$1,771
47	1845	Underground Conductors & Devices	$60,704	$7,300	$0	$68,004	$20,453	$2,168	$0	$22,621	$45,383	$64,354	$21,537
47	1850	Line Transformers	$217,930	$72,900	$0	$290,830	$29,776	$7,856	$0	$37,632	$253,198	$254,380	$33,704
47	1855	Services (Overhead & Underground)	$63,608	$5,000	$0	$68,608	$14,759	$2,854	$0	$17,613	$50,995	$66,108	$16,186
47	1860	Meters	$4,888		$0	$4,888	$1,604	$525	$0	$2,129	$2,759	$4,888	$1,866
47	1860	Meters (Smart Meters)	$148,881	$17,098	-$5,000	$160,979	$66,775	$13,198	-$2,000	$77,973	$83,005	$154,930	$72,374
N/A	1905	Land	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1908	Buildings & Fixtures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
13	1910	Leasehold Improvements	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1915	Office Furniture & Equipment (10 years)	$15,456	$500	$0	$15,956	$11,469	$1,939	$0	$13,408	$2,548	$15,706	$12,439
8	1915	Office Furniture & Equipment (5 years)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
10	1920	Computer Equipment - Hardware	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$17,640	$2,500	$0	$20,140	$15,967	$1,876	$0	$17,843	$2,297	$18,890	$16,905
10	1930	Transportation Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1935	Stores Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1940	Tools, Shop & Garage Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1945	Measurement & Testing Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1950	Power Operated Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communications Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1955	Communication Equipment (Smart Meters)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
8	1960	Miscellaneous Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1970	Load Management Controls Customer Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1975	Load Management Controls Utility Premises	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1980	System Supervisor Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1985	Miscellaneous Fixed Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1990	Other Tangible Property	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
47	1995	Contributions & Grants	-$186,120	$0	$0	-$186,120	-$27,191	-$5,769	$0	-$32,960	-$153,160	-$186,120	-$30,076
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	etc.		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Sub-Total	$978,951	$196,298	-$5,000	$1,170,249	$294,817	$47,219	-$2,000	$340,036	$830,214	$1,074,800	$317,426
		Less Socialized Renewable Energy Generation Investments (input as negative)Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -	$ 757,174	
		Less Other Non Rate-Regulated Utility Assets (input as negative)Less Other Non Rate-Regulated Utility Assets (input as negative)				$ -				$ -	$ -		
		Total PP&E	$978,951	$196,298	-$5,000	$1,170,249	$294,817	$47,219	-$2,000	$340,036	$830,214	$ 757,174	
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets)											
		Total						$ 47,219					

2.2 GROSS ASSETS

2.2.1 GROSS ASSET VARIANCE ANALYSIS

Table 13 - OEB Appendix 2-AB Capital Expenditures is presented below as well as in the DSP. The section which follows Table 2-AB presents a breakdown of capital investments by RRFE functions; System Access (Table 8), System Renewal (Table 9), System Services (Table 10) and General Plant (11). That said, in order to comply with the filing requirements, the utility is also presenting a Breakdown of the utility's Gross Assets by function (distribution plant, general plant, etc.) at Table 2.13[9]

Table 13 - OEB Appendix 2-AB Capital Expenditures[10]

CATEGORY	2012			2013			2014			2015		
	Plan	**Actual**	**Var**	**Plan**	**Actual**	**Var**	**Plan**	**Actual**	**Var**	**Plan**	**Actual**	**Var**
	0		**%**	**$ '000**		**%**	**$ '000**		**%**	**$ '000**		**%**
System Access	$0	$6,314		$0	$948		$0			$0	$0	
System Renewal	$236,297	$214,816	-9.09%	$43,000	$26,919	-37.40%	$43,000	$40,099	-6.75%	$43,000	$27,246	-36.64%
System Service	$0	$0		$0	$0		$0			$0		
General Plant	$42,761	$14,014	-67.23%	$14,014	$923	-93.41%	$14,014	$39,286	180.33%	$14,014	$10,921	-22.07%
TOTAL EXPENDITURE	**$279,058**	**$235,144**	**-15.74%**	**$57,014**	**$28,790**	**-49.50%**	**$57,014**	**$79,385**	**39.24%**	**$57,014**	**$38,167**	**-33.06%**
Capital Contributions	$0	-$2,157		$0	-$3,338		$0	$0		$0	$0	
Net Capital Expenditures	**$279,058**	**$232,987**	**-16.51%**	**$57,014**	**$25,452**	**-55.36%**	**$57,014**	**$79,385**	**39.24%**	**$57,014**	**$38,167**	**-33.06%**
System O&M	$14,825	$69,469	368.59%	$14,825	$30,927	108.61%	$14,825	$9,876	-33.38%	$14,825	$21,935	47.96%

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[9] MFR - Complete Appendix 2-AA along with: explanation for variances, including that of actuals v. OEB-approved amounts for last OEB-approved CoS application; for capital projects that have a project life cycle greater than one year, the proposed accounting treatment, including the treatment of the cost of funds for construction work-in-progress

[10] MFR - Complete Appendix 2-AB - historical years must be actuals, forecasts for the bridge and test years

(Cont'd)

	2016			2017			2018			2019		
	Plan	**Actual**	**Var**	**Plan**	**Actual**	**Var**	**Plan**	**Actual**	**Var**	**Plan**	**Actual2**	**Var**
	$ '000		**%**	**$ '000**		**%**	**$ '000**		**%**	**$ '000**		**%**
System Access	$0	$0		$0	$330		$0	$1,320		$0	$9,083	
System Renewal	$43,000	$47,230	9.84%	$43,000	$45,046	4.76%	$43,000	$43,677	1.57%	$43,000	$147,733	243.57%
System Service	$0			$0			$0			$0		
General Plant	$14,014	$1,739	-87.59%	$14,014	$6,772	-51.68%	$14,014	$0	-100.00%	$14,014	$900	-93.58%
TOTAL EXPENDITURE	**$57,014**	**$48,969**	**-14.11%**	**$57,014**	**$52,148**	**-8.53%**	**$57,014**	**$44,997**	**-21.08%**	**$57,014**	**$157,716**	**176.63%**
Capital Contributions	$0	-$29,147		$0	$0		$0	-$3,750		$0	-$36,162	
Net Capital Expenditures	**$57,014**	**$19,822**	**-65.23%**	**$57,014**	**$52,148**	**-8.53%**	**$57,014**	**$41,247**	**-27.65%**	**$57,014**	**$121,554**	**113.20%**
System O&M	$14,825	$44,837	202.44%	$14,825	$56,272	279.58%	$14,825	$44,938	203.12%	$14,825	$44,027	196.98%

(Cont'd)

	Forecast Period (planned)				
	2020	2021	2022	2023	2024
System Access	$5,000	$5,000	$5,000	$5,000	$5,000
System Renewal	$151,798	$133,450	$133,450	$133,450	$133,450
System Service					
General Plant	$39,500	$5,500	$5,500	$5,500	$5,500
TOTAL EXPENDITURE	**$196,298**	**$143,950**	**$143,950**	**$143,950**	**$143,950**
Capital Contributions	$0	$0	$0	$0	$0
Net Capital Expenditures	**$196,298**	**$143,950**	**$143,950**	**$143,950**	**$143,950**
System O&M	$51,146	$51,913	$52,692	$53,482	$54,285
		1.50%	*1.50%*	*1.50%*	*1.50%*

Accounting treatment of the cost of funds for construction work-in-progress

All of Hydro 2000's capital work is planned to be completed within the same fiscal year. In the event that a project does span over multiple years, Hydro 2000 will follow the OEB's accounting processes and use account 2055-Work In Progress.

Table 14 – OEB Appendix 2-AA System Access Project Table to Table 16 - OEB Appendix 2-AA General Plant Variances at the next pages shows the year over year capital projects in System Access, System Service, System Renewal and General Plan. Hydro 2000 notes that in its 2012 Cost of Service, capital projects were not required to be tracked by the RRFE categories.

Table 14 – OEB Appendix 2-AA System Access Project Table

Projects	USoA	2012	2013	2014	2015	2016	2017	2018	2019	2020
Replace Bell Pole	183000	$4,850								
New O/H and U/G services	185500	$1,464	$948				$330	$1,320	$9,083	$5,000
Sub-Total System Access		**$6,314**	**$948**	**$0**	**$0**	**$0**	**$330**	**$1,320**	**$9,083**	**$5,000**
Contributed Capital		$0	$0	$0	$0	$0	$0	$0	$0	$0
Sub-Total Contributed Capital		$0	$0	$0	$0	$0	$0	$0	$0	$0
Total System Access		**$6,314**	**$948**	**$0**	**$0**	**$0**	**$330**	**$1,320**	**$9,083**	**$5,000**

2012 – 2020 System Access investments are modifications or relocation a distributor is obligated to perform to provide customer access to electricity services. Hydro 2000 does not have much growth in its service area therefore the investment in System Access tends to be low. Should there be growth in the Residential or General Service, Hydro 2000 will continue to accommodate the requests for new load connections and for service upgrades during the forecast period. Hydro 2000 does not project any significant load growth in the next five years nor any project that is above the materiality threshold.

Although the growth in the service area is marginal, Hydro 2000 deems it prudent to forecast for at least one service per year at $5,000.

Table 15 - OEB Appendix 2-AA System Renewal Variances

Projects	USoA	2012	2013	2014	2015	2016	2017	2018	2019	2020
	USoA	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Overhead Conductors and devices	183500	$6,686	$8,905	$1,374	$1,700	$1,710	$6,010		$10,500	$14,500
Underground Conductors and devices	184500	$801	$7,207	$3,809		$1,785	$3,280		$3,300.00	$7,300
Line Transformers	185000	$10,999	$1,293	$8,242	$9,366	$18,339	$8,617	$10,704	$74,948	$72,900
Poles & Fixtures	183000		$9,515	$18,689	$13,946	$24,730	$15,862	$29,137	$41,236	$40,000
U/G conduit	184000						$433			
Meters	186000	$196,330		$7,985	$2,234	$667	$10,845	$3,837	$17,749	$17,098
Sub-Total System Renewal		$214,816	$26,919	$40,099	$27,246	$47,230	$45,046	$43,677	$147,733	$151,798
Contributed Capital		-$2,157	-$3,338			-$29,147		-$3,750	-$36,162	$0

Sub-Total Contributed Capital		-$2,157	-$3,338			-$29,147		-$3,750	-$36,162	$0
Total System Renewal		**$212,659**	**$23,582**	**$40,099**	**$27,246**	**$18,083**	**$45,046**	**$39,927**	**$111,571**	**$151,798**

2012 – 2020 System Renewal investments involve replacing and/or refurbishing system assets to extend the original service life of the assets and thereby maintain the ability of the distributor's distribution system to provide customers with electricity services.

Overhead Conductors and devices - $10,500 for 2019

At the time of the last Cost of Service, the issue of poor design for porcelain arresters was not known. Hydro 2000 has established a program to change 10 arresters per villages per year for a total of 20 per year. This is an annual budget of **$10,500.**

Overhead Conductors and devices - $14,500 for 2020

At the time of the last Cost of Service, the issue of poor design for porcelain arresters was not known. Hydro 2000 has established a program to change 10 arresters per villages per year for a total of 20 per year. This is for safety reasons and efficiency. This is an annual budget of **$10,500.**

With the increasing demand of locates created by One Call, AutoCAD drawing is needed for accuracy and to better coordinate all services. This is a one-time cost of $8,000 for 2020. The cost was allocated equally between Overhead Conductors and for Underground Conductors. The cost allocated to Overhead Conductor is **$4,000.**

Underground Conductors and devices - $3,300 for 2019

Hydro 2000's new management and Board of Directors adopted a more proactive style of asset management. This approach is aimed at improving safety and reliability. This will also help decrease incidents and durations of Power Outages. Hydro 2000 is planning to upgrade 3 Pad mounted Transformers per year for a total of **$3,300** per year. This will ensure all Pad mounted Transformers are maintained every 5 years.

Underground Conductors and devices - $7,300 for 2020

There was no allocation to renew the Distribution Network Plan. With the increasing demand of locates created by One Call, AutoCAD drawing is needed for accuracy but also to better coordinate all services. This is a one-time cost of $8,000 for 2020. The cost was allocated equally between Overhead Conductors and for Underground Conductors. The cost allocated to Overhead Conductor is **$4,000.**

Hydro 2000's new management and Board of Directors adopted a more proactive style of asset management. This approach is aimed at improving safety and reliability. This will also help decrease incidents and durations of Power Outages. Hydro 2000 is planning to upgrade 3 Pad mounted Transformers per year for a total of **$3,300** per year. This will ensure all Pad mounted Transformers are maintained every 5 years.

Line Transformers $74,948 per year from 2019 until 2025

As a result of the regulation which states that all PCB must be replaced before December 31, 2025, Hydro 2000 has listed all transformers and assessed the need to change 15 per year in order to have all its transformers removed and tested before the deadline. Hydro 2000's plan will even out the financial burden over an appropriately extended period. This is assessed at **$33,900** for transformer cost and **$39,000** for installation, testing, and moving of transformers.

Poles & Fixtures – Historical Costs

In 2014, Hydro 2000 spent $18,689.25 in pole replacements. There were 4 deteriorated poles that needed to be changed for a total of $16,726. There was an annual overhead inspection in the amount of $625.00. There was a broken ground which cost $657.50 and an X-Large Ampact cover and fuse change for $680.75. With the exception of the annual inspection, all costs resulted from repairs due to trouble calls.

Similar to 2014, In 2016, Hydro 2000 spent $24,730 in pole replacements. Again all repairs were done on a reactive basis following trouble calls.

In 2017, Hydro 2000 spent $15,862 in pole replacements. Following the pole condition study, it was found that 2 poles needed immediate attention. One was a 45’ Cl3 wood pole housing 3 overhead primary and 3 overhead secondary conductors, a transformer, 3 overhead secondary services and a streetlight for a total of $6,500 and a 45’ Cl3 pole housing 2 overhead primary conductors, a transformer, 3 overhead secondary services and a streetlight for a total of $4800. Hydro 2000 also acquired 10 poles from Hydro One following a Joint Application for Elimination of Load Transfer Arrangements #EB-2016-0194 in the amount of $4,562 for the poles portion.

In 2018, Hydro 2000 spent $29,136 in pole replacements. 2018 was the year when the new management came and introduced a more proactive approach to pole replacement. The utility planned 5 poles @ approximately $5,000 each. Four of the poles were changed totaling $20,575. When a tornado hit our area on September 21st, 2018, we had 2 poles that broke. The replacement of those poles totaled $8,561.50. Hydro 2000 did not proceed with the last planned pole replacement since the budgeted amount was used to repair the 2 poles broken by the tornado.

Poles & Fixtures - $40,000 per year (8 poles @ $5,000 each)

In the previous year and under previous management , poles were replaced as needed on a purely reactive basis. Hydro 2000 has developed a more proactive approach with a program where we have tested all poles and are replacing eight poles per year as part of its new preventive maintenance program. Hydro 2000 is proceeding with the worst condition poles first. Hydro 2000 plans on replacing aging arresters, transformers and poles at the same time whenever feasible.

Meters - The total budget for 2019 is $28,097

Since smart meters have a life expectancy of 10 years, most of Hydro 2000 meters needed to be resealed in 2019. Hydro 2000 keeps a low inventory of meters to save costs and storage space. In order to comply with the sampling, Hydro 2000 purchased enough meters to sample the Residential meters in a timely manner. Hydro 2000 also had to acquire other types of meters to meet the testing deadline.

Order of meters to exchange for sampling purposes for 2019

- R2S 12S DE (600V) 1X
- R2S 12S (120V) 24X
- A3TL-3S 2X
- A3TL-16S 2X
- A3TL-36S 2X
- A3RL 36A 4X
- REX2 28X
- R2S 2S (rex2) 60X

In order to meet the 2019 deadline set by Metering Canada, Hydro 2000 invested in new meters. Hydro 2000 included the cost of testing and shipping back and forth of $2,616; the cost for the electrician is $3,981. Our manufacturer experienced a greater demand than expected. Some meters in categories other than residential are yet to be received at the end of 2019. The total expenditure for 2019 is $17,749

Meters - The total budget for 2020 forward is $17,098

Hydro 2000 has forecasted $17,098 in meter replacement for 2020.

Table 16 - OEB Appendix 2-AA General Plant Variances

	USoA	2012	2013	2014	2015	2016	2017	2018	2019	2020
Leasehold Improvement - Alarm System	181000	$624							$0	$500
Office Furniture and Equipment	191500	$1,309	$360	$230	$329				$900	$500
Computer Equipment	192000	$11,681	$211	$263	$8,450	$560				$2,500
Software Norton	192502	$401								
Software	161100		$352	$38,793	$2,142	$1,179	$6,772			$36,000
Sub-Total General Plant		**$14,014**	**$923**	**$39,286**	**$10,921**	**$1,739**	**$6,772**	**$0**		**$39,500**
Contributed Capital										
Sub-Total Contributed Capital										
Total General Plan		**$14,014**	**$923**	**$39,286**	**$10,921**	**$1,739**	**$6,772**	**$0**	**$900**	**$39,500**

		2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Capital Expenditures		**$232,987**	**$25,452**	**$79,385**	**$38,167**	**$19,822**	**$52,148**	**$41,247**	**$121,554**	**$196,298**
Reconciliation to yearly additions		**$232,987**	**$25,452**	**$79,385**	**$38,167**	**$19,822**	**$52,147**	**$41,247**	**$121,554**	**$196,298**

2012 – 2020 General Plant investments are modifications, replacements, or additions to a distributor's assets that are not part of its distribution system, including land and buildings; tools and equipment; rolling stock and electronic devices and software used to support day to day business and operations activities.

Leasehold Improvement

Under the more proactive approach to asset management, the utility is due for an upgrade of office equipment and leasehold improvements.. Hydro 2000 has included a conservative forecast of $500 per year to maintain the leasehold safe for walk-in clients and for the staff.

Office Furniture and Equipment

The office furniture and equipment increased to $1,340 in 2019 for new office chairs and filing systems. Hydro 2000 has budgeted $500 per year going forward to replace furniture and equipment as needed.

Computer Equipment

The computer equipment was replaced in 2015. With the evolution of technology and with Cyber Security now being a requirement, Hydro 2000 has budgeted $2,500 per year as we gradually respond to identified issues.

Software: The total cost for 2014 was $39,055.64

The proposed 2012 expense was not spent as planned. In 2014, Hydro 2000 set-up for e-billings for the customer. The e-billing software platform cost $15,912.50. The fee from Harris Software to implement the e-billing was $20,885. Hydro 2000 also replaced a faulty router for $262.50 and purchased Norton Antivirus software and installation cost for $601.50. There was computer support for $218.75 and the Sage Accounting license fee was $834.77.

Software The total cost for 2020 is forecast to be $36,000

In 2020, the software for the smart meter data transmission is changing the platform. By grouping utilities, we managed to acquire the license for a reduced price. Hydro 2000's share will be a one-time fee of $33,258. There is an annual budget of $2,000 for Office and Norton license, which is reflected in the 2019 budget and the budget going forward in 2021 and betond.

In compliance with the filing requirements, the capital additions are presented by traditional functions in Table 17 – Yearly investments by Traditional Functions below. Hydro 2000 notes that the description of Hydro 2000's spending relating to Poles Towers and Fixtures, which makes up 20,38% of the test year spending, Line Transformers make up 37.14% of the overall Test Year spending, and Computer Software makes up 18.34% of the spending, is explained in several sections of the application and the Distribution System Plan.

Table 17 – Yearly investments by Traditional Functions[11]

Description	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2020 % of spending**
Computer Software (Formally known as Account 1925)	$401	$352	$38,793	$2,142	$1,179	$6,771	$0	$0	$36,000	18.34%
Leasehold Improvements	$624	$0	$0	$0	$0	$0	$0	$0	$500	0.25%
Poles, Towers & Fixtures	$4,850	$9,515	$18,689	$13,946	$24,730	$15,862	$29,137	$41,236	$40,000	20.38%
Overhead Conductors & Devices	$6,686	$8,905	$1,374	$1,700	$1,710	$6,010	$0	$10,500	$14,500	7.39%
Underground Conduit	$0	$0	$0	$0	$0	$433	$0		$0	0.00%
Underground Conductors & Devices	$801	$7,207	$3,809	$0	$1,785	$3,280	$0	$3,300	$7,300	3.72%
Line Transformers	$10,999	$1,293	$8,242	$9,366	$18,339	$8,617	$10,704	$74,948	$72,900	37.14%
Services (Overhead & Underground)	$1,464	$948	$0	$0	$0	$330	$1,320	$9,083	$5,000	2.55%
Meters	$3,033	$0	$0	$0	$0	$0	$0			0.00%
Meters (Smart Meters)	$193,297	$0	$7,985	$2,234	$667	$10,845	$3,837	$17,749	$17,098	8.71%
Office Furniture & Equipment (10 years)	$1,309	$360	$230	$329	$0	$0	$0	$900	$500	0.25%
Computer Equip.-Hardware(Post Mar. 19/07)	$11,681	$211	$263	$8,450	$560	$0	$0	$0	$2,500	1.27%
Contributions & Grants	-$2,157	-$3,338	$0	$0	-$29,147	$0	-$3,750	-$36,162	$0	0.00%
	$232,987	**$25,452**	**$79,385**	**$38,167**	**$19,822**	**$52,147**	**$41,247**	**$121,554**	**$196,298**	**100.00%**

[11] MFR - Breakdown by function and by major plant account; description of major plant items for test year

2.2.2 ACCUMULATED DEPRECIATION

Hydro 2000 has adopted depreciation rates based on the Kinectrics Asset Depreciation Study, which can be found at this link. [https://www.oeb.ca/oeb/_Documents/EB-2010-0178/Kinetrics-418033-OEB%20Asset%20Amortization-%20Final%20Rep.pdf]. The rates used are presented below, and the Continuity Schedules of the Accumulated Depreciation are presented in the table below. Hydro 2000's capitalization policy and methodology are provided on the next page. The depreciation expenses continuity schedules are presented in Exhibit 4.

Table 18 - Depreciation Rates below provides Hydro 2000's depreciable lives by asset class.

Table 18 - Depreciation Rates

Service Life Comparison

Table F-1 from Kinetrics Report[1]

	Asset Details				Useful Life			USoA Account Number	USoA Account Description	Current		Proposed	
Parent*	#	Category| Component | Type			MIN UL	TUL	MAX UL			Years	Rate	Years	Rate
OH	1	Fully Dressed Wood Poles	Overall		35	45	75	1830	Poles, Towers and Fixtures	25	4%	40	3%
			Cross Arm	Wood	20	40	55	1830	Poles, Towers and Fixtures	25	4%	40	3%
				Steel	30	70	95	1830	Poles, Towers and Fixtures	25	4%	40	3%
	2	Fully Dressed Concrete Poles	Overall		50	60	80	1830	Poles, Towers and Fixtures	25	4%	40	3%
			Cross Arm	Wood	20	40	55	1830	Poles, Towers and Fixtures	25	4%	40	3%
				Steel	30	70	95	1830	Poles, Towers and Fixtures	25	4%	40	3%
	3	Fully Dressed Steel Poles	Overall		60	60	80	N/A					
			Cross Arm	Wood	20	40	55	N/A					
				Steel	30	70	95	N/A					
	4	OH Line Switch			30	45	55	1835	Overhead Conductors & Devices	25	4%	40	3%
	5	OH Line Switch Motor			15	25	25	1835	Overhead Conductors & Devices	25	4%	20	5%
	6	OH Line Switch RTU			15	20	20	1835	Overhead Conductors & Devices	25	4%	20	5%
	7	OH Integral Switches			35	45	60	1835	Overhead Conductors & Devices	25	4%	40	3%
	8	OH Conductors			50	60	75	1835	Overhead Conductors & Devices	25	4%	60	2%
	9	OH Transformers & Voltage Regulators			30	40	60	1850	Line Transformers	25	4%	40	3%
	10	OH Shunt Capacitor Banks			25	30	40	N/A					
	11	Reclosers			25	40	55	N/A					
TS & MS	12	Power Transformers	Overall		30	45	60	1850	Line Transformers	25	4%	40	3%
			Bushing		10	20	30						
			Tap Changer		20	30	60						
	13	Station Service Transformer			30	45	55						
	14	Station Grounding Transformer			30	40	40						
	15	Station DC System	Overall		10	20	30						
			Battery Bank		10	15	15	1820	Distribution Station Equipment	30	3%	20	5%
			Charger		20	20	30	1820	Distribution Station Equipment	30	3%	20	5%
	16	Station Metal Clad Switchgear	Overall		30	40	60	1820	Distribution Station Equipment	25	4%	40	3%
			Removable Breake		25	40	60						
	17	Station Independent Breakers			35	45	65						
	18	Station Switch			30	50	60						
	19	Electromechanical Relays			25	35	50						
	20	Solid State Relays			10	30	45	1820	Distribution Station Equipment	25	4%	30	3%
	21	Digital & Numeric Relays			15	20	20						
	22	Rigid Busbars			30	55	60						
	23	Steel Structure			35	50	90						
UG	24	Primary Paper Insulated Lead Covered (PILC) Cabl			60	65	75	N/A					
	25	Primary Ethylene-Propylene Rubber (EPR) Cables			20	25	25	1845	Underground Conductors & Devices	25	4%	40	3%
	26	Primary Non-Tree Retardant (TR) Cross Linked			20	25	30	1845	Underground Conductors & Devices	25	4%	40	3%
	27	Primary Non-TR XLPE Cables in Duct			20	25	30	1845	Underground Conductors & Devices	25	4%	40	3%
	28	Primary TR XLPE Cables Direct Buried			25	30	35	1845	Underground Conductors & Devices	25	4%	40	3%
	29	Primary TR XLPE Cables in Duct			35	40	55	1845	Underground Conductors & Devices	25	4%	40	3%
	30	Secondary PILC Cables			70	75	80	N/A					
	31	Secondary Cables Direct Buried			25	35	40	1855	Services	25	4%	60	2%
	32	Secondary Cables in Duct			35	40	60	1855	Services	25	4%	60	2%
	33	Network Tranformers	Overall		20	35	50	N/A					
			Protector		20	35	40	N/A					
	34	Pad-Mounted Transformers			25	40	45	1850	Line Transformers	25	4%	40	3%
	35	Submersible/Vault Transformers			25	35	45	1850	Line Transformers	25	4%	40	3%
	36	UG Foundation			35	55	70	1840	Underground Conduit	25	4%	60	2%
	37	UG Vaults	Overall		40	60	80	N/A					
			Roof		20	30	45	N/A					
	38	UG Vault Switches			20	35	50	1845	Underground Conductors & Devices	25	4%	30	3%
	39	Pad-Mounted Switchgear			20	30	45	1845	Underground Conductors & Devices	25	4%	30	3%
	40	Ducts			30	50	85	1840	Underground Conduit	25	4%	60	2%
	41	Concrete Encased Duct Banks			35	55	80	1840	Underground Conduit	25	4%	60	2%
	42	Cable Chambers			50	60	80	1840	Underground Conduit	25	4%	60	2%
S	43	Remote SCADA			15	20	30						

	Asset Details		Useful Life Range	USoA Account Number	USoA Account Description	Current		Proposed	
#	Category| Component | Type					Years	Rate	Years	Rate
1	Office Equipment		5-15	1915	Office Furniture & Equipment	10	10%	10	10%
2	Vehicles	Trucks & Buckets	5-15	1930	Transportation Equipment	8	13%	15	7%
		Trailers	5-20	1930	Transportation Equipment	8	13%	20	5%
		Vans	5-10	1930	Transportation Equipment	5	20%	12	8%
3	Administrative Buildings		50-75	200/201	Building & Fixtures	May-50	0%	May-50	0%
4	Leasehold Improvements		Lease dependent	N/A		0		0	
5	Station Buildings	Station Buildings	50-75	1808	Building & Fixtures	50	2%	50	2%
		Parking	25-30	1808	Building & Fixtures	30	3%	30	3%
		Fence	25-60	1808	Building & Fixtures	25	4%	25	4%
		Roof	20-30	1808	Building & Fixtures	20	5%	20	5%
6	Computer Equipment	Hardware	3-5	1920	Computer Equipment - Hardware	5	20%	5	20%
		Software	2-5	1925	Computer Equipment - Software	5	20%	5	20%
7	Equipment	Power Operated	5-10	N/A					
		Stores	5-10	1935	Stores Equipment	10	10%	10	10%
		Tools, Shop, Garag	5-10	1940	Tools, Shops Garage Equipment	10	10%	10	10%
		Measurement & Tes	5-10	1945	Measurement and Testing Equipment	10	10%	10	10%
8	Communication	Towers	60-70	1955	Communication Equipment	10	10%	10	10%
		Wireless	2-10	1955	Communication Equipment	10	10%	10	10%
9	Residential Energy Meters		25-35	1860	Meters	25	4%	15	7%
10	Industrial/Commercial Energy Meters		25-35	1860	Meters			20	5%
11	Wholesale Energy Meters		15-30	N/A					
12	Current & Potential Transformer (CT & PT)		35-50	1860	Meters			45	2%
13	Smart Meters		5-15	1860	Meters	15	7%	15	7%
14	Repeaters - Smart Metering		10-15	1915	Office Furniture & Equipment	5	20%	5	20%
15	Data Collectors - Smart Metering		15-20	1915	Office Furniture & Equipment	5	20%	5	20%

2

2.2.3 CAPITALIZATION POLICY

Hydro 2000's capitalization policy has not changed since its last Cost of Service in 2012[12] other than it now records capital assets at cost in accordance with MIFRS accounting principles as well as guidelines set out by the Ontario Energy Board, where applicable.

All expenditures by the Corporation are classified as either capital or operating expenses. The intention of these classifications is to allocate costs across accounting periods in a manner that appropriately matches those costs with the related current and future economic benefits. The amount to be capitalized is the cost to acquire or construct a capital asset, including any ancillary costs incurred to place a capital asset into its intended state of operation. Hydro 2000 does not currently capitalize interest on funds used for construction.

Hydro 2000's adherence to the capitalization policy can be described as follows;

- ✓ Assets that are intended to be used on an on-going basis and are expected to provide future economic benefits (generally considered to be greater than one year) will be capitalized.
- ✓ General Plant items with an estimated useful life greater than one year and valued at greater than $500 will be capitalized.
- ✓ Expenditures that create a physical betterment or improvement of the asset (i.e., there is a significant increase in the physical output or service capacity, or the useful life of the capital asset is extended) will be capitalized.
- ✓ All vehicles are capitalized.
- ✓ Maintenance services can be done using internal staff or are contracted out depending on the work to be done.

Indirect overhead costs, such as general and administrative costs that are not directly attributable to an asset, are not, nor have they ever been capitalized.

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[12] MFR - Changes to capitalization policy since its last rebasing application as a result of the OEB's letter dated July 17, 2012 or for any other reasons, the applicant must identify the changes and the causes of the changes.

2.3 ALLOWANCE FOR WORKING CAPITAL

2.3.1 DERVIATION OF WORKING CAPTIAL

Hydro 2000 has used the 7.5% Allowance Approach for the purpose of calculating its Allowance for Working Capital. This was done in accordance with the letter issued by the Board on June 03, 2015, for a rate of 7.5% of the sum of Cost of Power and controllable expenses (i.e., Operations, Maintenance, Billing and Collecting, Community Relations, Administration and General). Hydro 2000 attests that the Cost of Power is determined by the split between RPP and non-RPP customers based on actual data, using most current RPP price, using current UTR. Table 19 - Allowance for Working Capital presented below show Hydro 2000's calculations in determining its Allowance for Working Capital.

Table 19 - Allowance for Working Capital

	CGAAP	CGAAP	CGAAP	NEWGAAP	MIFRS	MIFRS	MIFRS	MIFRS	MIFRS	MIFRS
Particulars	**Last Board Approved**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Eligible Distribution Expenses:										
3500-Distribution Expenses - Operation	12,775	3,936	17,166	9,576	15,920	16,705	13,384	15,998	15,959	10,000
3550-Distribution Expenses - Maintenance	2,050	65,534	13,761	300	6,015	28,132	42,888	28,940	28,068	41,146
3650-Billing and Collecting	127,734	142,613	131,905	151,230	152,424	168,966	175,254	164,389	165,283	160,231
3700-Community Relations	717	0	0	0	0	0	411	0	0	0
3800-Administrative and General Expenses	258,290	213,346	249,026	224,287	260,933	224,449	249,024	244,280	298,896	296,322
6105-Taxes other than Income Taxes	0	0	0	0		0	0	0	0	0
Total Eligible Distribution Expenses	401,566	425,427	411,858	385,393	435,292	438,252	480,961	453,606	508,206	507,699
3350-Power Supply Expenses	2,424,532	1,840,830	1,481,131	2,130,330	2,064,481	2,894,613	2,509,801	1,431,875	3,101,041	3,090,754
Total Expenses for Working Capital	2,826,098	2,266,258	1,892,988	2,515,723	2,499,773	3,332,865	2,990,762	1,885,481	3,609,247	3,598,453
Working Capital factor	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	7.5%
Total Working Capital	**423,915**	**339,939**	**283,948**	**377,358**	**374,966**	**499,930**	**448,614**	**282,822**	**541,387**	**269,884**

2.3.2 LEAD LAG STUDY[13]

Hydro 2000 is not proposing to use a lead-lag study in order to determine its Working Capital Allowance and has chosen to follow the Board's June 03, 2015 letter which provided two options for the calculation of the allowance for working capital:[14]

(1) The 7.5% allowance approach; or
(2) The filing of a lead/lag study.

Hydro 2000 notes that it has not previously been directed by the Board to undertake a lead/lag study.

2.3.3 CALCULATION OF COST OF POWER[15]

Hydro 2000 calculated the cost of power for the 2019 Bridge Year and the 2020 Test Year based on the results of the load forecast discussed in detail in Exhibit 3. The commodity prices used in the calculation were prices published in the Board's Regulated Price Plan for the period of April 2019 to May, 2020. Should the Board publish a revised Regulated Price Plan Report prior to the Board's Decision in the application, Hydro 2000 will update the electricity prices in the forecast.

The sale of energy is a flow-through revenue, and the cost of power is a flow through to expense. Energy sales and the cost of power expense are presented in detail in Exhibit 8 and 9. For ease of reference, Hydro 2000 has duplicated the summary table below. Please refer to Exhibit 8 or 9 for the determination of each component of the Cost of Power.

Hydro 2000 records no profit or loss resulting from the flow through energy revenues and expenses. Any temporary variances are included in the RSVA account balances.

[13] MFR - Working Capital - 7.5% allowance or Lead/Lag Study or Previous OEB Direction
[14] MFR - Lead/Lag Study - leads and lags measured in days, dollar-weighted
[15] MFR - Cost of Power must be determined by split between RPP and non-RPP customers based on actual data, use most current RPP (TOU) price, use current UTR. Should include SME charge.

The components of Hydro 2000's cost of power are summarized in Table 20 – Summary of Cost of Power below and detailed in Table 21 - Calculation of Commodity.

Table 20 – Summary of Cost of Power

CoP Components	**Total $**
Commodity	$2,604,263
Transmission Network	$137,620
Transmission Connection	$117,146
Wholesale Market Service	$52,794
Rural Rate Protection	$8,799
Smart Meter Entity Charge	$8,503
Low Voltage	$164,208
TOTAL	**$3,093,334**

Table 21 - Calculation of Commodity[16][17][18][19]

Determination of Commodity

Customer Class Name	**Last Actual kWh's**	**Class B kWh**	**Non-RPP**	**RPP**	**non-RPP (%)**	**RPP (%)**
Residential	12,791,618	12,791,618	166,407	12,625,211	*1.30%*	*98.70%*
General Service < 50 kW	4,062,996	4,062,996	437,411	3,625,585	*10.77%*	*89.23%*
General Service > 50 to 4999 kW	4,274,766	4,274,766	4,274,766	0	*100.00%*	*0.00%*
Street Lighting	153,342	153,342	153,342	0	*100.00%*	*0.00%*
Unmetered Scattered Load	17,280	17,280	17,280	0	*100.00%*	*0.00%*
TOTAL	**21,300,002**	**21,300,002**	**5,049,206**	**16,250,796**		
%	*100.00%*	*100.00%*		*76.29%*	*23.71%*	*76.29%*

Forecasted Commodity Prices

Table 1: Average RPP Supply Cost Summary**

non-RPP	**RPP**

[16] MFR - Cost of Power must be determined by split between RPP and non-RPP Class A and Class B customers based on actual data, use most current RPP (TOU) price, use current UTR. Calculation must fully consider all other impacts resulting from the Ontario Fair Hydro Plan Act, 2017. Distributors must complete Appendix 2-Z - Commodity Expense.

[17] MFR - In consideration of the impact of the Fair Hydro Plan, actual data must be split between Class A and Class B customers (RPP and non-RPP).

[18] MFR – N/A For customer classes that include Class A customers, distributor must incorporate Class A GA cost by completing the relevant section in Appendix 2-Z

[19] MFR – N/A If a distributor expects test year consumption data to vary significantly, a distributor may provide a forecast of the expected split between Class A and Class B and the expected split between RPP, non-RPP eligible for modifier and non-RPP non eligible for modifier consumption data and provide brief explanation of the forecast

Forecast Wholesale Electric Price			**Non RPP**	
HOEP ($/MWh)	Load-Weighted Price for RPP Consumers		$18.50	
Global Adjustment ($/MWh)	Impact of the Global Adjustment		$106.94	
Adjustments ($/MWh)			$1.00	
TOTAL ($/MWh)	Average Supply Cost for RPP Consumers		**$126.44**	**$128.03**
$/kWh			***$0.12644***	***$0.12803***
Percentage shares (%)	Non-RPP (GA mod/non-GA mod), RPP		23.71%	76.29%
WEIGHTED AVERAGE PRICE ($/kWh)	**(Sum of I43, J43 and L43)**	$ 0.1277	**$0.0300**	**$0.0977**

Commodity Expense

(volumes for the bridge and test year are loss adjusted)

Class A

Customer	**Amount**	**kWh Volume**	**kW Volume**	**HOEP Rate/kWh**	**Avg GA/kW**	**Amount**
General Service > 50 to 4999 kW	$0			0.02		$0
Street Lighting	$0			0.02		$0
	$0					$0

Class B

Customer				
Class Name	Amount	Volume	rate ($/kWh):	Amount
Residential	$1,630,835	12,367,886	$0.1277	$1,578,799
General Service < 50 kW	$510,022	3,861,286	$0.1277	$492,905
General Service > 50 to 4999 kW	$521,350	3,984,230	$0.1277	$508,599
Street Lighting	$19,519	153,000	$0.1277	$19,531
Unmetered Scattered Load	$2,206	17,280	$0.1277	$2,206
TOTAL	**$2,683,932**	**20,383,682**		**$2,602,040**

Total

Customer				
Class Name		Volume	avg rate ($/kWh):	Amount
Residential		12,367,886	$0.1277	$1,578,799
General Service < 50 kW		3,861,286	$0.1277	$492,905
General Service > 50 to 4999 kW		3,984,230	$0.1277	$508,599
Street Lighting		153,000	$0.1277	$19,531
Unmetered Scattered Load		17,280	$0.1277	$2,206
TOTAL		**20,383,682**		**$2,602,040**

1 1 - Regulated Price Plan Price Report November 1, 2019 to October 31, 2020 Ontario Energy Board October 22, 2019.

Table 22 - RPP Supply Cost Summary

Table ES-1: Average RPP Supply Cost Summary (for the period from November 1, 2019 through October 31, 2020)

RPP Supply Cost Summary for the period from November 1, 2019 through October 31, 2020		$/MWh
Forecast Wholesale Electricity Price - Simple Average		$18.50
Load-Weighted Costs for RPP Consumers		
Wholesale Electricity Cost - RPP-Weighted		$20.09
Global Adjustment	+	$106.94
Adjustment to Address Bias Towards Unfavourable Variance	+	$1.00
Average Supply Cost for RPP Consumers	=	**$128.03**

Source: Power Advisory LLC

The utility uses the split between the RPP and Non-RPP to determine the weighted average price. The weighted average price is applied to the projected 2020 Load Forecast to determine the commodity to be included in the Cost of Power. The commodity cost for 2020 is projected at $2,602,040.

Transmission - Network
(volumes for the bridge and test year are automatically loss adjusted)

			2020		
Customer					
Class Name			Volume	Rate	Amount
Residential	kWh		13,379,994	0.0064	$86,142
General Service < 50 kW	kWh		4,177,269	0.0059	$24,689
General Service > 50 to 4999 kW	kW		10,671	2.4177	$25,799
Street Lighting	kW		421	1.8232	$768
Unmetered Scattered Load	kWh		18,694	0.0059	$110
TOTAL			17,587,049		$137,508

Transmission - Connection
(volumes for the bridge and test year are automatically loss adjusted)

			2020		
Customer					
Class Name			Volume	Rate	Amount
Residential	kWh		13,379,994	0.0054	$72,696
General Service < 50 kW	kWh		4,177,269	0.0052	$21,750
General Service > 50 to 4999 kW	kW		10,671	2.0467	$21,841
Street Lighting	kW		421	1.5823	$666
Unmetered Scattered Load	kWh		18,694	0.0052	$97

TOTAL			17,587,049		$117,050

Wholesale Market Service

(volumes for the bridge and test year are automatically loss adjusted)

			2020		
Customer					
Class Name			Volume	Rate	Amount
Residential	kWh		13,379,994	0.0030	$40,140
General Service < 50 kW	kWh		4,177,269	0.0030	$12,532
General Service > 50 to 4999 kW	kW		10,671	0.0030	$32
Street Lighting	kW		421	0.0030	$1
Unmetered Scattered Load	kWh		18,694	0.0030	$56
TOTAL			17,587,049		$52,761

Rural Rate Protection

(volumes for the bridge and test year are automatically loss adjusted)

			2020		
Customer					
Class Name			Volume	Rate	Amount
Residential	kWh		13,379,994	0.0005	$6,690
General Service < 50 kW	kWh		4,177,269	0.0005	$2,089
General Service > 50 to 4999 kW	kW		10,671	0.0005	$5
Street Lighting	kW		421	0.0005	$0
Unmetered Scattered Load	kWh		18,694	0.0005	$9
TOTAL			17,587,049		$8,794

Smart Meter Entity Charge

(per customer)

			2020		
Customer				**rate ($/kWh):**	
Class Name		Amount	Volume		Amount
Residential	kWh	$615	1,089	0.5700	$7,448
General Service < 50 kW	kWh	$82	143	0.5700	$981
General Service > 50 to 4999 kW	kW	$6	11	0.5700	$74
TOTAL		**$703**	**1,243**		**$8,503**

Low Voltage Charges - Historical and Proposed LV Charges

	2014	**2015**	**2016**	**2017**	**2018**	**5 year avg**
4075-Billed - LV	$122,596	$114,071	$97,480	$107,067	$111,490	$110,541
4750-Charges - LV	$155,792	$181,134	$166,153	$158,444	$166,760	$164,385

Low Voltage Charges - Allocation of LV Charges based on Transmission Connection Revenues

(volumes are not loss adjusted)

	ALLOCATON BASED ON TRANSMISSION-CONNECTION REVENUE				
Customer Class Name		**RTSR Rate**	**Not Uplifted**	**Revenue**	**% Alloc**
Residential	kWh	**$0.0054**	12,367,886	$67,197	61.14%
General Service < 50 kW	kWh	**$0.0052**	3,861,286	$20,105	18.29%
General Service > 50 to 4999 kW	kW	**$2.0467**	10,671	$21,841	19.87%
Street Lighting	kW	**$1.5823**	421	$666	0.61%
Unmetered Scattered Load	kWh	**$0.0052**	17,280	$90	0.08%
TOTAL			**16,257,544**	$109,898.14	100.00%

Low Voltage Charges Rate Rider Calculations

(volumes are not loss adjusted)

	% Alloc				
Customer Class Name	**% Allocation**	**Charges**	**Not Uplifted Volumes**	**Rate**	**per**
Residential	61.14%	100,512	12,367,886	$0.0081	kWh
General Service < 50 kW	18.29%	30,073	3,861,286	$0.0078	kWh
General Service > 50 to 4999 kW	19.87%	32,669	10,671	$3.0615	kW
Street Lighting	0.61%	996	421	$2.3668	kW
Unmetered Scattered Load	0.08%	135	17,280	$0.0078	kWh
TOTAL	**100.00%**	164,385	16,257,544		

Low Voltage Charges to be added to power supply expense for bridge and test year.

(volumes are not loss adjusted)

Customer			**2020**		
Class Name		Amount	Volume	Rate	Amount
Residential	kWh	$68,988	12,367,886	$0.0081	$100,180
General Service < 50 kW	kWh	$20,776	3,861,286	$0.0078	$30,118
General Service > 50 to 4999 kW	kW	$21,239	10,671	$3.0615	$32,669
Street Lighting	kW	$630	421	$2.3668	$996
Unmetered Scattered Load	kWh	$90	17,280	$0.0078	$135
TOTAL		$111,724	16,257,544		$164,098

Projected Power Supply Expense					**$3,090,754**

1 Transmission Network

The Transmission Network charges are calculated in the OEB's RTSR model. The Rates are applied to the 2020 Load Forecast to determine the amount to be included in the Cost of Power. The RTSR model is filed in conjunction with this application. The transmission network charges included in the Cost of Power for 2020 is projected at $137,508

Transmission Connection

The Transmission Connection charges are also calculated in the OEB's RTSR model. The Rates are applied to the 2020 Load Forecast to determine the amount to be included in the Cost of Power. The RTSR model is filed in conjunction with this application. The transmission connection charges included in the Cost of Power for 2020 is projected at $117,050

Wholesale Market

On December 15, 2017, the OEB released Decision and Order for the Wholesale Market Service (WMS) effective January 1, 2018]. The Board's decision is summarized as follows:

- The WMS rate used by rate-regulated distributors to bill their customers shall be $0.0032 per kilowatt-hour, effective January 1, 2018. For Class B customers, a CBR component of $0.0004 per kilowatt-hour shall be added to the WMS rate for a total of $0.0036 per kilowatt-hour. For Class A customers, distributors shall bill the actual CBR costs to Class A customers in proportion to their contribution to peak.

In compliance with this order, Hydro 2000 has applied the Board Approved $0.0036/kWh to its 2020 Load Forecast to include $52,761 in its Cost of Power.

Rural Rate Protection

In compliance with this order, Hydro 2000 has applied the Board Approved $0.0005/kWh to its 2020 Load Forecast to include $8,794 in its Cost of Power.

Smart Meter Entity

In compliance with this order, Hydro 2000 has applied the Board Approved $0.57/kWh to its 2020 Customer Forecast to include $8,503 in its Cost of Power.

Low Voltage Charges

The table below presents the derivation of proposed retail rates for Low Voltage ("LV") service. The 2020 estimates of total LV charges were calculated based on an average of the last 5 years. The projections were allocated to customer classes, according to each class' share of projected

Transmission-Connection revenue, in accordance with Board policy. The resulting allocated LV charges for each class were divided by the applicable 2020 volumes from the load forecast, as presented in Exhibit 3. Current LV revenues are recovered through a separate rate adder and therefore are not embedded within the approved Distribution Volumetric rate. 2020 LV rates appear on a distinct line item on the proposed schedule of rates. The Low Voltage charges included in the Cost of Power for 2020 is projected at $164,208.

	2012	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**5-year avg**
4075-Billed - LV	$121,257	$122,064	$122,596	$114,071	$97,480	$107,067	$111,490	$110,541
4750-Charges - LV	$184,993	$155,452	$155,792	$181,134	$166,153	$158,444	$166,760	$164,385

2.4 SMART METER DEPLOYMENT & STRANDED

2.4.1 DISPOSITION OF SMART METERS AND TREATMENT OF STRANDED METERS

Hydro 2000's disposition and treatment of smart meter related costs were address and approved as part of its 2012 Cost of Service Application. Therefore, the utility is not seeking any further resolution on this matter.[20]

On the topic of Smart Meters, the utility notes that it has not witnessed any cost efficiencies since its last Cost of Service in 2012 related to the utility's use of Smart Meter. [21]

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[20] MFR - Stranded Meters - if the recovery of stranded conventional meters replaced by smart meters has not been reviewed and approved, a proposal for a Stranded Meter Rate Rider must be made
Explanation for approaches that are not the OEB approach
[21] MFR - Discussion outlining capital and operating efficiencies realized as a result of the deployment and operationalization of smart meters and related technologies (e.g., AMI communications networks, ODS) in its networks. Qualitative and quantitative description and support should be provided as applicable

2.5 CAPITAL EXPENDITURES

2.5.1 PLANNING

Hydro 2000's distribution system strategy is the set of policies, rules, guidelines, etc. that Hydro 2000 utilizes to transition its current system into its desired future system. The approach, as described in this Distribution System Plan, provides the rationale for the capital expenditures and supporting activities planned for the 2017-2021 period.

In advance of the Cost of Service application, Hydro 2000 hired the services of Stantec to conduct a Utility Load Flow Study and AESI to assist with the Distribution System Planning.

Within the RFP process, Stantec was asked to produce a report determining the acceptability of the system with current and future load growth, including loading that has been recently defined for the next 10-year period from 2019 to 2028. The report included findings with respect to optimizing the system arrangement (cable sizes, load balancing, open points, etc.) to minimize losses, maximize voltage support, and to distribute loading evenly.

The report also included finding whether the system would operate acceptably during emergency situations, and a review of Loading, System Losses, System Upgrades to minimize losses and Substation Evaluation, Redundancy and Capacity.

The Stantec report can be found in Appendix A of this Exhibit.

Hydro 2000 has relied on AESI who in turn relied on the OEB's filing requirements Chapter 5 to guide its presentation of its policies, practices, and decision-making processes. OEB appendices related to capital investments are shown on the next page. The Distribution System Plan follows in Section 2.5.2.

2.5.2 DISTRIBUTION SYSTEM PLAN

Hydro 2000 is pleased to present its Distribution System Plan on the next page.[22]

[22] MFR - DSP filed as a stand-alone document; a discrete element within Exhibit 2

HYDRO 2000 INC.

Distribution System Plan

2020-2024

Date
January 2020

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PRIVILEGED AND CONFIDENTIAL WORK PRODUCT FOR HYDRO 2000 INC. (H2000)

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1. INTRODUCTION

On March 28, 2013, the Ontario Energy Board (OEB or the Board) issued Filing Requirements for Electricity Transmission and Distribution Applications, Chapter 5 Consolidated Distribution System Plan Filing Requirements (Chapter 5 Requirements). Chapter 5 Requirements provide a standard approach to a distributor's Distribution System Plan (DSP) and filing of asset management and capital expenditure plan information in support of a rate application.

Hydro 2000 Inc. (H2000) has prepared this Distribution System Plan (DSP) in accordance with the Chapter 5 Requirements.

The DSP reflects H2000's integrated approach to planning, prioritizing and managing assets, and includes local stakeholder consultations, and renewable generation connections. H2000 has completed this DSP with a focus on customer preferences and operational effectiveness while achieving optimal value for capital spending.

H2000 has organized the required information using the section headings in the DSP Filing Requirements. Investment projects and activities have been grouped into one of the four OEB-defined investment categories:

System access—investments are modifications (including asset relocation) to the distribution system H2000 is obligated to perform to provide a customer (including a generator customer) or group of customers with access to electricity services via H2000's distribution system.

System renewal—investments involve replacing and/or refurbishing system assets to extend the original service life of the assets and thereby maintain the ability of H2000's distribution system to provide customers with electricity services.

System service—investments are modifications to H2000's distribution system to ensure the distribution system continues to meet H2000's operational objectives while addressing anticipated future customer electricity service requirements.

General plant—investments are modifications, replacements or additions to H2000's assets that are not part of the distribution system; including land and buildings; tools and equipment; rolling stock and electronic devices and software used to support day to day business and operations activities.

The drivers and examples of projects that fit into these four categories include:

	Example Drivers	Example Projects / Activities
system access	customer service requests	– new customer connections – modifications to existing customer connections – expansions for customer connections or property development
	other 3rd party infrastructure development requirements	– system modifications for property or infrastructure development (e.g. relocating pole lines for road widening)
	mandated service obligations (DSC; Cond. of Serv.; etc.)	– metering – Long term load transfer
system renewal	assets/asset systems at end of service life due to: – failure – failure risk – substandard performance – high performance risk – functional obsolescence	– programs to refurbish/replace assets or asset systems; e.g: batteries; cable (by type); cable splices; civil works; conductor; elbows & inserts; insulators; poles (by type); physical plant; relays; switchgear; transformers (by type); other equipment (by type)
system service	expected changes in load that will constrain the ability of the system to provide consistent service delivery	– property acquisition – capacity upgrade (by type); e.g. phases; circuits; conductor; voltage; transformation; regulation – line extensions
	system operational objectives: – safety – reliability – power quality – system efficiency – other performance/functionality	– protection & control upgrade; e.g. reclosers; tap changer controls/relays; transfer trip – automation (new/upgrades) by device type/function – SCADA – distribution loss reduction
general plant[1]	– system capital investment support – system maintenance support – business operations efficiency – non-system physical plant	– land acquisition – structures & depreciable improvements – equipment and tools – supplies – finance/admin/billing software & systems – rolling stock – intangibles (e.g. land rights; capital contributions to other utilities)

1.1. Utility Overview

H2000 was incorporated in September 2000. H2000 is the local distribution company in Eastern Ontario that is responsible for the distribution of electricity to the former Corporation of the Village of Alfred and the former Village of Plantagenet.

H2000 is incorporated under the Ontario Business Corporations Act and is 100% owned by the Township of Alfred and Plantagenet. H2000 is managed by a Board of Directors appointed by the Township of Alfred and Plantagenet. H2000 has three employees; a Manager, an Administrative Coordinator and a Client Services Representative in the office. H2000 hires Sproule Powerline Construction (SPL) to address the outside plant matters. The current Manager was hired in May 2018 to fill the vacancy created by the previous General Manager leaving. The experience and background of the Manager has been office and billing and past Business Operations and knowledge of the area. Consequently, most of the operational and technical input comes from the contractor SPL.

H2000 is an embedded utility receiving its power from Hydro One Networks Inc. (HONI). H2000 delivers power to its 725 customers in Alfred via one feeder at 8.32kV and one pole mount feeder from HONI's 44kv Alfred Distribution station, which is owned by HONI on Peat Moss Road in Alfred. H2000 delivers power to its 515 customers in Plantagenet via one feeder at 8.32kV from HONI Plantagenet Distribution station, which is owned by HONI on County Road #9 in Plantagenet. Both DS are fed from the feeder M26 from the Longueil TS. The Electrical Distribution Plan for the Villages of Alfred and Plantagenet may be found in **Appendix A**.

H2000 is the local distribution company that is responsible for the distribution of electricity to the Village of Alfred and the village of Plantagenet. The distribution service territory has an area of nine square kilometers. The distribution service has 21 kilometers of lines comprised of 18 kilometers of overhead lines and three kilometers of underground lines.

Located in Eastern Ontario, the Township of Alfred and Plantagenet has a population of more than 9,680 including the former municipalities of Alfred, Plantagenet, Curran, Wendover, Treadwell, Lefaivre and Pendleton. The population is 70% bilingual English-French.

The primary economic engine is agriculture. Agriculture makes up a large part of the economic activity with the Township of Alfred and Plantagenet. Based on 2001 census data, almost 10% of active residents in the township are employed by agriculture of related industries.

The manufacturing and construction industry are primarily composed of small- and medium-sized enterprises. These sectors provided employment for 20% of active residents in 2001.

In total, there are close to six hundred companies that are made up of the following: over 350 commercial and industrial companies and approximately 200 agricultural companies. The relatively high number of small- and medium-sized enterprises constitutes one of Alfred and Plantagenet's greatest strengths. One hundred and forty-five of these companies are within H2000's service territory.

The tourism industry is a growing business in the Township of Alfred and Plantagenet. The township is located along the Ottawa River making it close to river festivals and snowmobile activities.

H2000's revenue is earned by delivering electric power to the homes and businesses in the service territory. The rates charged for this, and the performance standards that the energy delivery system must meet, are regulated by the OEB.

Table 1 illustrates H2000's Service Territory Historic Statistics.

Table 1: Service Territory Historic Statistics

Service Territory Attributes	2019	2018	2017	2016	2015
Customer Count	1,240	1,245	1,259	1,332	1,230
Service Area	9 Sq Km	9 Sq Km	9 Sq Km	9 Sq Km	9 Sq Km
Peak Demand	5,211kWh	5,467 kW	5,148 kW	5,422 kW	5,587 kW
TS Stations where power is received	Longueuil TS	Longueuil TS	Longueuil TS	Longueuil TS	Longueuil TS
Load Forecast	5,400	5,467	5,590	5,590	5,549

H2000 has completed this DSP with a focus on customer preferences and operational effectiveness while achieving optimal value for capital spending.

2. [5.2] Distribution System Plan

This DSP follows the chapter and section headings set out in Chapter 5. Although the section numbering in this DSP does not match the Chapter 5 reference numbers, the Chapter 5 reference numbers are included in each of the heading titles in brackets. The report follows the headings in the sequence required in Chapter 5. The information in this report was provided by H2000 and the report was prepared by AESI Acumen Engineered Solutions International Inc. (AESI) for H2000. This is H2000's first DSP, so there are no updates from previous filings.

The purpose of this DSP is to present H2000's Asset Management Strategy and to provide justifications for the capital investments required to maintain its core business: supplying reliable electrical services to its customers at a reasonable cost. This requires:

- a thorough understanding of the age, condition and performance of its assets
- documenting its inspection practices in accordance with the DSC
- describing its maintenance activities in accordance with good utility practice, and
- developing a five-year forward-looking capital expenditure plan

In striving to achieve the asset management objectives, H2000 is guided by the OEB's four key target objectives referenced in the Renewed Regulatory Framework for Electricity Distributors (RRFE):

- Customer focus
- Operational effectiveness
- Public policy responsiveness, and
- Financial performance

This DSP documents H2000's Asset Management Plan and the Capital Expenditure Plan. The DSP covers the period from 2020 to 2024. The current date for all the information provided is December 2019, except where noted otherwise. The financial data incorporates the financial results of H2000 for the year ended December 31, 2019.

H2000 has translated all the capital expenditures to the investment categories as required in the Chapter 5, Section 5.2.1 filing requirements.

For the purposes of this DSP, 2015 to 2018 are the historic years, 2019 is the bridge year, 2020 is the test year and 2021-2024 are the forecast years.

A summary of the type and number of assets, as well as the age distribution, is provided. The maintenance cost per year is provided as required. The process H2000 uses to assess the condition of its assets and the follow-up is also documented in this report.

The Capital Expenditure Forecast for the 2020-2024 time period and the Historical Capital Budget and Actual Expenditure information for the 2015 to 2019 time period is found in Table 2 in Section 2.1.

The materiality threshold for detailed reporting of projects is $50,000.

H2000 gathers relevant information about the assets and uses the judgment and experience of its contractor to interpret this information to develop appropriate cost-effective programs that deliver reliable service to its customers at a reasonable cost. Section 2.1 provides an overview of the DSP, Section 2.2 summarizes coordinated planning activities with third parties, and Section 2.3 covers performance measurements to continuously improve asset management and capital expenditure planning processes.

2.1. [5.2.1] Distribution System Plan Overview

Table 2 below presents the capital expenditures by investment category and the system operations and maintenance (O&M) costs for both the historical and forecast period.

Table 2: Historical and Forecast capital expenditures by investment category and the system O&M costs

Category	Historical (Previous Actual)					Forecast (Planned)				
	Test-5 2015 Actual	Test-4 2016 Actual	Test-3 2017 Actual	Test-2 2018 Actual	Test-1 2019 Actual	Test 2020 Forecast	Test 2021 Forecast	Test 2022 Forecast	Test 2023 Forecast	Test 2024 Forecast
System Access	$0	$0	$330	$1,320	$9,083	$5,000	$5000	$5000	$5000	$5000
System Renewal	$27,246	$47,231	$45,046	$43,678	$147,733	$151,798	$133,450	$133,450	$133,450	$133,450
System Service	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
General Plant	$10,921	$1,739	$6,771	$0	$900	$39,500	$5,500	$5,500	$5,500	$5,500
Total Capital Expenses	$38,167	$48,970	$52,147	$44,998	$157,716	$196,298	$143,950	$143,950	$143,950	$143,950
Contributed Capital	$0	-$29,147	$0	-$3,750	-$36,162	$0	$0	$0	$0	$0
Net Capital Expenses after Contributions	$38,167	$19,823	$52,147	$41,248	$121,554	$196,298	$143,950	$143,950	$143,950	$143,950
System O&M	$21,935	$44,837	$56,272	$44,938	$44,027	$51,146	$52,169	$53,212	$54,277	$55,362

Brief descriptions of the mix of capital investments by investment category over the forecast period that make up the dollar value above are provided below.

2.1.1. System Access Projects

It is forecasted that there will be one new residential new service in the service territory each forecast year at a cost of $5,000.00 per year. Although 2019 has seen two new services for a total of $9,082.

2.1.2. System Renewal Projects

A Pole Replacement Program has been implemented following a pole drilling assessment in 2017. H2000 has a total of 561 poles. The decay percentage for each pole was documented and it was determined that H2000 needs to change eight poles per year based on the higher decay basis for the next five years. A program to change all the Porcelain Fusing Protection with Polymer has also been implemented; H2000 will proceed to also change 20 Porcelain Fusing Protections per year in conjunction with the Pole Replacement Program at a total combined cost of $50,500 per year over the five years.

H2000 has implemented a Pad Mount Transformer Maintenance program. H2000 has 16 pad mount transformers. H2000 will maintain and repair three pad mount transformers per year for five years at a cost of $3,300.00 per year. This rate of maintenance and repair will address the study findings.

H2000 has implemented a Transformer Replacement Program. This is a new maintenance program that was developed using the results of the Transformer Inspection Process. In order to address H2000's aging network of 182 installed transformers, H2000 will be replacing 15 Transformers per year, including PCB testing, at a total cost of $72,900 per year. This program will be coordinated with the Pole Replacement Program when possible.

Measurement Canada has a standard for smart meter testing and replacement. H2000 has 1,080 single phase meters. Applying the standard, 156 single phase and all other meters dating from 2009 needed to be tested before year end 2019. These smart meters will then be replaced as needed. $17,749 was spent in 2019 in replacement costs. It is forecasted that $6,750.00 per year will be spent for the next five years to comply with the Measurement Canada standard.

H2000 undertook a load flow study in 2019, the results of which are shown in Appendix B.

H2000 will update the network maps in 2020 for an estimated cost of $8,000.

2.1.3. System Service

There are no projects in this category.

2.1.4. General Plant

The general plant costs are limited to leasehold improvements, office equipment, computer software and computer equipment hardware at approximately $5,500.00 per year. In 2020, a software expenditure for the Smart Meter platform is planned at a cost of $34,000 above the annual planned general plant costs.

2.1.5. Anticipated Sources of Cost Savings (5.2.1b)

H2000's planning prioritization and investment processes follow good utility practices that are executed through the DSP. Good utility practices have inherent cost savings through sound decision making, thoughtful compromises, right timing and optimum expenditure levels. Some specific H2000 DSP cost savings are expected to be achieved using the following:

- Pole condition inspections and comprehensive data collection providing a better understanding of each asset's stage in its lifecycle. This leads to a more cost-effective decision-making process with respect to maintenance, refurbishment and replacement decisions. Particularly with the new pole testing equipment, more accurate objective assessments of pole condition are expected.
- Proactive maintenance and replacement of plant reduces reactive maintenance costs and improves service to the customer resulting in fewer and shorter duration outages, which in turn has a beneficial impact on the cost of outages to customers. A structured program of maintenance and renewal with planned rate increases will avoid disruptive rate spikes when addressing the volume of plant reaching end of life.

2.1.6. Important Changes to Asset Management Processes (5.2.1e)

H2000 has implemented a Pole Replacement Program; a program to change all the Porcelain Fusing Protection with Polymer; a Pad Mount Transformer Maintenance program and a Transformer Replacement Program, all of which have improved H2000's asset management activities.

2.2. [5.2.2] Coordinated Planning with Third Parties

In preparing this DSP, H2000 has considered the needs of its customers, as well as HONI, the Township of Alfred and Plantagenet, and the IESO.

H2000 engages in consultations with relevant third parties.

H2000 coordinates with the IESO and HONI. There are no new requirements requested by H2000 since their load has decreased in the past year.

H2000 does not have a SCADA system or other smart grid capability currently. They do not expect to install such devices or capability in the foreseeable future.

2.2.1. Local Planning Coordination

Residential Customers

H2000 values its customers and regularly seeks feedback to ensure that their needs are met and to receive suggestions on how H2000 can improve their overall customer experience and include person-to-person communication and customer surveys.

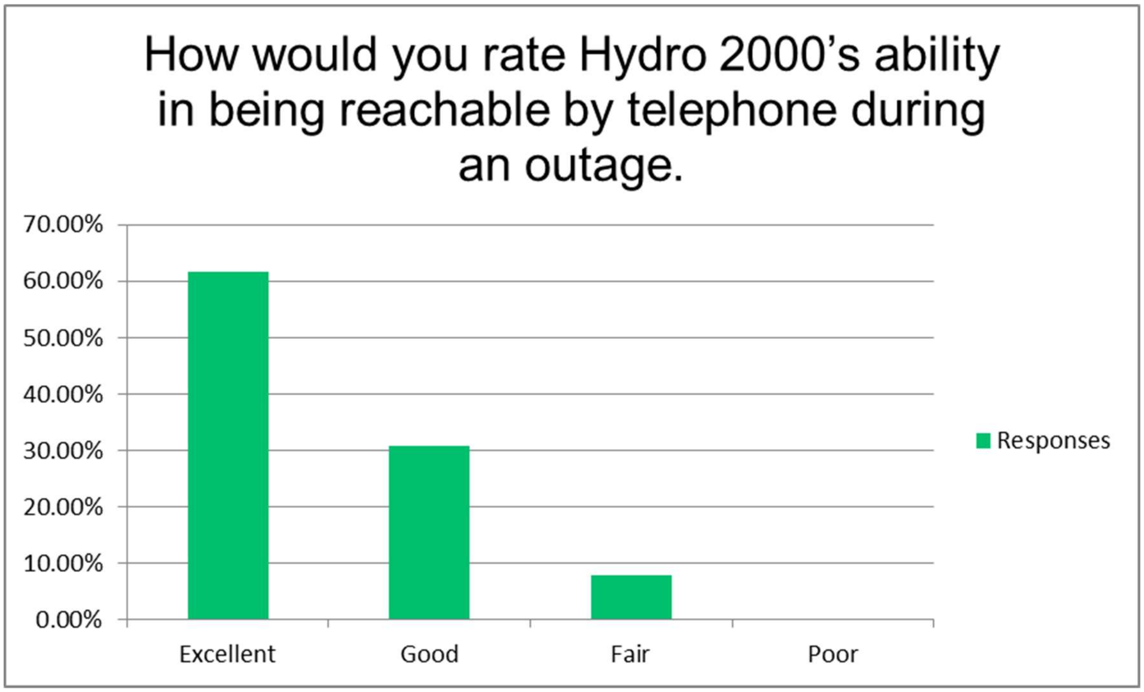
H2000 is one of the few electric utilities to operate a full-service customer counter with daily customer interaction. Customers who want to open a new account, move, pay bills, or have concerns or comments can come to our office or contact us by telephone, email, and fax. Customers appreciate the opportunity to deal with a local person and know that their concerns are treated with urgency and respect. Over 30% of H2000 customers pay their bill in person.

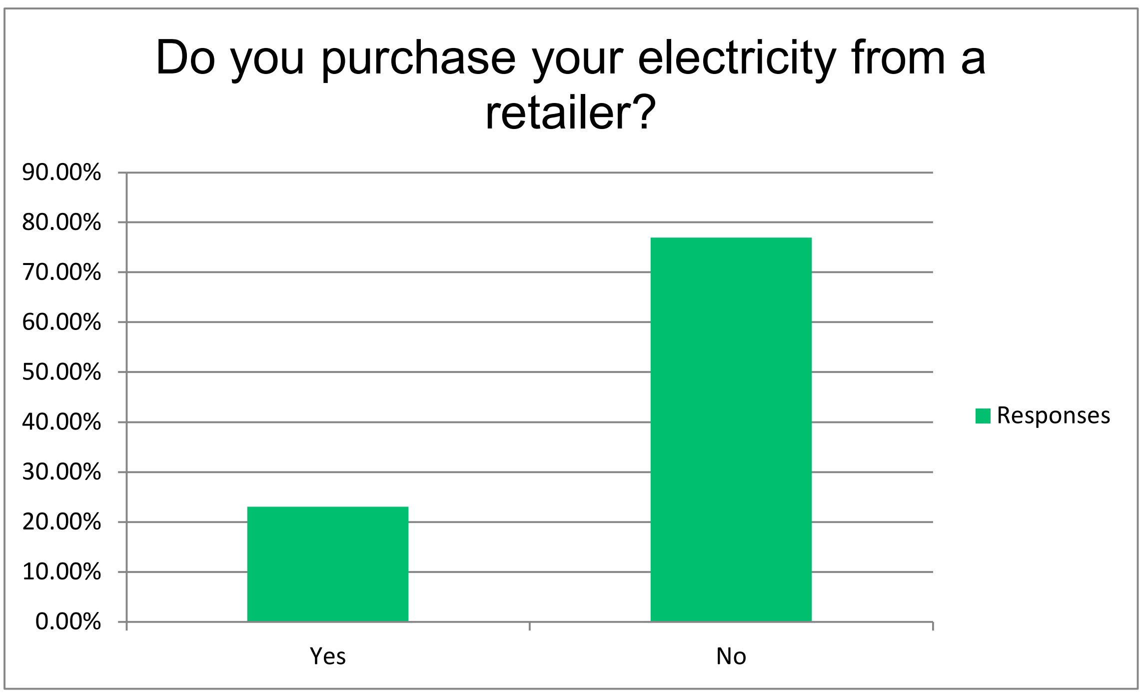
Commercial Customers

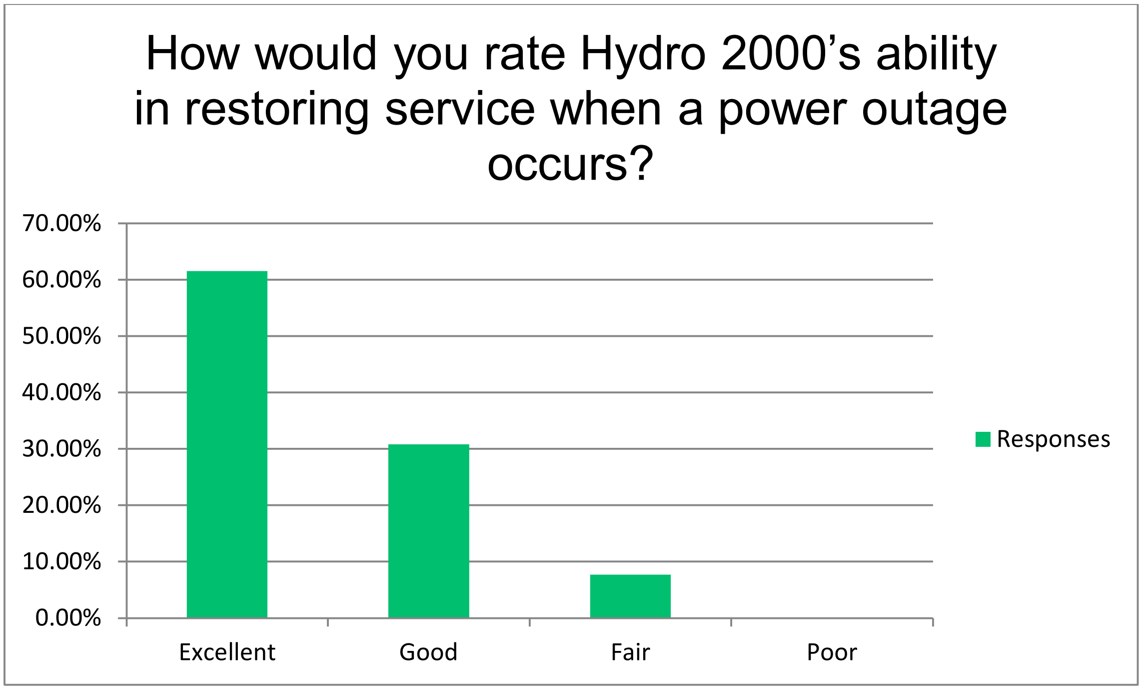
To H2000's knowledge, commercial customers within the service area are not currently planning any significant or material modifications. Planning and consultation is conducted with these customers on a regular basis primarily to engage and promote participation in CDM programs.

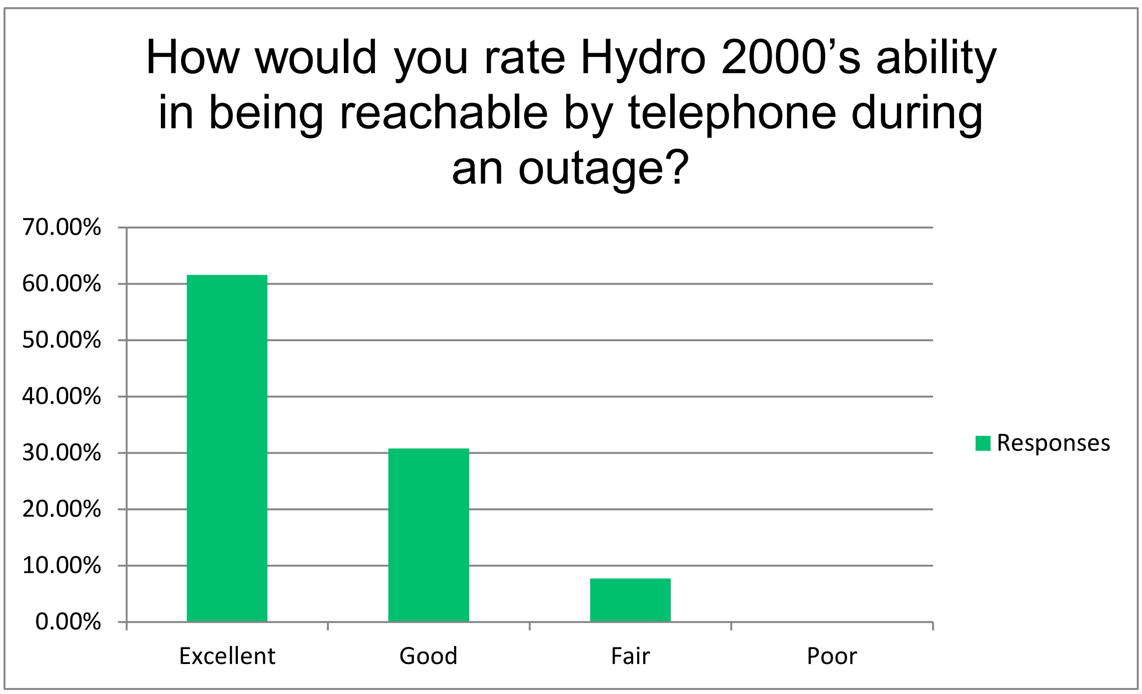
H2000 also undertakes annual customer surveys. The following details the results for the H2000's 2019 Customer Survey.

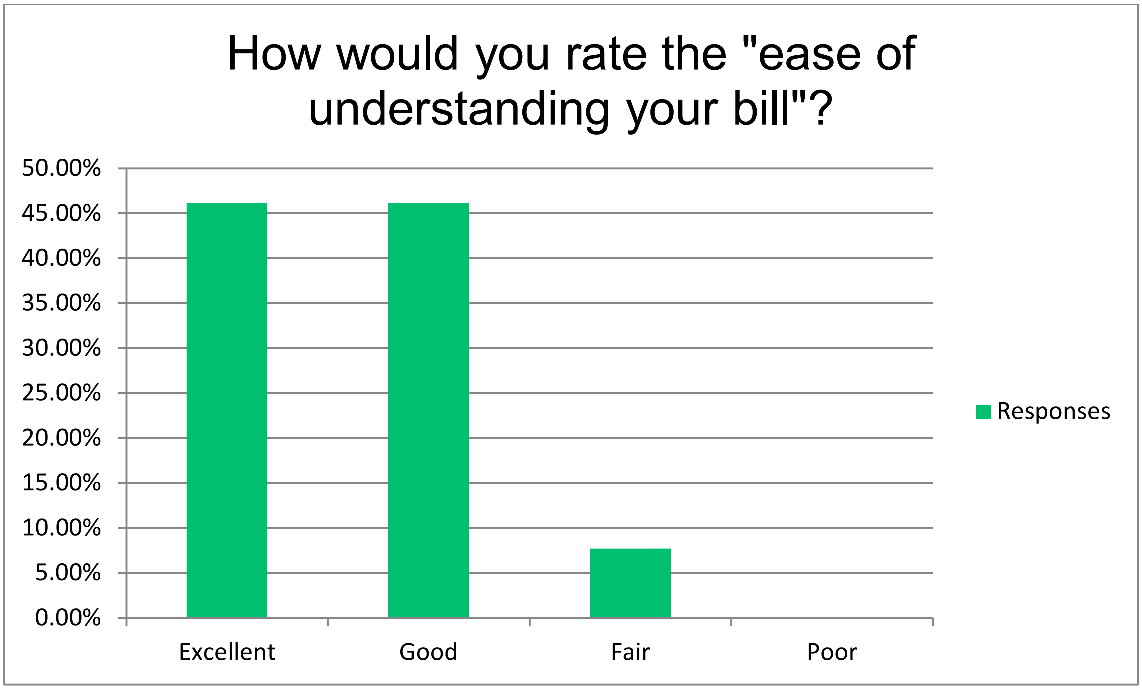
HYDRO 2000'S 2019 CUSTOMER SURVEY RESULTS

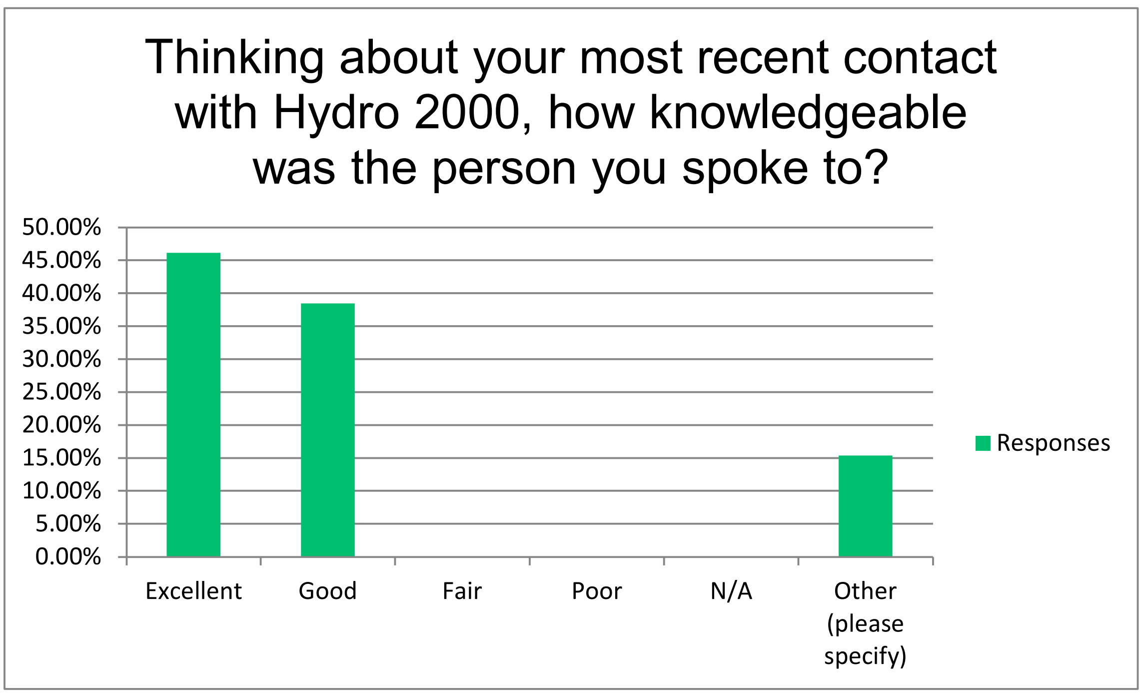


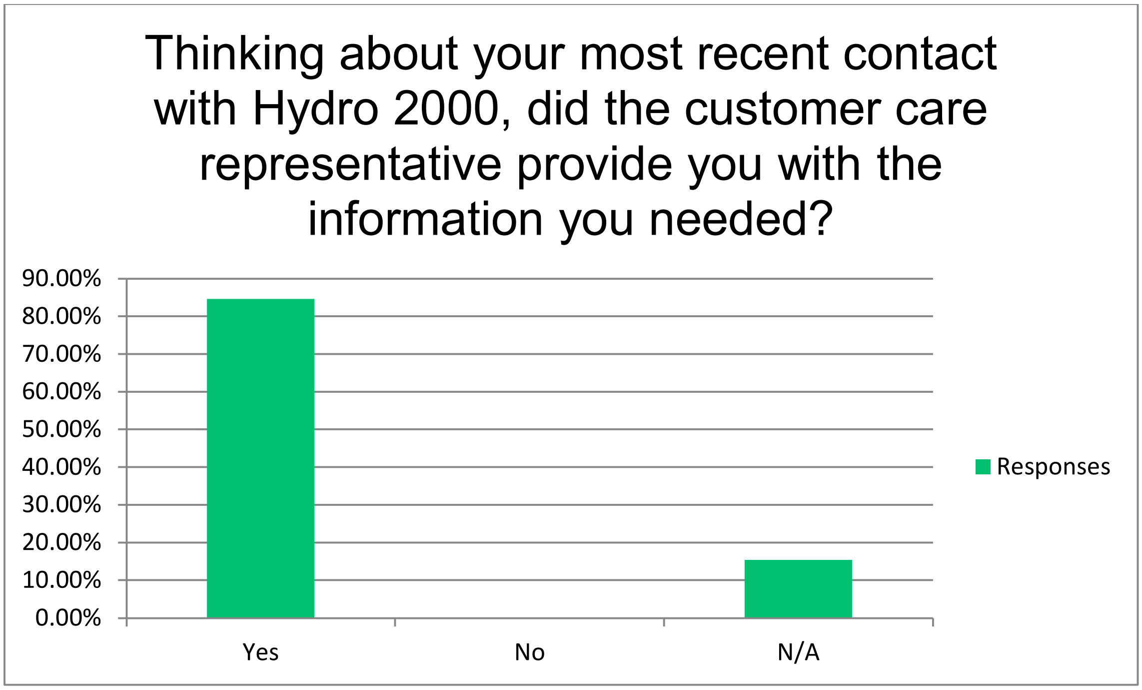


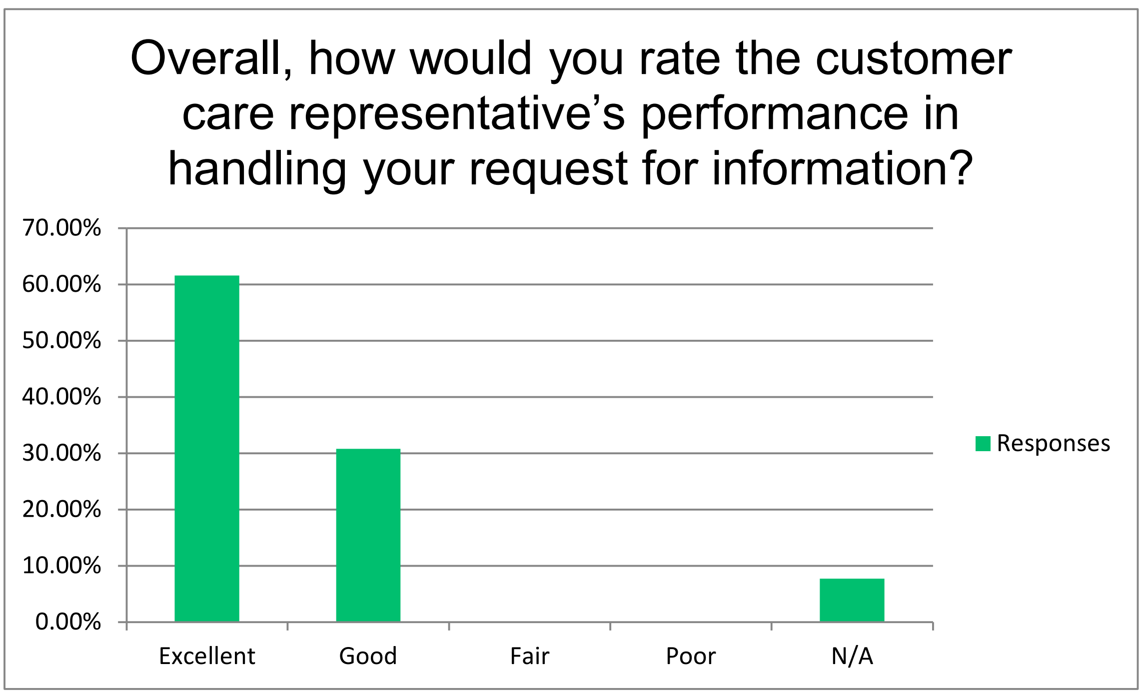

How would you rate Hydro 2000's ability in restoring service when a power outage occurs?
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Excellent
Good
Fair
Poor
Responses


How would you rate Hydro 2000's ability in being reachable by telephone during an outage?
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
Excellent
Good
Fair
Poor
Responses


How would you rate the "ease of understanding your bill"?
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Excellent
Good
Fair
Poor
Responses


Thinking about your most recent contact with Hydro 2000, how knowledgeable was the person you spoke to?
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Excellent
Good
Fair
Poor
N/A
Other (please specify)
Responses





Township of Alfred and Plantagenet

H2000 maintains a close relationship with the Township of Alfred and Plantagenet. Discussions include planned activities that can affect budgets, and scheduling and coordination on a per project basis and during construction season. The township is mature and stable with respect to growth and development. New residential subdivisions, commercial growth and industrial growth are minimal.

H2000 coordinates with the capital programs undertaken by the Township of Alfred and Plantagenet. H2000 monitors the plans of the township, the scope of work and the impact on the existing plant as well as the timing proposed by the township for their programs. H2000 responds in a timely manner when the projects are committed to by the township.

Neighboring Utilities

H2000 is embedded in HONI which is the only neighboring utility.

2.2.2. Development Planning

Hydro One

H2000 is an embedded utility in HONI and receives its supply from a distribution station at Peat Moss Road in Alfred and a distribution station at County Road #9 in Plantagenet. Both DS's are fed from the feeder M26 from Longueuil TS.

H2000 distributes electricity to the Township of Alfred and Plantagenet at a primary distribution voltage of 8.32 kV. H2000 does not host any utilities.

To date there have been no constraints identified by HONI regarding any of the feeders that service and supply H2000. H2000 coordinates with the IESO and HONI. There are no new requirements requested by H2000 since their load has decreased in the past year.

H2000 does not have a SCADA system or other smart grid capability currently. They do not expect to install such devices or capability in the foreseeable future.

Operations coordination between H2000 and HONI happens when necessary. HONI identifies planned outages and switching plans. HONI also supplies a weekly Ontario Grid Control Centre update to inform customers of significant events associated with its transmission and distribution systems.

2.2.3. Integrated Regional Resource Planning

H2000 has not been part of any Regional Resource Planning group due to its small size and relation with HONI.

Comment Letter from IESO Regarding REG Investments

H2000's REG investment plan was forwarded to the IESO. IESO's response is as follows:

"The IESO notes that Hydro 2000 is not proposing any capital investments for constraint mitigation, or for capacity upgrades to facilitate the connection of renewable energy generation. In the case where a distributor has no REG investments during the 5-year Distribution System Plan (DSP) period, no letter from the IESO is required, as the requirement is for when there are investments."

H2000 has had no capital costs related to the connection of REG projects. There have been only five micro FIT projects for a total of 48.39kW of solar generation connected.

2.3. [5.2.3] Performance Measurement for Continuous Improvement

The purpose of H2000 is to provide a continuous availability of electric power to its customers with sufficient capacity to meet all the customer's needs in a sustainable manner.

H2000 has a small service territory, and as such, does not have the workload to sustain a complement of staff to provide all the functions of the utility in-house. It acquires the services it needs on a contract basis. As a result, Engineering and Engineering Studies are contracted out, as is the system construction, maintenance and emergency trouble calls, trouble response and billing. The overall management, purchasing and finance functions, as well as customer service, are maintained in-house.

This approach works well for H2000 from a cost management and timing perspective for the physical work as well as for the timely financial billing or project costing. Project work is contracted on a fixed price basis and maintenance and repair work is based on unit prices negotiated in advance and authorized prior to the work being started except in the case of emergency work after hours.

This approach also means that H2000 does not incur fixed or ongoing costs for engineering work or power system work unless there is work to be done. Then the work is defined, and the costs are contained. In this way cost efficiency and work performance is kept high.

Overall H2000 has worked to keep the bill impacts to its customers as low as it can. The bill impacts over the past five years have been as follows:

Table 3: Hydro 2000 Historic Bill Impacts

Year	**2015**	**2016**	**2017**	**2018**	**2019**
	IRM	IRM	IRM	NOT FILED	IRM
Monthly Charge	$14.87	$18.31	$22.10		$25.92
Volumetric	$0.015	$0.012	$0.0091		$0.0062
Bill Impact	**0.29%**	**3.89%**	**-1.05%**		**4.67%**

Table 4: Historic Performance Measures

Reliability-- SAIFI, SAIDI, CAIDI for past four years (both including & excluding Loss of Supply)	2015: SAIDI 0.03%; SAIFI 0.06% 2016: SAIDI 0%; SAIFI 0% 2017: SAIDI 0%; SAIFI 0% 2018: SAIDI 0.04%; SAIFI 0.81%
Telephone Accessibility (past four years)	2015: 4052/4069 2016: 4171/4184 2017: 2777/2777 2018: 2208/2209

Telephone Abandon Rate (past four years)	2015: 17/4069 2016: 0 2017: 0 2018:1/2209
Emergency Response (past four years)	2015: 1 2016: 6 2017: 0 2018: 0
Connection of New Services – LV (past four years)	2015: 2 2016: 1 2017: 6 2018: 8
Connection of New Services – HV (past four years)	2015: 0 2016: 1 2017: 0 2018: 0
Appointments Scheduling (past four years)	2015: 42 2016: 164 2017: 112 2018: 56
Appointments Met (past four years)	2015: 42 2016: 162 2017: 112 2018: 56
Missed Appointment Rescheduling (past four years)	2015: 0 2016: 2 2017: 0 2018: 0
Written Responses to Inquiries (past four years)	2015: 8/8 2016: 38/38 2017: 49/49 2018: 9/9
Emergency Response – Urban (past four years)	2015: 1/1 2016: 6/6 2017: 0 2018: 8/8
Emergency Response – Rural (past four years)	0

Customer Survey results for past four years	2015: 95% 2016: 92% 2017: 99% 2018: 95.8%

2.4. [5.2.4] Realized Efficiencies due to Smart Meters

This section is not applicable to H2000 due to the size of their service territory.

3. [5.3] Asset Management Process

This section provides an overview of H2000's asset management process, an overview of the assets managed by H2000 and a presentation of H2000's asset lifecycle optimization policies and practices.

3.1. [5.3.1] Asset Management Process Overview

H2000 expects the status quo for the business conditions over the planning horizon of this report; no material growth or shrinkage. There are no known expansion plans for industrial, commercial or residential segments of the economy nor are there any known planned closures in the industrial or commercial segments of the economy. The lack of change in the economy means that there is no growth-based capital work proposed by H2000.

Much of overhead plant is old (more than 50 years in service) and an assessment of the condition of the wood poles was carried out. This resulted in the Pole Replacement Program which will replace eight poles per year for the five-year forecast period. This is part of the proposed "material" project to be undertaken.

H2000 is implementing a process to identify and execute approved programs; these had been lacking under the previous Manager. In the historic period, budgets were approved but the planned work was not always completed nor was the budgeted money completely spent. This made it necessary to establish these management processes. The new Board of Directors have implemented these processes since their nomination in February 2019.

The data in the DSP is current as of the end of December 2019 unless indicated otherwise in a specified section of the report.

H2000 has made significant changes in the Asset Management Process. First, a more formalized wood pole assessment process was initiated.

Pole Condition Assessment

Rating system for pole condition:

Several factors impact the condition of a pole and the assessment of its capabilities and useful life expectancy:

Some of these factors are:

- Age of the pole
- Surface deterioration or shell rot

- Longitudinal cracks along the pole
  - Characterized by depth of the crack [accessible from the ground]
  - Characterized by the length of the crack
  - Characterized by the number of cracks in the pole
  - Characterized by the presence of rot in the crack
  - Pole testing was conducted in 2017 with pole testing equipment which involved drilling each pole.

H2000 used the following factors and rating for each factor:

(A) Age:

Rating Value	Criteria or measurements
1	Over 50 years old
2	40 to 50 years old
3	30 to 40 years old
4	20 to 30 years old
5	Less than 20 years old

(B) Sum of depth of all separate cracks accessible by a person at ground level

Rating Value	Criteria or measurements
1	Greater than 12 inches
2	10 to 12 inches
3	8 to 10 inches
4	4 to 8 inches
5	Less than 4 inches

(C) Length of cracks one inch or more in depth – reachable by a person on the ground

Rating Value	Criteria or measurements
1	More than 50% of the pole height
2	25% to 50% of the pole height
3	10% to 25% of the pole height
4	Less than 10% of the pole height

(D) Number of cracks on the pole that are significant [appear to be deep – 1 inch or more – and wide – ¼ inch or more and visible from the ground if above the secondary level

Rating Value	Criteria or measurements
1	More than 10
2	8 to 10
3	6 to 8
4	3 to 6
5	Less than 3

(E) Presence of rot or growth in cracks or spurs

Rating Value	Criteria or measurements
1	Rot / growth is present
2	No rot / growth present

(F) Condition at ground line [at grade]. Take four measurements 90 degrees apart; sum the values of the penetration

Rating Value	Criteria or measurements
1	More than 12 inches
2	10 to 12 inches
3	8 to 10 inches
4	4 to 8 inches
5	Less than 4 inches

(G) Hammer test no more than one foot above ground level and take soundings 90 degrees apart

Rating Value	Criteria or measurements
1	Definite core deterioration
2	Possible core deterioration
3	No perceived core deterioration

In each measure a low number is a poorer condition pole.

To come up with a single value, each of the factors A to G were weighted equally relative to the other factors. Hence, to get an overall assessment of the pole condition, the rating values of the factors were added together for each pole. For example, the worst score would be A+B+C+D+E+F+G=7 and the best score would be 29.

H2000 used the above criteria and surveyed all its 394 poles that are in service. Any data missing on the pole was given a rating value of 1 and were re-evaluated by SPL line maintenance contractor, employing a pole expert. The criterion for replacement was a rating of 20 or lower, the lower the rating the poorer the pole condition. The table below shows the poles that need to be replaced based on the survey and the selection criterion. Note that there is a mixture of single phase and three phase lines and that a significant number of these poles also have transformers mounted on them.

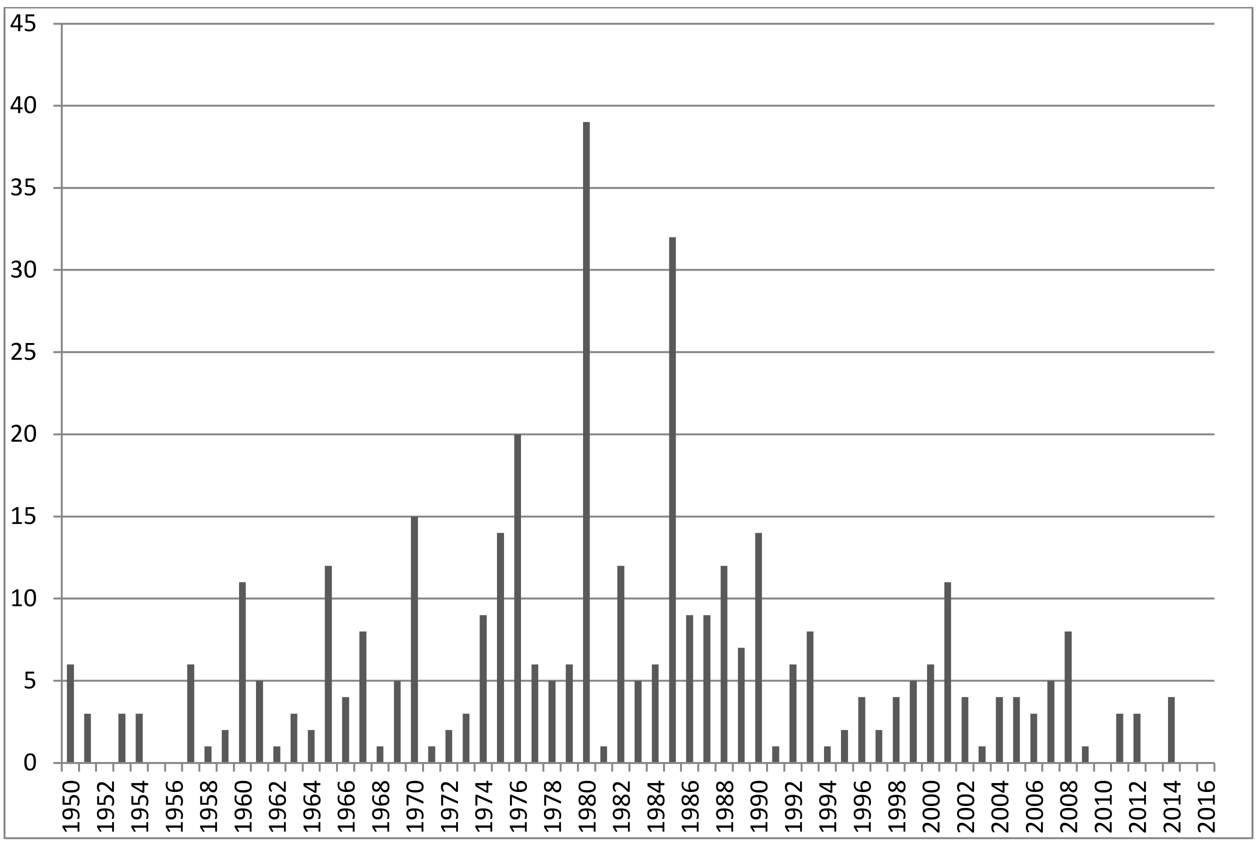
The following table shows the pole height and the total pole count.

Table 5: Pole Height and Total Pole Count

Pole height in feet	30	35	40	45	50	55	Total
Number of poles	34	128	156	66	10	0	394

The following graph shows the number of poles and the service year installed.

Figure 1: Number of Poles and Service Year Installed



Appendix C includes a complete description and location of each pole in the service territory.

A more formalized transformer condition process was also initiated as described below.

Transformer Condition Assessment

H2000 has 181 transformers in-service; of those 165 are pole mounted transformers and 16 are pad mount transformers.

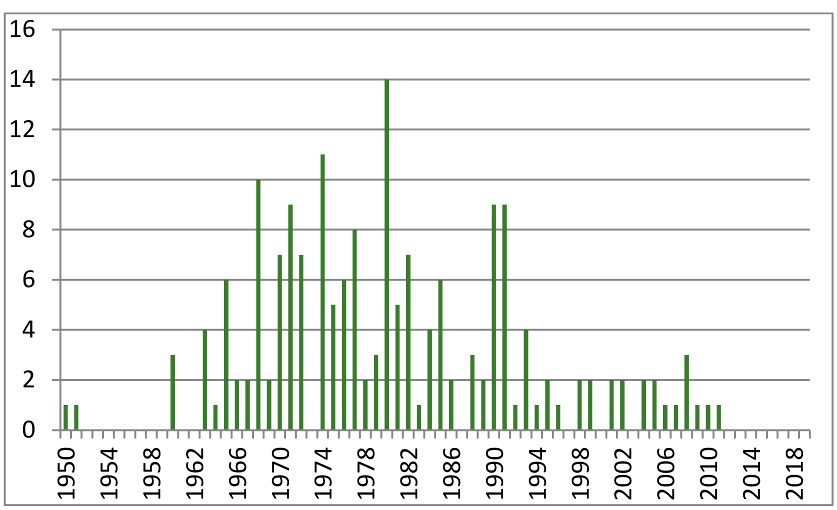
H2000 has also 11 pole mount transformers and four pad mount transformers in stock for emergencies to replace damaged transformers. SPL was also instructed to perform the inspection of all the transformers in-service and to collect all the data.

All the transformers have been tagged and cross referenced by the pole number. The following information was collected – the size (KVA), Pole mount or Pad mount, Voltage, Number of Phases, Manufacturer, Serial Number, Impendent, Manufacture Year, Weight, condition of the transformer, and, also if it is PCB free. There are 110 transformers that need to be tested for PCB that are in-service. All transformers must be inspected by 2025 and replaced by December 31st, 2025 under PCB Regulations SOR (2010-57).

Table 6: Number and Size of Transformers

	Transfo Installed		Transfo In Stock	
KVA	POLE	PAD	POLE	PAD
5	1	0	0	0
10	9	0	0	0
15	4	0	0	0
25	26	0	4	0
37.5	7	0	1	0
50	49	1	2	0
75	55	1	3	0
100	14	13	1	3
167	0	1	0	1
Total	165	16	11	4

Figure 2: Transformer In-Service Date



Every year H2000 performs an Inspection of all its overhead distribution system and every three years also performs an inspection of its underground distribution system.

Appendix D lists the priority and all the information for each transformer.

3.2. [5.3.2] Overview of Assets Managed

H2000 is an embedded utility in HONI and receives its supply from a distribution station at Peat Moss Road in Alfred and a distribution station at County Road #9 in Plantagenet. Both DS's are fed from the feeder M26 from Longueuil TS. A map displaying the detailed distribution layout may be found in **Appendix A**.

H2000 distributes electricity to the Township of Alfred and Plantagenet at a primary distribution voltage of 12.4kV. H2000 does not host any utilities.

H2000 owns and maintains the distribution system assets within the H2000 service territory as well as the transformers and associated protective devices and the secondary conductor supplying their customers.

To date there have been no constraints identified by HONI regarding any of the feeders that service and supply H2000.

Operations coordination between H2000 and HONI happens when necessary. HONI identifies planned outages and switching plans. HONI also supplies a weekly Ontario Grid Control Centre update to inform customers of significant events associated with its transmission and distribution systems.

The weather is characterized by cold winters with snow and cold temperatures. The township has a semi-continental climate, with a warm, humid summer and a very cold winter.

Winters in the township are severe. Snow depths of greater than 1 cm are experienced about 120 days each year and freezing rain is not uncommon in the winter. Minimum average temperatures in January are about -15 degrees Celsius and in summer the maximum average temperature is about 26 degrees Celsius.

3.3. [5.3.3] Asset Lifecycle Optimization Policies and Practices

H2000 is a small utility that does not have policies on lifecycle optimization currently. Its practices meet the statutory requirements of the Distribution System Code. All system switching, power restoration, after hours trouble calls and responses, pole testing and replacement and line construction as well as utility locates are performed by the contractor.

An assessment of the condition of the wood poles was carried out as described above. This resulted in a rigorous wood pole replacement program.

3.4. [5.3.4] System Capability Assessment for Renewable Energy Generation

H2000 has five approved Micro FIT solar generators. These are under contract and connected to its system for a total of 48.9 kW. There are no outstanding active applications for any REG projects currently. Hence H2000 has no requirement for REG enabling projects currently. Therefore, H2000 has no capital costs related to the connection of REG projects.

Table 7: List of Approved Micro FIT Solar Generators

Connected Reg Loads							
Year	# of Connections	Type	Solar Array Ratings in KW	Feeder	Voltage	Constraints	Impact
2010	0	N/A	N/A	N/A	N/A	N/A	N/A
2011	1	Solar Photovoltaic (Roof Top)	10	Longueuil TS	120/240	NO	NO
2012	1	Solar Photovoltaic (Roof Top)	10	Longueuil TS	120/240	NO	NO
2013	1	Solar Photovoltaic (Roof Top)	10	Longueuil TS	120/240	NO	NO
2014	0	N/A	N/A	N/A	N/A	N/A	N/A
2015	1	Solar Photovoltaic (Roof Top)	8.9	Longueuil TS	120/240	NO	NO
2016	0	N/A	N/A	N/A	N/A	N/A	N/A
2017	1 transferred (from HONI)	Solar Photovoltaic (ground mount	10	Longueuil TS	Longueuil TS	NO	NO
TOTAL	5						

4. [5.4] Capital Expenditure Plan Overview

H2000 was incorporated in September 2000. H2000 is the local distribution company in Eastern Ontario that is responsible for the distribution of electricity to the former Corporation of the Village of Alfred and the former Village of Plantagenet.

H2000 is an embedded utility receiving its power from Hydro One Networks Inc. (HONI). H2000 delivers power to its 725 customers in Alfred via one feeder at 8.32kV and one Pole Mount Feeder from HONI's 44kv Alfred Distribution station, which is owned by HONI on Peat Moss Road in Alfred. H2000 delivers power to its 515 customers in Plantagenet via one feeder at 8.32kV from HONI Plantagenet Distribution station, which is owned by HONI on County Road #9 in Plantagenet. Therefore, H2000's goal in developing and executing its capital expenditure plan is to ensure its customers have reliable, cost effective service.

H2000 gathers relevant information about the assets and uses the judgment and experience of its contractor to interpret this information to develop appropriate cost-effective programs that deliver reliable service to its customers at a reasonable cost. Proactive maintenance and replacement of plant reduces reactive maintenance costs and improves service to the customer resulting in very few outages, which in turn has a beneficial impact on the cost to customers. A structured program of maintenance and renewal with planned rate increases will avoid disruptive rate spikes when addressing the volume of plant reaching end of life.

4.1. [5.4.1] Capital Expenditure Planning Process Overview

H2000 coordinates with the IESO and HONI. There are no new requirements requested by H2000 since their load has decreased in the past year. H2000 does not have a SCADA system or other smart grid capability and there is no expectation to install such devices or capability in the foreseeable future.

H2000 values its customers and regularly seeks feedback to ensure that their needs are met and to receive suggestions on how H2000 can improve their overall customer experience. This includes person-to-person communication and annual customer surveys. H2000 is one of the few electric utilities to operate a full-service customer counter with daily customer interaction. Customers appreciate the opportunity to deal with a local person and know that their concerns are treated with urgency and respect. Over 30% of customers pay their bill in person.

Commercial customers within the service area are not planning any significant or material modifications currently. Planning and consultation are conducted with these customers on a regular basis primarily to engage and promote participation in CDM programs.

H2000 maintains a close relationship with the Township of Alfred and Plantagenet. Discussions include planned activities that can affect budgets, and scheduling and coordination on a per project basis and during construction season. The township is mature and stable with respect to growth and development. New residential subdivisions, commercial and industrial growth is minimal.

H2000 coordinates with the capital programs undertaken by the Township of Alfred and Plantagenet. H2000 monitors the plans of the Township, the scope of work and the impact on the existing plant as well as the timing proposed by the town for their programs. H2000 responds in a timely manner when the projects are committed to by the township.

H2000 expects the status quo for the business conditions over the planning horizon of this report, with no material growth or shrinkage. There are no known expansion plans for industrial, commercial or residential segments of the economy nor are there any known planned closures in the industrial of commercial segments of the economy. The lack of change in the economy means that there is no growth-based capital work proposed by H2000.

Much of overhead plant is old (more than 50 years in service) and an assessment of the condition of the wood poles has been carried out. This resulted in the pole replacement program which will replace eight poles per year for the five-year forecast period. This is part of the proposed "material" project to be undertaken. All the transformers have also been tagged and cross transformer's size (KVA), Pole mount or Pad mount, Voltage, Number of Phases, Manufacturer, Serial Number, Impendent, Manufacture Year, Weight, condition of the transformer, and, if it is PCB free was cataloged. There are 110 transformers that need to be tested for PCB that are in-service.

With the pole management asset inventory and the transformer condition assessment H2000 has a better knowledge of how many poles are in their service territory, their condition as well as the age and condition of the transformers.

4.1.1. [5.4.1.1] Rate-funded Activities (CDM) to Defer Distribution Infrastructure

Figure 3 below illustrates H2000's participation and cost report for its CDM rate funded activities.

Figure 3: Hydro 2000 Inc. CDM Program Participation and Cost Report to April 2019

4.2. [5.4.2] Capital Expenditure Summary

H2000 is implementing a process to identify and execute approved programs. The new Manager has started to establish the management processes discussed in this DSP since May 2018 when the Manager joined H2000. These had been lacking under the previous Manager. In the period of 2015 to 2018 any planned work (for which documentation was not kept) was not completed nor was the money spent. Historic spending from 2015 to 2018 was completely reactive. Spending was undertaken by a contractor to maintain the system only. Records of the costs for this work were not kept. There are no records of planned work or variance reports. Table 8 below illustrates the reactive spending in the years 2015 to 2018 for which there are no records aside from some contractor invoices. The new Board of Directors have started to establish programs since their nomination in February of 2019 to support the new Manager in her planning process.

4.3. [5.4.3] Justifying Capital Expenditures

4.3.1. [5.4.3.1] Overall Plan

As a small service territory, H2000 does not have the workload to sustain a complement of staff to provide all the functions of the utility in-house. It acquires the services it needs on a contract basis. As a result, engineering and engineering studies are contracted out; as is the system construction, maintenance and emergency trouble calls, trouble response and billing. The overall management, purchasing and finance functions, as well as customer service, are maintained in-house.

This approach works well for H2000 from a cost management and timing perspective for the physical work as well as for the timely financial billing or project costing. Project work is contracted on a fixed price basis and maintenance and repair work is based on unit prices negotiated in advance and authorized prior to the work being started except in the case of emergency work after hours.

This approach also means that H2000 does not incur fixed or ongoing costs for engineering work or power system work unless there is work to be done. Then the work is defined and the costs are contained. In this way cost efficiency and work performance is kept high.

Table 8 below, illustrates the proposed O&M and capital expenditure plan for 2019 through 2024.

H2000's Board of Directors approved an OM&A spend of $517,806 in 2019 and $507,779 for 2020. H2000 proposes to continue with that annual spend, increasing only by 2%, (COL) each subsequent year.

Table 8: Proposed O&M and Capital expenditure plan for 2019 through 2024

Category	Historical (Previous Actual)					Forecast (Planned)				
	Test-5 2015 Actual	Test-4 2016 Actual	Test-3 2017 Actual	Test-2 2018 Actual	Test-1 2019 Plan	Test 2020 Forecast	Test 2021 Forecast	Test 2022 Forecast	Test 2023 Forecast	Test 2024 Forecast
System Access	$0	$0	$330	$1,320	$9,083	$5,000	$5000	$5000	$5000	$5000
System Renewal	$27,246	$47,231	$45,046	$43,678	$147,733	$151,798	$133,450	$133,450	$133,450	$133,450
System Service	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
General Plant	$10,921	$1,739	$6,771	$0	$900	$39,500	$5,500	$5,500	$5,500	$5,500
Total Capital Expenses	$38,167	$48,970	$52,147	$44,998	$157,716	$196,298	$143,950	$143,950	$143,950	$143,950
Contributed Capital	$0	-$29,147	$0	-$3,750	-$36,162	$0	$0	$0	$0	$0
Net Capital Expenses after Contributions	$38,167	$19,823	$52,147	$41,248	554$121,	$196,298	$143,950	$143,950	$143,950	$143,950
System O&M	$21,935	$44,837	$56,272	$44,938	$44,027	$51,146	$52,169	$53,212	$54,277	$55,362

H2000 has identified, prioritized and determined the pace of execution of its programs for 2019 through 2024 by applying the pole condition assessment and the transformer condition assessment with customer engagement analysis and good management practices. H2000 has also considered its risk profile which was developed as part of a study undertaken to determine the utility's cyber protection needs (see **Appendix E**).

H2000 just started to implement its capital investment program described in this document in 2019. The move from a purely reactive maintenance program to a new capital investment program as described in this DSP underpins and justifies the 350% increase in forecast capital spending in 2019 relative to 2018. The specific programs that are being undertaken in 2019 are described below. In 2020 the capital costs increase slightly and then in the following years the costs level out as the new programs are established and the most critical capital expenditures are completed as described below.

4.3.2. [5.4.3.2] Material Investments

The investment threshold for H2000 is $50,000. This threshold would only include the Line Transformer Program to change 15 transformers per year in order to replace transformers older than 1970 within three years. Since H2000 has just started to implement its new capital investment program starting in 2019, all 2020 – 2024 investments have been listed and discussed below for completeness.

System Access Projects

It is forecasted that there will be one new residential new service in the service territory each forecast year at a cost of $5,000.00 per year.

System Renewal Projects

A Pole Replacement Program has been implemented following a pole drilling assessment in 2017. With the average depreciation life of 40 years (considering accident hit, lightning, woodpeckers, deterioration of the pole faster than their expected life) the recommendation is to replace eight poles per year. The decay percentage for each pole was documented and it was determined that H2000 needs to change eight poles per year based on the higher decay basis for the next five years. A program to change all the Porcelain Fusing Protection with Polymer has also been implemented; pursuant to that program H2000 will proceed to change 20 Porcelain Fusing Protections per year in conjunction with the Pole Replacement Program at a total cost of $50,500 per year over the five years.

H2000 has implemented a Pad Mount Transformer Maintenance program. H2000 will maintenance and repair three Pad Mount Transformers per year for five years at a cost of $3,300.00 per year.

H2000 has implemented a Transformer Replacement Program. This is a new maintenance program that was developed using the results of the Transformer Inspection Process. H2000's network has aged; H2000 will therefore replace 15 Transformers per year, including PCB testing at a cost of $72,900 per year. This program will be coordinated with the Pole Replacement Program when possible.

Measurement Canada has a standard for smart meter testing and replacement. H2000 has 1,080 single phase meters. Applying the standard, 156 single phase and all other meters dating from 2010 needed to be tested before year end 2019. These smart meters will then be replaced as needed. H2000 spent $17,749 in 2019 in replacement costs and then a forecast of $6,750.00 for the next five years to comply with the Measurement Canada standard.

H2000 undertook a load flow study in 2019, the results of which are shown in Appendix B.

H2000 will update the network maps in 2020 for an estimated cost of $8,000.

System Service

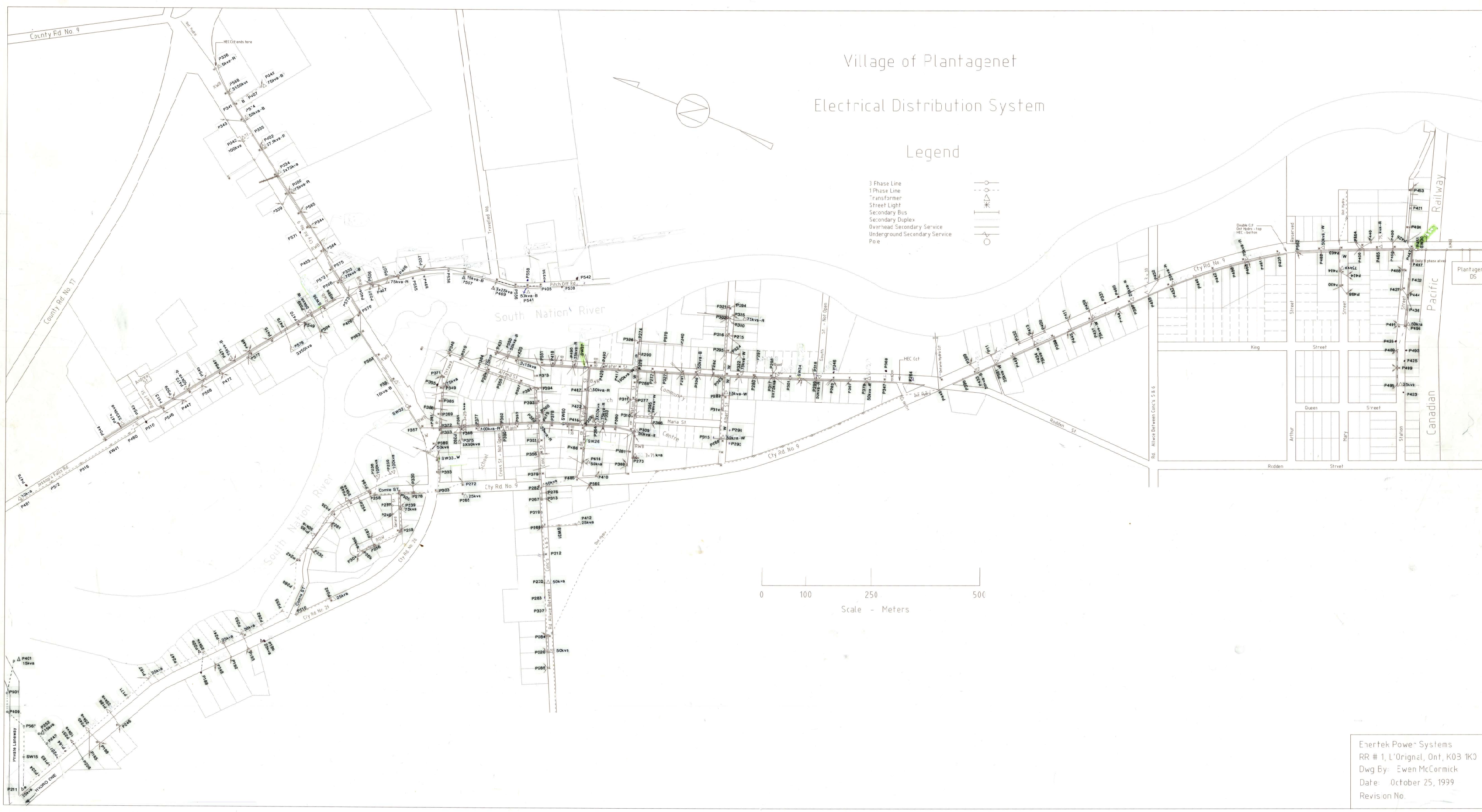
There are no projects in this category.

General Plant

The general plant costs are limited to leasehold improvements, office equipment, computer software and computer equipment hardware for approximately $5,500.00 per year. In 2020, a software expenditure for the Smart Meter platform is planned at a cost of $34,000 above the annual planned general plant costs.

APPENDIX A

ELECTRICAL DISTRIBUTION PLAN FOR VILLAGES OF ALFRED AND PLANTAGENET

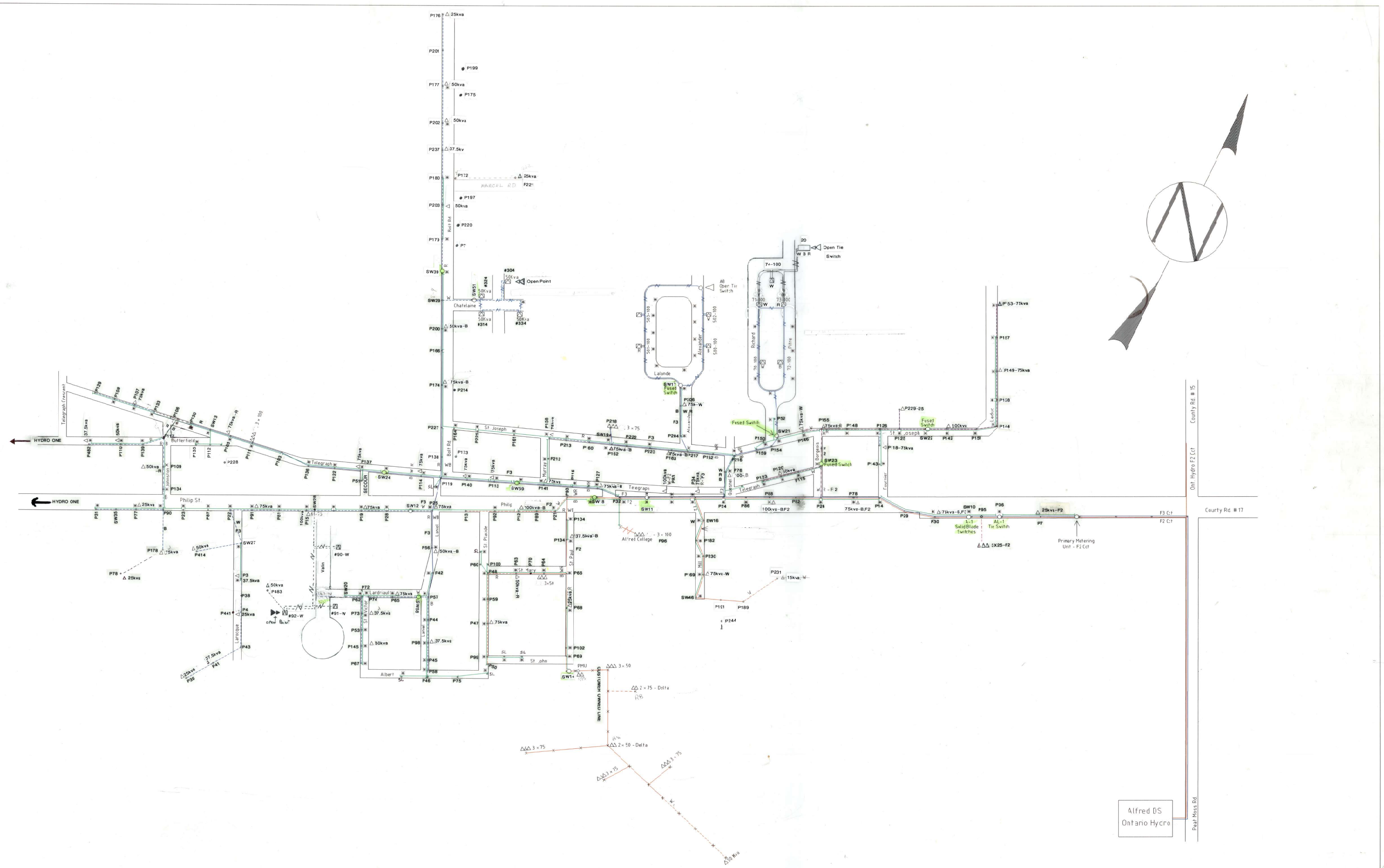


Village of Plantagenet
Electrical Distribution System
Legend
3 Phase Line
1 Phase Line
Transformer
Street Light
Secondary Bus
Secondary Duplex
Overhead Secondary Service
Underground Secondary Service
Pole
South Nation River
Cty Rd. No. 9
County Rd. No. 17
County Rd. No. 9
Canadian Pacific Railway
Plantagenet DS
King
Street
Queen
Arthur
Mary
Station
Ridden Street
Rd. Allwce Between Conc's 5 & 6
0
100
250
500
Scale - Meters
Enertek Power Systems
RR # 1, L'Orignal, Ont. K0B 1K0
Dwg By: Ewen McCormick
Date: October 25, 1999
Revision No.

Electrical Distribution Plan
Village of Alfred

Legend

○	Pole
△	Pole Mounted Transformer
○	Switch
	3 Phase Primary
	2 Phase Primary
	1 Phase Primary
	3 Phase Primary Buried
	1 Phase Primary Buried
⊠	Padmount Transformer
✳	Street Light
	Secondary Buss



Enertek Power Systems
RR 1, Lorignal, Ont., K0B 1K0

Revision No.	4
Date	June 30, 1999
Dwg. By	

APPENDIX B

Hydro 2000 Inc. – Alfred and Plantagenet Distribution

Utility Load Flow and Evaluation Study

November 26, 2019

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Revision	Description	Author		Quality Check	
0	Issued for Review	Rory McCallum	Nov 26, 2019	Peter Dyck	Nov 26, 2019

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Prepared by ____
(signature)

Rory McCallum

Approved by ____
(signature)

Peter Dyck

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1.0 INTRODUCTION

1.1 UTILITY LOAD FLOW STUDY

Stantec Consulting Ltd. is pleased to submit this Utility Load Flow Study of the electrical distribution systems of both Alfred and Plantagenet for Hydro 2000 Inc. This study has been prepared in accordance with relevant standards, including the Ontario Electrical Safety Authority (ESA), National Electrical Manufacturer's Association (NEMA), Institute of Electrical and Electronic Engineers (IEEE), Municipal Electrical Association (MEA), Canadian Standards Authority (CSA), and the American National Standards Institute (ANSI).

1.2 OBJECTIVES

There were a number of objectives for this study, including:

- Determining the acceptability of the system with current and future load growth and to identify any voltage support problems, overloaded equipment, etc.
- Finding whether the system would operate acceptably during emergency situations.
- Optimizing the system arrangement (cable sizes, load balancing, open points, etc.) to minimize losses, maximize voltage support, and to distribute loading evenly.
- The optimal placement and effects of a future substation to allow for a municipally owned substation.

1.3 SCOPE OF STUDY

The Load Flow Study for both systems includes all feeders into each town for each major tap at the 8.32(4.8)kV level, no secondary lines were included. All loads were represented as either point or distributed loads over the segment that they were modelled on, and are shown on the system model layouts under Appendix 1.

1.4 ASSUMPTIONS AND GENERALIZATIONS

A number of assumptions and generalizations are made when modelling a complex system. Some of the ones made in this study are as follows:

- In most cases, loads were modelled as spot loads, sized using current measurements made at strategic points within the system. For longer sections with multiple transformers, loads were distributed evenly across the section of line.
- Each feeder's loads were modelled at a Power Factor of 0.9.
- The drawings 'Village of Plantagenet, Electrical Distribution System' revised on September 2019 and the 'Village of Alfred, Electrical Distribution System' revised on September 2019 were used as the basis of the system models, with site measurements to determine line loading.

- The ratings used in this study to assess the loading of various conductors are listed in the table below. Please note, while insulated cables have a fairly limited set of current ratings (typically free air, raceway, or direct buried ratings), ACSR cables have a wide range of ratings, based on ambient temperatures, peak conductor temperatures, cross winds, emissivity of the conductor, and sun heating. The following conductor ratings are standard ratings, based on maximum absolute conductor temperatures of 105˚C, ambient temperatures of 30˚C (Summer) and 10˚C (Winter), 0.6m/sec (2feet/sec) of cross wind, 0.7 coefficient of emissivity, and full sun.

Table 1 Assumed Cable Ratings

Cable Type	*Rating*	*Ampacity @ 30˚C Ambient*	*Ampacity @ 10˚C Ambient*
Cable - 2/0 AWG 1/C Alum TR-XLP 100%	Continuous Amps	245	245
ACSR - 336 kcmil 26/7	Continuous Amps	647	733
ACSR - 3/0 AWG	Continuous Amps	370	419
ACSR - 1/0 AWG	Continuous Amps	288	326
ACSR - #2 AWG	Continuous Amps	228	285
ACSR - #4 AWG	Continuous Amps	172	215

2.0 LOAD FLOW STUDY FINDINGS AND RESULTS

2.1 ALFRED ELECTRICAL DISTRIBUTION SYSTEM

2.1.1 System Equipment Ratings

The main equipment within the Hydro 2000 substation is listed below, along with the ratings that are used to evaluate these components for various loading scenarios. Ratings and information that could not be verified were estimated for the purposes of the study and are marked in table with an asterisk (*). It should be noted that the evaluation of loading and capacity at the substation is the responsibility of Hydro One Networks Inc (HONI).

Table 2 Alfred Equipment Rating

System Component	***Rating***	***Ampacity @ 8.32kV***
44kV Primary Fuses S&C Electric SMD-1A, 125E Slow Speed, TCC 119-1	Continuous Amps Daily 8 hour peak Emergency 8 hour peak	761.5A (144A) 772.1A (146A) 835.6A (158A)
44,000/8,800V Transformer Delta/Wye (Grnd.), 7.5 MVA (ONAN) Z = 5.56%	Continuous Amps	520A (98.4A)
8.32kV Secondary Switchgear	Continuous Amps	*600A
8.32kV Hydraulic Oil Circuit Reclosers Cooper Type 'L' with 280A Trips	Continuous Amps	280A

The size of the switches in the system, and their fuse sizes, where applicable, could not be confirmed. The ratings of most feeder level switches within this system were estimated as 100 or 200 Amps, based on the cable size they were connected to. Most aggregated backbone switches are solid-blade type and their ratings were estimated at 300 Amps, based on the cable size they were connected to. These conservative values will allow us to ensure that all normal and emergency situations which may be above that level are flagged properly. Typically, winter ratings of these switches are at least 25% higher than summer ratings due to the lower ambient temperature, and are rated that way within this study. It would be beneficial to confirm and add all switch and fuse ampacities to the system utility diagram at some point in the future.

2.1.2 Distribution System Loading

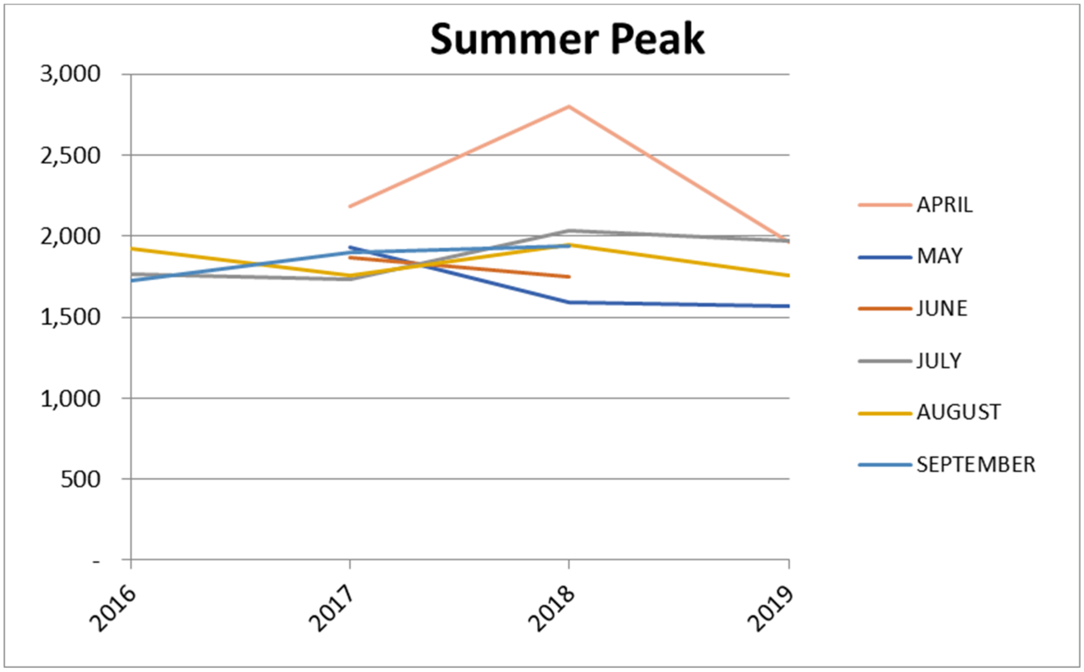
The study is based on current measurements taken within all the main feeders of the system in October 2019 during normal business hours, and the total measured was 1310kVA for Alfred. Typically, system peaks with heavy residential loads occur early morning and later afternoon/evening, and thus these readings are extrapolated for summer and winter peak monthly loading to evaluate worst case conditions. Using billing data from Hydro 2000 we can see the peak monthly demand loading in the following table:

Table 3 Alfred Monthly Peak Demand (kW)

	2016	2017	2018	2019	Max
JANUARY		3,196.52	3,443.56	3,345.06	3,443.56
FEBRUARY		2,940.86	3,023.24	3,050.56	3,050.56
MARCH		2,906.61	2,559.80	2,793.07	2,906.61
APRIL		2,187.68	2,803.93	1,961.86	2,803.93
MAY		1,928.69	1,592.16	1,569.02	1,928.69
JUNE		1,870.62	1,749.31		1,870.62
JULY	1,766.18	1,731.93	2,036.96	1,970.63	2,036.96
AUGUST	1,920.75	1,759.50	1,949.82	1,757.16	1,949.82
SEPTEMBER	1,725.67	1,899.36	1,941.55	1,503.01	1,941.55
OCTOBER	2,107.48	1,675.62	1,968.37		2,107.48
NOVEMBER	2,385.69	2,472.16	2,704.42		2,704.42
DECEMBER	3,142.63	3,281.57	2,789.81		3,281.57
WINTER PEAK	3,142.63	3,281.57	3,443.56	3,345.06	3,443.56
SUMMER PEAK	1,920.75	2,187.68	2,803.93	1,970.63	2,803.93

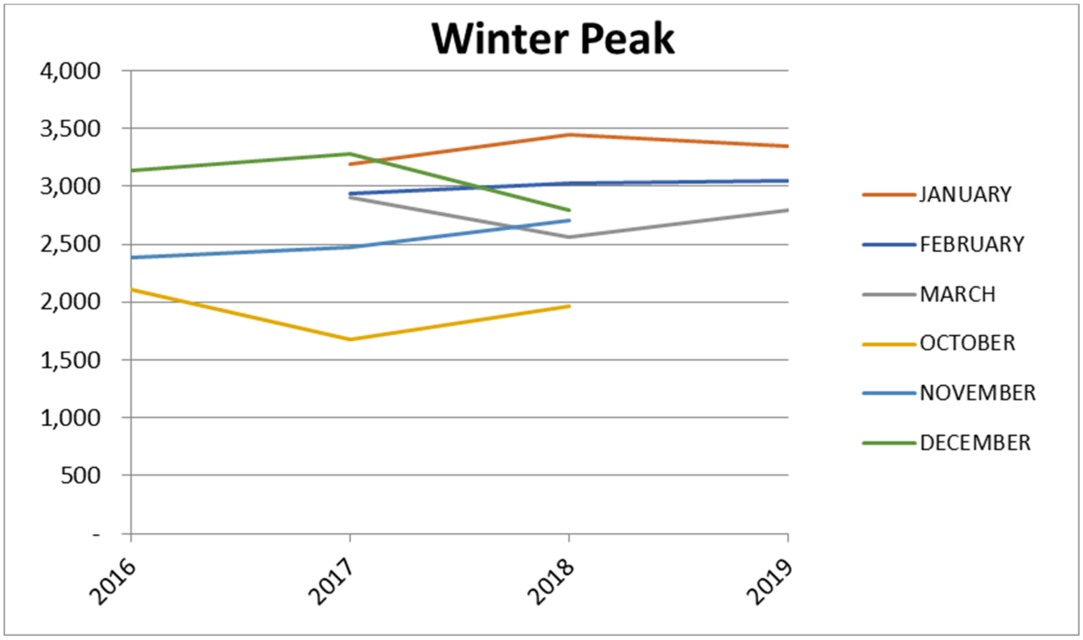
Using the maximums from this table gives a baseline value of 2,804kW for Summer Peak Demand and 3,444kW for Winter Peak Demand for 2018. The peaks are also graphed below to see the individual monthly loading trends over the years:

Figure 1 Alfred Summer Peak



As can be seen, the most recent summer loadings appear to be plateauing when compared to previous years with the exception of April 2018 which may have been a colder month when compared to other summer months. However, summer peaks have fallen since 2006 peaks, possibly due to energy saving programs and time-of-use billing.

Figure 2 Alfred Winter Peak



The above graph shows winter peaks, which are typically a function both of load growth and winter temperature, since improved energy efficiency and transitioning from baseboard heating to forced air helps offset system growth. Most new houses within urban or semi-urban town limits usually have natural gas heating, and thus do not represent a significant additional winter load, unlike older electrically heated houses.

2.1.3 System Loading Under Normal Operation

Load measurements were taken at strategic points along the distribution network for feeder 3, and the Hydro 2000 portion of feeder 2 in mid October 2019. Some of these measurements required minor adjustment in order to account for loading variations exhibited during the measurement period. Using the data provided, best efforts were made to obtain an accurate model of the Hydro 2000 system exhibiting typical loading levels to use as the nominal, base-case for analysis, as shown in the table below. Summer and winter peak loading values for each feeder were determined from an extrapolation of the base case to the metered peak recorded for each month from July 2016 through September 2019. The proportion of the total demand attributed to each phase in all models was the same as that observed for the spot measurements taken in 2019.

Table 4 Alfred System Loading Under Normal Conditions

Feeder	Phase	Measured Data		Summer		Winter	
		Amps-Measured	kW - Measured	Peak Amps Summer	Peak kW - Summer	Peak Amps Winter	Peak kW - Winter
Feeder 2	R	11	47.5	26.2	125.5	32.1	154.2
Hydro One	W	3	13.0	7.1	34.2	8.8	42.0
	B	22	95.0	52.3	251.1	64.2	308.3
	Total	-	155.5	-	369.7	-	454.1
Feeder 2	R	36	155.5	85.6	369.7	105.1	454.1
Hydro 2000	W	35	151.2	83.2	359.5	102.2	441.5
	B	24	103.7	57.1	246.5	70.1	302.7
	Total	-	410.4	-	975.7	-	1198.3
Feeder 3	R	53	229.0	126.0	544.4	154.8	668.5
	W	68	293.8	161.7	698.4	198.6	857.7
	B	57	246.2	135.5	526.9	166.4	719.0
	Total	-	769.0	-	1828.2	-	2245.3
Alfred kW Total			1179.36		2803.93		3443.56
Total			1334.9		3173.7		3897.7

Peak demand for the entire network was recorded at 3,443 kW (or 3,825 kVA), and 454 kW (or 504.4 kVA) was attributed to Hydro One customers based on the same ratio between peak winter load and measured load. Peak loading on feeder 2, including both Hydro One and Hydro 2000 customers, was 1,652 kVA. While the peak loading of the total network and the peak loading of feeder 2 did not necessarily occur at the same time, the peaks were assumed to be concurrent to simplify the calculations. The peak demand recorded for Hydro 2000 for feeders 2 and 3 in January 2018 was also assumed to coincide with this peak overall substation loading. All of these figures were used together to approximate the peak winter loading levels for the Hydro One portions of the distribution network, from which peak summer and nominal loading conditions were then derived.

As can be seen, the kVA peaks for all feeders are higher in winter, indicative of substantial electrical baseboard heating in older residential neighbourhoods. The total winter peak demand is shown in the table to be 3,897 kVA; it should be noted, however, that this figure is conservative in that it represents the case where the peaks on each feeder within the network, and the peaks in Hydro 2000 and Hydro One loading will be concurrent but, in reality, there will be some degree of diversity. During the winter months, the 7.5MVA transformer will be able to provide the peak demand for the next 10 years at a 2% annual growth.

The Hydro One rural section of feeder 2 was modeled so that the impact of this additional load on the main feeder 2 circuit conductors could be considered in our analysis. The Hydro One loads in the Alfred system on feeder 2 had to be estimated for the purposes of providing proper assessment of the loading on the 7.5MVA substation transformer, and a determination as to whether the transformer will be adequate to support future anticipated load growth. Thus, similar nominal, summer, and winter models were constructed for Hydro One's portion of the feeder 2 network, which is shared with Hydro 2000, as indicated in the table. Winter peak loading conditions for Hydro One's portion of feeder 2, extending north on County Rd. #15 were approximated using the following measurements recorded in October of 2019, during peak loading conditions.

2.1.4 FEEDER VOLTAGES UNDER NORMAL OPERATION

As per CAN3-C235-83 'Preferred Voltage Levels for AC Systems, 0 to 50 000V' all service entrance voltages should be no less than 91.7% of nominal (110V) and no higher than 104.2% of nominal (125V) during normal operating conditions. During extreme operating conditions the voltages may fall to 88.3% (106V) or rise to 105.8% (127V) of nominal. Feeders 2 and 3 were simulated under nominal, summer peak and winter peak loading conditions to identify any present voltage support issues within the network. The results are summarized below and the corresponding voltage profile maps can be seen on the relevant graphs under Appendix 2.

Feeder 2, when subjected to combined Hydro 2000 and Hydro One measured loading of 1,430 kVA, experienced a minimum feeder voltage of 98.6% of nominal. Under summer peak loading of 1,732 kVA and winter peak loading of 2,144 kVA, worst-case voltages were 98.3% and 97.9% of nominal, respectively. All feeder 2 voltages were within the acceptable range.

For feeder 3, with measured loading of 1,839 kVA, the minimum voltage was 96.9% of nominal. At summer peak loads of 2,243 kVA, the worst case feeder voltage was 96.2% of nominal. At peak winter loading of 2,783 kVA the worst case feeder voltage was 95.3%. For all cases, the worst-case voltages within the feeder 3 network were within the acceptable range.

2.1.5 SYSTEM LOSSES

With feeder 2's nominal system loading estimated at 1,059 kVA, (or 968 kW) of this base load is attributable to the Hydro 2000 portion of the network. Distribution losses incurred on the Hydro 2000 portion of the feeder total 4.5 kW, approximately 0.46% of the Hydro 2000 load. The Hydro 2000 component of the peak summer loading on feeder 2 is 1,627 kVA (or 1,181 kW) with 6.5 kW or 0.55% in losses. At peak winter loading of 1,587 kVA (or 1,449 kW), losses total 9.9 kW, or 0.68% of the feeder 2 Hydro 2000 component of the peak winter load.

For feeder 3, the dedicated Hydro 2000 feeder, under nominal loading of 1,839 kVA (or 1,675 kW), the losses were calculated to be 20.5 kW, 1.22% of the load. During summer peak loading of 2,243 kVA (or 2,041 kW), losses were 30.8 kW, 1.51% of the system load, and at peak winter loading of 2,783 kVA (or 2,527 kW), losses were 47.6 kW, or 1.88%.

There were some unbalanced currents as shown on the following table. For feeder 2, there are no changes that could be implemented in the distribution that would impact the system losses, the spot measurements indicate a very significant imbalance among the phases. Transferring load to balance the currents will reduce energy losses, as return currents travel through undersized neutrals and the overall inductance of the line is higher. Optimizing the balance between the phases of a distribution network typically improves the voltage support within the system as well. The system will be able to sustain heavier loading before one of the phases is burdened to the extent that its voltages begin to drop below 91.7% of nominal levels.

Table 5 Alfred Load Phase Balancing

Feeder	*Phase*	*Amps-Measured*	*Avg.*	*Unb. (%)*	*Preferred Rephasing*	*Final*	*Avg.*
Feeder 2	R	95			-15	80	
(Hydro 2000	W	75	73.6	30	-5	70	73.6
portion only)	B	51			20	71	
Feeder 3	R	111			16	127	
	W	147	127.7	15	-16	131	127.7
	B	125			0	125	

Possible options to rebalance the feeders include the following:

1. F2: Rotating phase on Pole P93 that supplies St Paul distribution. Red Phase loads (except for St Mary's single phase distribution) to White Phase, White Phase loads to Blue Phase, and Blue Phase loads to Red Phase
2. F3: Switch the Chatelain Street from white phase to Red Phase

If these changes are implemented, the system main feeders should be measured before the changes are implemented to re-verify the imbalance, and then the rebalancing changes should be done.

During peak winter loading, total Hydro 2000 losses for feeders 2 and 3 are expected to be reduced from 58.08 kW to 55.84 kW, resulting in only minor savings of 2.24 kW. Analyzing the proposed rebalanced system under typical loading conditions, the losses are 24.33 kW, as compared to the 25.35 kW losses observed in the nominal system. Losses associated with feeder 2 amounts to a saving of 0.4kW at a cost of $0.10 per kWh results in a total cost of $350 per year. The cost to transfer these loads will likely outweigh the energy savings due to the small reduction in losses. If the phase re-balancing is done in conjunction with other system changes, the reduction in system losses and the resultant cost savings should be more significant. The expansion of the distribution system to provide service to the new apartment complex on St. John Street may help to correct the phase imbalance on feeder 2 by placing the new apartment on red phase. Losses associated with feeder 3 amounts to a saving of 0.6kW at a cost of $0.10 per kWh results in a total cost of $525 per year.

2.1.6 FEEDER LOADING UNDER NORMAL CONDITIONS

To evaluate all the feeders under current nominal and current peak loading conditions, we evaluated each feeder by their limiting factor, which for both was the main 300A switches on the overhead line. For feeder 2, both the Hydro 2000 and the estimated Hydro One rural portion of the loading were considered in the evaluation. As can be seen, all the feeders and switches are sized acceptably for normal conditions.

Table 6 Alfred Phase Loading Under Normal Conditions

Feeder	Phase	Nominal			Summer			Winter		
		Feeder Limits	Amps	Pass/Fail	Feeder Limits	Amps	Pass/Fail	Feeder Limits	Amps	Pass/Fail
Feeder 2	R	300	36	12.00%	300	111.7	37.25%	375	137.2	36.60%
	W	300	35	11.67%	300	90.3	30.12%	375	111.0	29.59%
	B	300	24	8.00%	300	109.4	36.46%	375	134.3	35.82%
Feeder 3	R	300	53	17.67%	300	126.0	42.00%	375	154.8	41.27%
	W	300	68	22.67%	300	161.7	53.89%	375	198.6	52.95%
	B	300	57	19.00%	300	135.5	45.17%	375	166.4	44.38%

The ratings of the solid blade switches located just past the tie switch on County Rd. #17 for feeders 2 and 3 could not be determined with the documentation provided. The solid blade switches for the F2 feeder circuit are not expected to experience overloading, provided they are rated for 200 amps (summer duty), as they are only subjected to the Hydro 2000 component of the load, which is a maximum of 137 amps (on the red phase for peak winter conditions). It should be noted however, that if the switches for the F3 circuit are rated for 200A or less, they will be close to overdutied during winter peak loading conditions. However, using their winter duty factor of 1.25 of nominal due to the lower ambient temperature, there would be no overloading.

2.1.7 FEEDER CONFIGURATIONS UNDER EXISTING LOADING AND EMERGENCY CONDITIONS

The main scenario evaluated in this section is the loss of either feeder F2 or F3, assuming the tie switch will be usable. If either F2 or F3 is lost at some point between the tie switch and the substation, closing the tie switch will allow the entire load to be serviced from the remaining feeder. During such emergency operating conditions, voltage levels are permitted to drop as low as 88.3% of nominal. The distribution system, given the loss of either feeder, is evaluated under both peak summer and winter conditions to ensure that voltage levels are acceptable, and equipment is not severely stressed.

Under peak summer loading conditions, there are no voltage support issues and none of the main conductors from the substation to the tie switch, supporting the extra burden, are overloaded. The minimum voltage is 96.1% of nominal, which is well within the acceptable range, and the red phase conductor of the main 336 ACSR feeder section, which is the most heavily loaded, is carrying 43.2% of its rated (summer) current. However, the Tie Switch is being subjected to 282A which is close to the 300A rating of the switch, but it would only occur during emergency situation with peak summer loading.

Subjected to peak winter loading conditions, voltage support is still not a concern, as the worst-case voltage at 94.9% of nominal. Feeder voltages will reach this minimum in the area of Larocque street and St Phillippe street. The Tie switch would be carrying 317A which is more than the summer rating of 300A. However, using their winter duty factor of 1.25 of nominal due to the lower ambient temperature, there would be no overloading.

2.1.8 LOAD GROWTH

There are a number of methods by which a utility's load will grow over time; the typical ones are listed below, with the trending graphs following:

- New in-fill customers are added within the Utility boundary.
- Existing customers add load (pool pumps, new air conditioners, etc.).
- Expansion of the Utility boundaries.

As there are no known plans for expansion of the Utility boundary, the main changes in loading to be expected in the coming years will be as a result of the first two factors listed above. To predict the growth for the system, we first evaluate future known growth.

Construction of a new apartment complex on St John Street is underway in an area currently serviced by feeder 2. To estimate the additional loading that will result, we have estimated that the apartment will contain the equivalent to 12 houses. Assuming a nominal load of 5 kW per house at 0.9 power factor, this will result in 75 kW, or 83 kVA. For forecasting purposes, we have assumed the apartment will be added in 2020. This loading is added to the nominal, summer, and winter peak loading.

The second factor, or annual load growth, is typically assumed at around 2%. This is due to the natural addition of new electrical loads such as air conditioning systems, pools, electronic devices, and other energy consuming products. This is often balanced by a decline in loading for the majority of the winter months, probably due to increased energy efficiency and transitioning from baseboard heating to forced air. Therefore, our load growth estimates should be conservative.

In the forecast for feeder 2, both the Hydro 2000 and Hydro One components of the loading have been taken into consideration and assumed to grow at the same rate of 2% annually.

The forecasts for both feeders were combined so that the anticipated future loading levels of the 7.5 MVA Hydro One substation transformer could be assessed, as shown in the final table below. A 10% diversity factor was applied to account for non-concurrent peaks in the loading of the feeders. Levels indicative of heavy loading (in excess of 90% of the applicable transformer rating) are highlighted in orange, and cases where the loading is expected to exceed the capabilities of the transformer are shown in red.

Nominal and summer peak loading levels were compared against the nameplate rating (7.5MVA) of the Hydro One substation transformer. Although there is no fan rating on the nameplate of the existing transformer, only the 7.5MVA rating is shown, we evaluated winter peak loading assuming that the transformer can provide up to 10MVA of loading, 33% higher than its nominal rating. It is expected that the transformer will be able to provide some overloading during lower ambient temperatures provided by the winter months, but there is no guarantee that 10MVA can be supported. The documentation provided upon purchase of the transformer should provide some indication as to its overload capabilities; Hydro One should have the information necessary to evaluate the transformer's ability to provide for the anticipated loading and determine when/if it will require replacement.

Table 7 Alfred Feeder 2 Load Forecast (in kW)

kW Demand	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Nominal	*410*	*502*	*512*	*522*	*532*	*543*	*554*	*565*	*576*	*588*	*600*
Summer Peak	*976*	*1,078*	*1,100*	*1,122*	*1,144*	*1,167*	*1,190*	*1,214*	*1,238*	*1,263*	*1,288*
Winter Peak	*1,198*	*1,305*	*1,331*	*1,358*	*1,385*	*1,413*	*1,441*	*1,470*	*1,499*	*1,529*	*1,560*

Table 8 Alfred Feeder 3 Load Forecast (in kW)

kW Demand	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Nominal	*769*	*784*	*800*	*816*	*832*	*849*	*866*	*883*	*901*	*919*	*937*
Summer Peak	*1,828*	*1,865*	*1,902*	*1,940*	*1,979*	*2,019*	*2,059*	*2,100*	*2,142*	*2,185*	*2,229*
Winter Peak	*2,245*	*2,290*	*2,336*	*2,383*	*2,431*	*2,480*	*2,530*	*2,581*	*2,633*	*2,686*	*2,740*

Table 9 Feeder 21 (HYDRO ONE) – DEMAND FORECAST (in kW)

kW Demand	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Nominal	*156*	*159*	*162*	*165*	*168*	*171*	*174*	*177*	*181*	*185*	*189*
Summer Peak	*370*	*377*	*385*	*393*	*401*	*409*	*417*	*425*	*434*	*443*	*452*
Winter Peak	*454*	*463*	*472*	*481*	*491*	*501*	*511*	*521*	*531*	*542*	*553*

Table 10Total Substation Demand Forecast – Including 10% Diversity Factor (in kW)

kW Demand	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Nominal	*1,350*	*1,461*	*1,490*	*1,520*	*1,549*	*1,580*	*1,611*	*1,643*	*1,676*	*1,711*	*1,745*
Summer Peak	*3,211*	*3,358*	*3,426*	*3,494*	*3,564*	*3,636*	*3,708*	*3,782*	*3,857*	*3,935*	*4,014*
Winter Peak	*3,943*	*4,104*	*4,186*	*4,270*	*4,356*	*4,444*	*4,533*	*4,624*	*4,716*	*4,811*	*4,908*

The peak summer load total for all feeders in 2029 is estimated at 4,014 kW, 59% of the capability of the existing transformer. Total peak winter loading in 2019 is expected to be 4,908 kW, 72% of the rating of the transformer. This indicates that, given the accuracy of the forecast, the 7.5MVA transformer is expected to be adequate to support the future load growth until 2029 under normal conditions. However, the transformer will be loaded to 108% of its nominal rating during peak winter loading in 2029, but the transformer can sustain some overloading during low ambient conditions. The loading should be reviewed in the coming years to ensure that the capacity is acceptable, especially if further developments and/or significant changes to the distribution network are undertaken that have not been considered in this forecast.

The summer peak loading in 2029 was simulated and the worst-case system voltage for feeder 2 was 97.95%, well within the acceptable range; distribution losses are responsible for approximately 9.96 kW or 0.69% of system loading. Analyzing the feeder 2 network under the peak winter loading conditions expected in 2029, the worst-case voltage drop is 97.45% of nominal, which is acceptable, and the distribution losses total 15.1 kW, approximately 0.85% of the load. Note that only the Hydro 2000 portion of the load and the distribution losses are considered in the figures provided. Hydro One's loading and losses are only considered to evaluate the loading on the main circuit conductors running along Peat Moss Rd. and to evaluate the loading on the substation transformer. Voltage support and overloading are not expected to be issues of concern in the feeder 2 network under normal (peak summer and winter) loading conditions expected through the year 2029.

The worst-case voltage within the feeder 3 circuit under the peak summer loading conditions projected for 2029 was within the acceptable range at 95.39% of nominal, which is acceptable, and the distribution losses total 46.7 kW, approximately 1.87% of the load. Under peak winter loading conditions expected in 2029, the worst-case voltage drop is 94.26% of nominal, which is acceptable, and the distribution losses total 71.4 kW, approximately 2.36% of the load.

In order to determine whether or not the main circuit conductors for both feeders in the distribution system will be able to handle peak summer and winter loading, the additional load expected must be allocated to each phase. These conductor ampacities are evaluated against expected loads from 2019 through 2029 based on the assumption that the feeders will be perfectly balanced. This represents the best-case scenario. Cases in which the conductor is carrying more than 90% rated current are flagged in orange.

Table 11 Alfred Phase Demand Forecast (in kW)

Feeder	*Season*	*Rated Amps*	*Year & Amps Per Phase (Balanced System)*										
			2019	*2020*	*2021*	*2022*	*2023*	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*
F2	Win	419	114.6	123.3	127	130.8	134.8	138.8	142.9	147.3	151.7	156.3	161
	Sum	370	93.3	101.3	104.4	107.5	110.7	114	117.4	121	124.6	128.3	132.1
	Winter (kW)		1652	1777	1830	1885	1942	2000	2060	2122	2186	2252	2320
	Summer (kW)		1345	1460	1504	1549	1595	1643	1692	1743	1795	1849	1904
F3	Win	419	155.8	160.4	165.2	170.2	175.3	180.6	186	191.5	197.3	203.2	209.3
	Sum	370	126.9	130.7	134.6	138.6	142.7	147	151.5	156	160.6	165.4	170.4
	Winter (kW)		2245	2312	2381	2452	2526	2602	2680	2760	2843	2928	3016
	Summer (kW)		1828	1883	1939	1997	2057	2119	2183	2248	2315	2384	2456

As can be seen, the 3/0 ACSR conductor section of the main line is not expected to experience overloading, or even loading in excess of 90%, during either winter and summer peak conditions through 2029. The heaviest loading is expected on the main feeder 3 circuit conductors running along Peat Moss Rd. and Telegraph St. which are expected to be loaded at 49.95% of rated (winter) ampacity. As indicated in the table, the main 3/0 ACSR conductors are expected to carry 209.3 amps on each phase. While this level of loading is not of concern, it assumes a perfectly balanced distribution of loading between the phases. Any significant imbalance between the phases may cause the most heavily loaded phase conductor to experience overloading at times. As loads are added to the network as a result of the new developments, the loading on each of the phases of the feeder should be measured frequently to ensure they are reasonably balanced, and loads should be transferred as necessary.

2.1.9 SYSTEM LOADING UNDER EMERGENCY CONDITIONS

The scenario evaluated in this section is the same as the emergency loading situation stated earlier in the study, except for, this time, one feeder is subjected to projected peak summer and winter loading in 2029. In the event of a loss of either F2 or F3 between the substation and the tie switch, the tie switch shall be closed and the entire Alfred load serviced by one feeder. Under peak summer loading conditions in 2029, the worst-case system voltage is 94.9% of nominal, which is within the acceptable range. Subjected to peak winter loading, the worst-case voltage is 93.72%, which is also within the acceptable range. Thus, voltage support under emergency situations is not expected to be an issue in the future.

As indicated by the loading results figures included in Appendix 3, the tie switch conductors are expected to be overloaded if a feeder is lost in 2029 under peak summer or winter loading conditions. The figures show that loading is in excess of 105% of the conductors' rated ampacity in some cases. These figures represent the worst-case scenario, however, being that the seasonal peaks on both feeders are concurrent, which is extremely unlikely. In the table below, the conductors are evaluated under peak winter and summer loading with a 10% diversity factor applied to account for different peak loading times for each feeder. Cases in which the conductors are expected to be heavily loaded, at more than 90% of their applicable rating, are coloured in orange. Scenarios in which the conductors are expected to be overloaded are shown in red.

Table 12 Alfred Loading Under Emergency Conditions

Feeder	Season	Rated Amps	Year & Amps Per Phase										
			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
F2 or F3	Win	419	270.5	281.1	286.7	292.5	298.3	304.3	310.4	316.6	322.9	329.3	335.9
	Sum	370	220.2	229.8	234.4	239.1	243.9	248.8	253.8	258.8	264	269.3	274.7
	Winter (kW)		3,898	4051	4132	4215	4299	4385	4473	4562	4653	4746	4841
	Summer (kW)		3,174	3312	3378	3446	3515	3585	3657	3730	3805	3881	3959

As can be seen from the table, the ability for either feeder to support the entire load given an emergency situation is well within its capabilities. The main concern for the support of the distribution during an emergency condition is the capacity of the tie breaker. The switching rating should be verified and compared to the forecasted ampacity requirements or replace the tie breaker with a higher ampacity switch that is capable of supporting the entire system during a peak loading emergency condition for the next 10 years.

2.1.10 SUBSTATION REDUNDANCY

The issue of redundancy is problematic for the Alfred distribution system, although it is not the responsibility of Hydro 2000. Currently, the entire village is serviced by a single transformer, the failure of the transformer will result in a complete outage until Hydro One can repair or replace their transformer. Typically, Hydro One will either repair the fault on site, or install a mobile transformer as soon as possible. Hydro One will probably not install a larger or redundant transformer till required by load growth.

The possibility exists for Hydro 2000 to build their own substation, which may result in savings as per the Hydro One DS charges, totalling $83,225 in 2012. Typically, a 7.5MVA substation could be build for about $2,000,000, resulting in a poor payback of about 24 years. There may be additional complication through Hydro One additional charges, stranded costs, and other difficulties negotiating this arrangement. Metering would also be an additional cost as they may require Hydro 2000 to implement primary metering at the 44,000V level, which can add a further $100,000 for the metering instruments, isolation switches, support poles, etc.. These estimates do not include life cycle and maintenance costs.

The feeders for Alfred are currently already redundant through the tie switch in the event of a failure of one of the feeders, as discussed in the previous section.

2.2 PLANTAGENET ELECTRICAL DISTRIBUTION SYSTEM

2.2.1 System Equipment Ratings

The main equipment within the HONI Plantagenet substation is listed below, along with the ratings that are used to evaluate these components for various loading scenarios. Ratings and information that could not be verified were estimated for the purposes of the study and are marked in table with an asterisk (*). It should be noted that the evaluation of loading and capacity at the substation is the responsibility of HONI.

Table 13 Plantagenet Equipment Rating

System Component	***Rating***	***Ampacity @ 8.32kV***
44kV Primary Switch	Continuous Amps	3173A (600A)
44kV Primary Fuses S&C Electric SMD-1A, 125E Standard Speed, TCC 153-1	Continuous Amps Daily 8 hour peak Emergency 8 hour peak	761.5A (144A) 772.1A (146A) 835.6A (158A)
44,000/8,320V Transformer Delta/Wye (Grnd.), 5 MVA (ONAN) *Z = 5.5%	Continuous Amps	347A (65.6A)
8.32kV Secondary Switchgear	Continuous Amps	*600A
8.32kV Hydraulic Oil Circuit Reclosers Cooper Type 'L'	Continuous Amps	200A

The impedance is not marked on the nameplate of the 5 MVA substation transformer, nor could the manufacturer provide it. Based on the size and type of the transformer, a typical impedance value was estimated at 5.5%; this value was used for the purposes of this study.

The size of the switches in the system, and their fuse sizes, where applicable, could not be confirmed. The ratings of most feeder level switches within this system were estimated as 100 or 200 Amps, based on the cable size they were connected to. Most aggregated backbone switches are solid-blade type and their ratings were estimated at 300 Amps, based on the cable size they were connected to. These conservative values will allow us to ensure that all normal and emergency situations which may be above that level are flagged properly. Typically, winter ratings of these switches are at least 25% higher than summer ratings due to the lower ambient temperature, and are rated that way within this study. It would be beneficial to confirm and add all switch and fuse ampacities to the system utility diagram at some point in the future.

2.2.2 Distribution System Loading

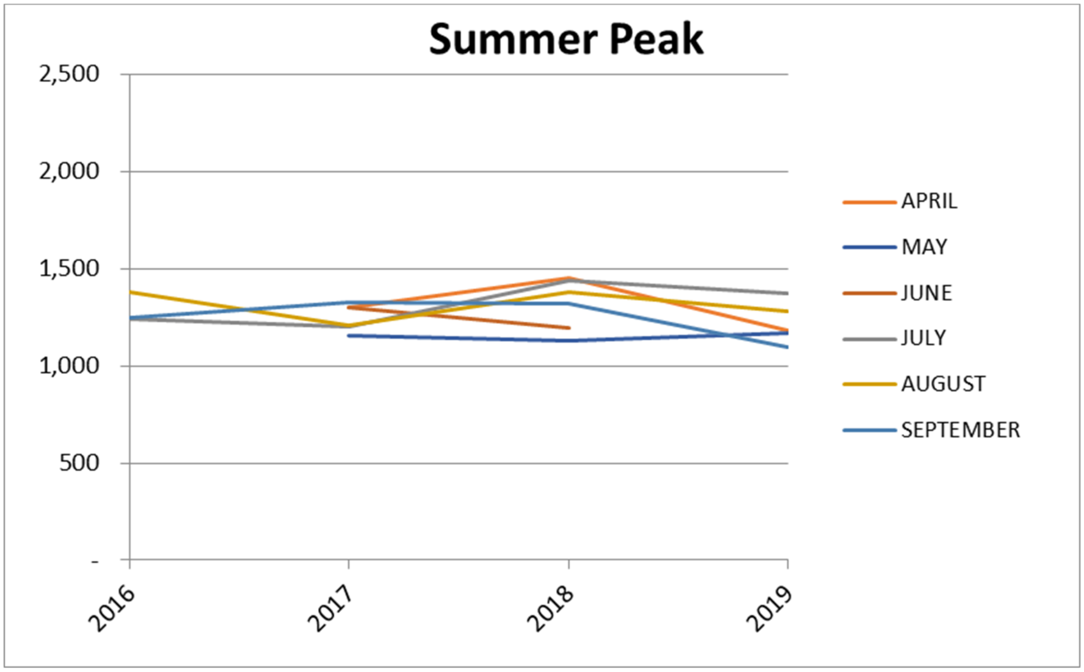
The study is based on current measurements taken within all the main feeders of the system in October 2019 during normal business hours, and the total measured was 144A or 692kVA for Plantagenet. Typically, system peaks with heavy residential loads occur early morning and later afternoon/evening, and thus these readings are extrapolated for summer and winter peak monthly loading to evaluate worst case conditions. Using billing data from Hydro 2000 we can see the peak monthly demand loading in the following graph:

Table 14 Plantagenet Monthly Peak Demand

	2016	2017	2018	2019
JANUARY		1,769.53	2,025.18	1,922.59
FEBRUARY		1,634.18	1,660.92	1,743.80
MARCH		1,644.21	1,437.01	1,606.11
APRIL		1,301.67	1,453.72	1,179.02
MAY		1,157.96	1,129.56	1,170.00
JUNE		1,299.99	1,194.39	
JULY	1,239.84	1,199.74	1,437.01	1,373.18
AUGUST	1,381.87	1,209.76	1,376.19	1,280.95
SEPTEMBER	1,248.20	1,328.40	1,320.38	1,094.13
OCTOBER	1,218.12	1,032.64	1,210.77	-
NOVEMBER	1,370.17	1,428.66	1,552.98	-
DECEMBER	1,817.99	1,903.21	1,597.09	-
WINTER PEAK	1,817.99	1,903.21	2,025.18	1,922.59
SUMMER PEAK	1,381.87	1,328.40	1,453.72	1,373.18

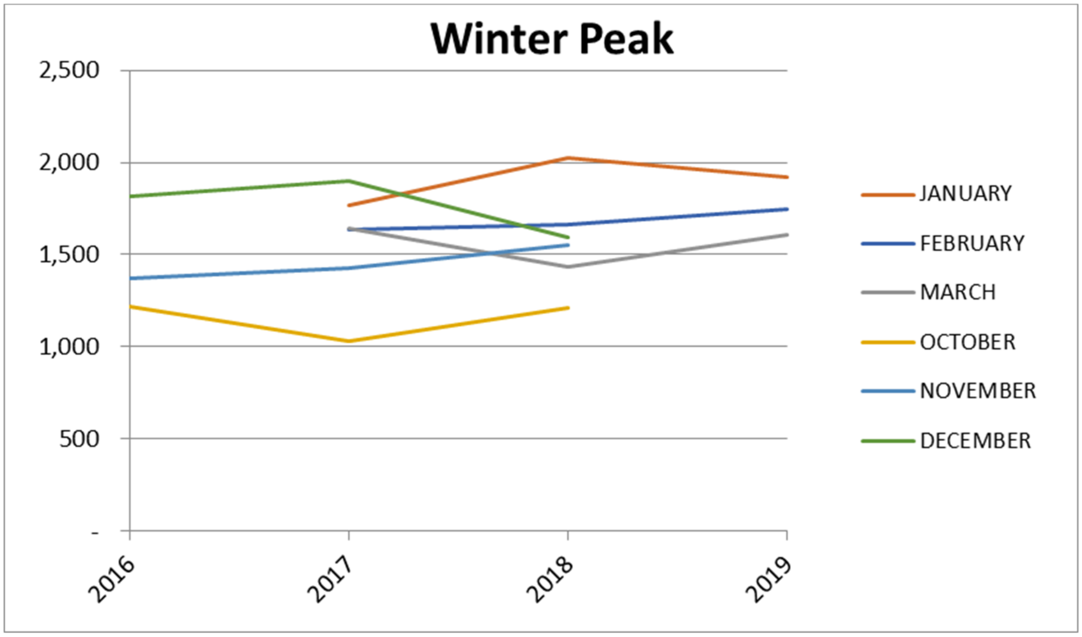
Using the maximums from this table gives a baseline value of 1,454kW for Summer Peak Demand and 2,025kW for Winter Peak Demand for 2018. The peaks are also graphed below to see the individual monthly loading trends over the years:

Figure 3 Plantagenet Summer Peak



As can be seen, the most recent summer loadings appear to be plateauing when compared to previous years. However, summer peaks have fallen since 2006 peaks, possibly due to energy saving programs and peak billing.

Figure 4 Plantagenet Winter Peak



The above graph shows winter peaks, which are typically a function both of load growth and winter temperature, since improved energy efficiency and transitioning from baseboard heating to forced air helps offset system growth. Most new houses usually have natural gas heating, and thus do not represent a significant additional winter load, unlike older electrically heated houses.

2.2.3 System Loading Under Normal Operation

The loading of the Hydro 2000 Plantagenet feeder was measured in mid October 2019, on the same week as the Alfred feeder measurements were taken. Current measurements on each phase were used to determine the total power demand in the system to be 692 kVA. Using current measurements made at strategic points, this total load was allocated to the various distribution transformers as determined from the drawing of the Plantagenet distribution system and the base model for our study was constructed.

The proportion of the total power attributed to each phase in the base case, and the Hydro 2000 demand figures, in kilowatts, recorded from October 2019 were used to construct a model to simulate the circuit under peak summer and peak winter loading conditions. The peak summer and winter demands are estimated as 1,454 kW and 2,025 kW, respectively, based on a power factor of 90%. The loading levels for the base, peak summer, and peak winter cases are summarized in the table below.

Table 15 Plantagenet Loading Under Normal Conditions

Feeder	Phase	Amps-Measured	kW - Measured	Adj. Peak Amps Summer	Adj. Peak kW - Summer	Adj. Peak Amps Winter	Adj. Peak kW - Winter
	R	49.5	213.8	115.5	499.0	160.9	695.2
Plnt Fdr	W	48.6	210.0	113.4	490.0	158.0	682.6
	B	46.1	199.2	107.6	464.7	149.9	647.4
		kW Total:	622.9		1453.7		2025.2

As can be seen, the kW peaks are significantly higher in winter, as expected, and as was the case with the Alfred system. All loading levels are within the capability of the existing station 44/8.32kV 5MVA transformer, but the transformer supports a Hydro One feeder as well.

As there is no data available for the Hydro One Plantagenet feeder, for the purposes of this study, it is estimated that the loading exhibited on that feeder will be similar to that observed for the Hydro 2000 feeder. If the nominal loading on the Hydro One feeder is 1,000 kW, the peak summer loading is 2,113 kW, and the winter peak loading is 2,943 kW, the transformer loading is estimated at 3,363 kW under nominal conditions, 3,567 kW under summer peak loading conditions, and 4,869 kW under winter peak loading conditions (assuming the peaks of each feeder occur at the same time). If these estimates are accurate, the 5MVA substation transformer will be loaded at 110% of its nameplate rating during peak winter loading conditions. However, it is not expected that the Hydro One and Hydro 2000 will reach peak loading levels at the same time, and the transformer should be able to provide for some overloading when the ambient temperature is lower in the winter months. Thus, the nominal and summer peak loading conditions expected are within the capabilities of the transformer. Therefore, the transformer currently servicing Plantagenet should be adequately sized to handle the present normal loading conditions.

2.2.4 Feeder Voltages Under Normal Operation

As per CAN3-C235-83 ‘Preferred Voltage Levels for AC Systems, 0 to 50 000V’ all service entrance voltages should be no less than 91.7% of nominal (110V) and no higher than 104.2% of nominal (125V) during normal operating conditions. During extreme operating conditions the voltages may fall to 88.3% (106V) or rise to 105.8% (127V) of nominal.

Running at the nominal base load of 1,394 kW, the worst-case feeder voltage is within 96.82% of nominal, which is acceptable, and at summer peak loads of 1,512 kW, the worst-case feeder voltage is 96.51% of nominal, which is also acceptable. Subjected to winter peak loading of 2,076 kW, the worst-case feeder voltage 95.24% of nominal, which is also within acceptable range. The voltage profile maps can be seen on the relevant graphs under Appendix 2.

2.2.5 System Losses

With the existing nominal system loading of 1,558 kVA (losses inclusive), distribution losses total 21.9 kW and, approximately 1.57% of system loading. At peak summer loading of 1,685 kVA, losses total 25.8 kW, approximately 1.71% of system loading. At peak winter loading of 2, 328 kVA (losses inclusive), losses total 49.2 kW, or 2.37% of system loading.

The spot measurements show that the blue phase is a marginally more loaded than the red and white phases. There are no real benefits to transferring loads between the phases as the system appears to be balanced. Refer to the table below.

Table 16 Plantagenet Load Phase Balancing

Feeder	*Phase*	*Amps-Nominal*	*Avg.*	*Unb. (%)*	*Preferred Rephasing*	*Final*	*Avg.*
	R	54.37			0	54.37	
Plnt Feeder	W	55.65	53.3	6.24	0	55.65	6.24
	B	50.02			0	50.02	

2.2.6 Feeder Loading Under Normal Conditions

The loading of the main 3/0 ASCR run in the Plantagenet feeder circuit is summarized in the table below under nominal, peak summer, and peak winter loading conditions.

Table 17 Plantagenet Phase Loading Under Normal Conditions

Feeder	*Phase*	*Nominal*			*Summer*			*Winter*		
		Feeder Limits	*Amps*	*Pass/Fail*	*Feeder Limits*	*Amps*	*Pass/Fail*	*Feeder Limits*	*Amps*	*Pass/Fail*
	R	419	49.5	11.81%	370	115.5	31.22%	419	160.9	38.41%
Plnt. Fdr	W	419	48.6	11.60%	370	113.4	30.65%	419	158.0	37.71%
	B	419	46.1	11.00%	370	107.6	29.08%	419	149.9	35.77%

The conductors do not experience heavy loading under any of the simulated loading conditions.

2.2.7 Feeder Configurations Under Existing Loading and Emergency Conditions

There is no agreement currently in place between Hydro One and Hydro 2000 to provide emergency service for each other in the event that there is a failure with one of the feeders. Such an agreement would be advisable, provided that each network has sufficient capacity to support the entire Plantagenet load, as it would provide for some redundancy in the system. In order to determine whether or not either feeder is equipped to service the entire load, we constructed a model of the Hydro One feeder and connected it to our existing model of the Hydro 2000 feeder. To simulate the situation in which either the feeder out of service and the entire load must be supported by the remaining feeder, the following assumptions were made:

1. We estimated nominal loading at 1000 kVA (similar to the main Plantagenet feeder), completely balanced, and distributed evenly across the major lines throughout the feeder circuit.

2. A switch connecting the Hydro One and Hydro 2000 feeder circuits has been placed along Old Highway 17, near its intersection with County Rd. 9 so the switch may be closed, and the two networks connected under emergency conditions.
3. The routing of the Hydro One feeder is not shown completely on the electrical distribution drawing of Plantagenet, so the routing of the feeder was approximated as necessary.
4. The conductors for the main run of the Hydro One feeder circuit were assumed to be 3/0 ACSR.

Simulations were performed during which the entire Plantagenet load was serviced by the Hydro One circuit under summer and winter peak loading conditions. Under emergency loading conditions, system voltages as low as 82.5% of nominal which well below the acceptable emergency condition voltage.

Subjected to peak summer loading, the lowest system voltage was 88.7% of nominal, which is just within the acceptable range for emergency conditions. The most heavily loaded circuit conductors in the network are loaded to less than 57% of their rated ampacity at 30 degrees Celsius, provided our assumption that the main runs are 3/0 ACSR is correct. Therefore, given the validity of the assumptions made in constructing our model, the Hydro One feeder should be capable of supporting the Hydro 2000 circuit load under peak summer conditions (and vice versa) with no loading concerns or voltage support issues, provided that any switches or reclosers in the main portion of either feeder circuit are rated for 300 amps (at 30 degrees Celsius).

Simulating under peak winter loading conditions, however, there were major issues with regards to voltage support. For the entire distribution in Plantagenet would have a system voltage between 82.7% and 85.5% of nominal, far below the minimum acceptable voltage level. The main conductors of the Hydro One feeder circuit leaving the substation (if they are 3/0 ACSR) are close to being overloaded as the maximum loading would be 85.6% of their rated ampacity. The 5MVA substation transformer will also be loaded to 97.7% of its nominal capacity, but since lower ambient temperatures are expected during this situation, the loading on transformer and overhead lines are not a concern.

It is likely that the Hydro One and Hydro 2000 feeders could provide emergency service for one another in the event of a loss of either feeder under peak summer loading conditions. However, during peak winter conditions the voltage drop is too substantial for the Hydro One and Hydro 2000 distributions to support each other.

2.2.8 Load Growth

There are no known plans for development in the Plantagenet area that will significantly affect the electricity demand in the coming years. That being said, there will be some changes in the loading levels in the future, mainly due to loading increases by existing customers and some infill. In order to predict how the loading levels will change in the next 10 years, we extrapolated using 2% load growth. As described for the Alfred section, this will probably be a conservative extrapolation unless significant changes occur within the distribution. The loading forecast is presented in the table below, with figures in kilowatts, and forecast figures shown in italics.

Table 18 Plantagenet Loading Load Forecast

kW Demand	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Nominal	1,371	1,398	1,426	1,455	1,484	1,514	1,544	1,575	1,607	1,639	1,672
Summer Peak	1,454	1,483	1,513	1,543	1,574	1,605	1,637	1,670	1,703	1,737	1,772
Winter Peak	2,025	2,066	2,107	2,149	2,192	2,236	2,281	2,327	2,374	2,421	2,469

Under projected future peak summer loading conditions for 2029, the lowest system voltage was 95.7% of nominal, which is within the acceptable range. The most heavily loaded conductors in the circuit are the main 3/0 ACSR lines from the substation, the most heavily loaded at 41% of rated ampacity (at an ambient temperature of 30 degrees Celsius). The 5MVA transformer is loaded within its capabilities, at approximately 75%. The circuit reclosers should permit the projected peak summer loading as the maximum current expected is 143 amps.

The results for the anticipated 2029 peak winter loading conditions were very similar to the summer case. Minimum system voltage was 94.1%, within the acceptable range. The white phase conductor in the main 3/0 ACSR portion of the feeder is the most heavily loaded in the system, at 49% of its rated (winter) ampacity, and the transformer is loaded at approximately 57% but this does not include the Hydro One portion of the load. There are no limiting factors in the distribution equipment that would prevent the future load growth for the distribution.

The table below shows the estimated currents expected in the coming years during peak summer and winter loading, assuming perfect balance between the phases. These values are compared against the 250A trip rating of the single-phase circuit reclosers, which have been determined to be the limiting factor in supporting future load growth. Currents within 90% of the recloser trip rating are shown in orange in the table, and cases where the current exceeds the trip rating are shown in red. As indicated, the circuit reclosers are adequate to supply the demand load of the system for the foreseeable future. Note that this prediction assumes that the phases are balanced as suggested earlier in the report.

Table 19 Plantagenet Phase Demand Forecast (in kW)

Feeder	*Season*	*Rated Amps*	*Year & Amps Per Recloser (Balanced System)*										
			2019	*2020*	*2021*	*2022*	*2023*	*2024*	*2025*	*2026*	*2027*	*2028*	*2029*
Hydro 2000 - Plantagenet	Win	419	140.5	143.4	146.2	149.1	152.1	155.2	158.3	161.5	164.7	168	171.3
	Sum	370	100.9	102.9	105	107.1	109.2	111.4	113.6	115.9	118.2	120.5	123
	Winter (kW)		2025	2066	2107	2149	2192	2236	2281	2327	2374	2421	2469
	Summer (kW)		1454	1483	1513	1543	1574	1605	1637	1670	1703	1737	1772

2.2.9 System Loading Under Emergency Conditions

Failure of the Hydro 2000 Plantagenet feeder was simulated under peak summer and winter loading conditions projected for the year 2029. In the simulations, we assumed that provisions would be made for the Hydro One feeder to service the Hydro 2000 loads on a temporary basis. The same assumptions were made here as were in our analysis done for present loading conditions. If the assumptions are valid, we found that the Hydro One circuit would have difficulty supporting the Plantagenet loading anticipated in the future under peak summer and winter loading conditions.

Subjected to peak summer loading conditions, the Hydro One main conductors, presumed to be 3/0 ACSR would be loaded to 71.5% of rated ampacity (at 30 degrees Celsius.) Minimum system voltage was 85.7%, which is outside the acceptable emergency range, and could not be corrected through 2.5% tap boost on the 5MVA transformer. If the main circuit conductors for the Hydro One network are, in fact, larger than 3/0, both of these situations (the loading and voltage support) would be improved but may not be sufficient to correct the voltage levels. However, the combined loading of the two circuits (3644kVA) does not exceeds the capacity of the 5MVA transformer (assuming the Hydro One circuit is loaded and grows to the same extent as the Plantagenet feeder).

Under 2029 projected peak winter loading conditions, system voltages were below the acceptable range for all of the Plantagenet area, even with a 2.5% voltage tap applied. The system voltage is expected to be as low as 79% on the red phase. The overloading of the main circuit conductors is minor in the winter case, at 101%. The 5MVA transformer is overloaded, in this case, by about 22%. (Again, this analysis assumes that the Hydro One circuit is loaded and grows to the same extent as the Plantagenet feeder).

Provided the assumptions made in constructing the model of the Hydro One circuit are valid, the conductors and the main substation transformer are not able to support the future loads of both Hydro One and Plantagenet during an emergency situation.

3.0 RECOMMENDATIONS

3.1.1 Recommended Upgrades

1. Update both the Alfred and Plantagenet system single lines to add further system information, including verifying the ratings of all switches, the size of all conductors, and other details. (Budget $15,000)

2. Rebalance Alfred feeders F2 and F3, and Plantagenet feeder F1 to minimize losses, possible options to rebalance include the following:

   Alfred

   1. F3: Switch the Chatelain Street to Red Phase

   Plantagenet

   1. There are no rebalancing recommendations at this time

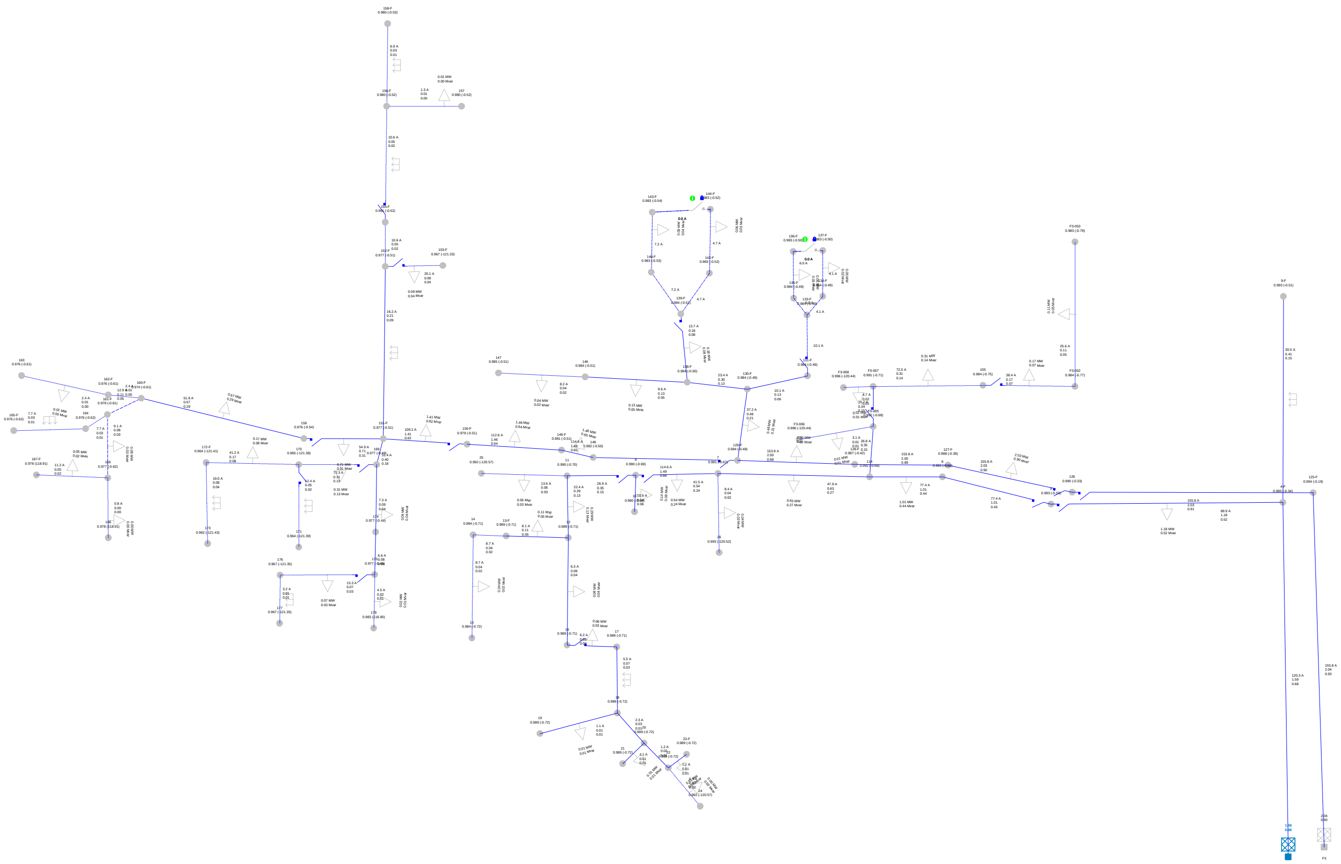
   The system main feeders should be measured before rebalancing to verify the unbalance, then the re-phasing should be done. Note changes to rebalance feeder are not recommended if the present imbalance can be corrected in the near future through optimal distribution of additional loading required for new subdivisions. (Budget $2,000)

3.1.2 Possible Future Upgrades

3. If the level of metering data provided by Hydro One is sufficient at this time, there would be no further requirement for additional metering. However, if dedicated Hydro 2000 metering is required for any reason (ie metering and other power quality information), it is possible to provide modern digital metering for all three feeders (Alfred F2 and F3, Plantagenet F1) at a point accessible to Hydro 2000. This metering should provide all basic electrical parameters (voltage, current, PF, power, energy, and demand), plus power quality parameters (sags and swells, harmonics, transients, flicker), data and waveform logs (triggering, min/max, trending, timestamps), communications, set points, and alarming. (Budget $25,000 if existing metering current transformers and potential transformers can be used by Hydro 2000, probably another $50,000 per phase installation if additional metering transformer units are needed).

Appendix A - ALFRED

Alfred: Present 2019 - Summer Peak Loading Conditions - Loading



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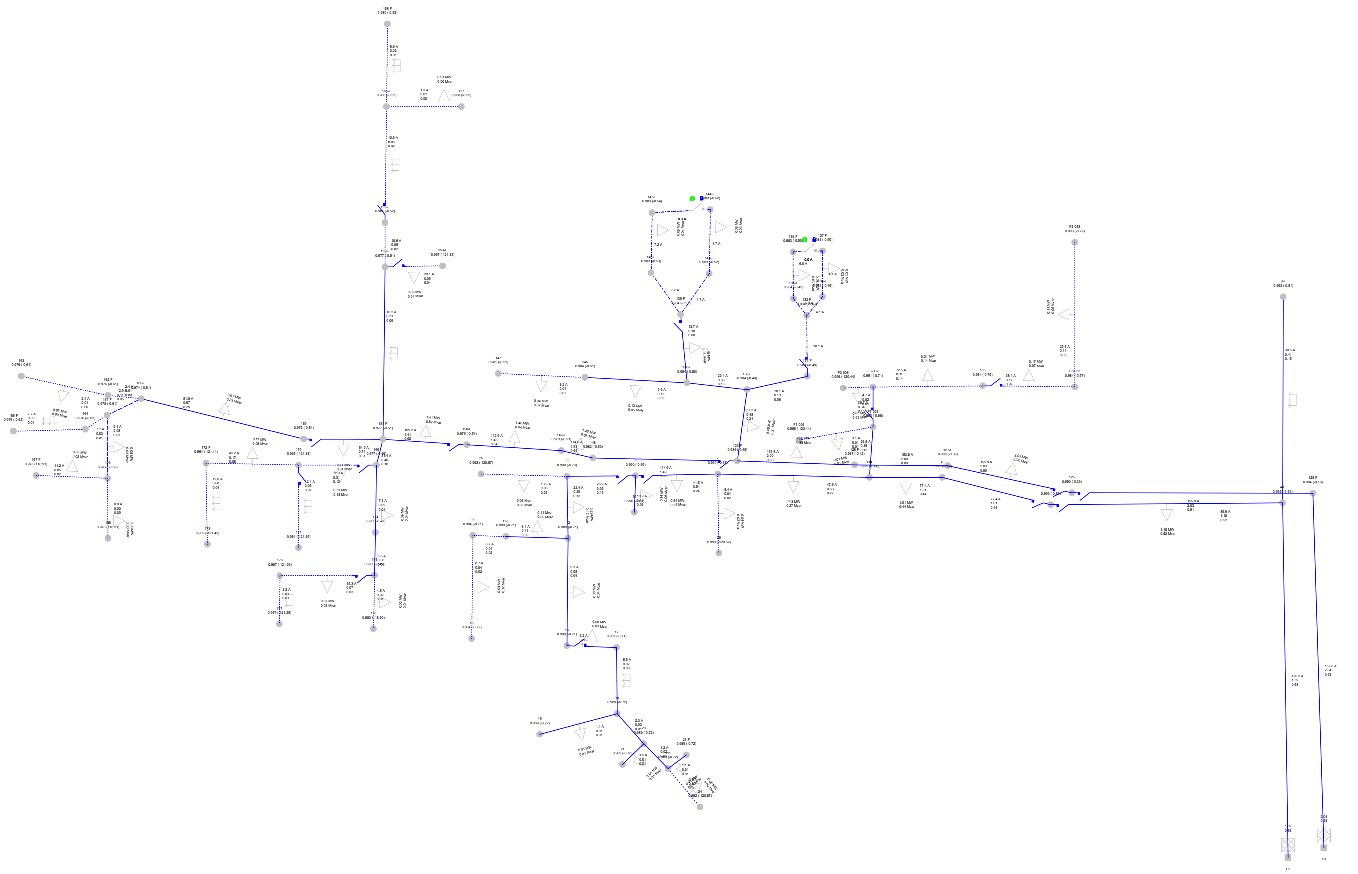
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

Alfred: Present 2019 - Summer Peak Loading Conditions - Voltage



Legend

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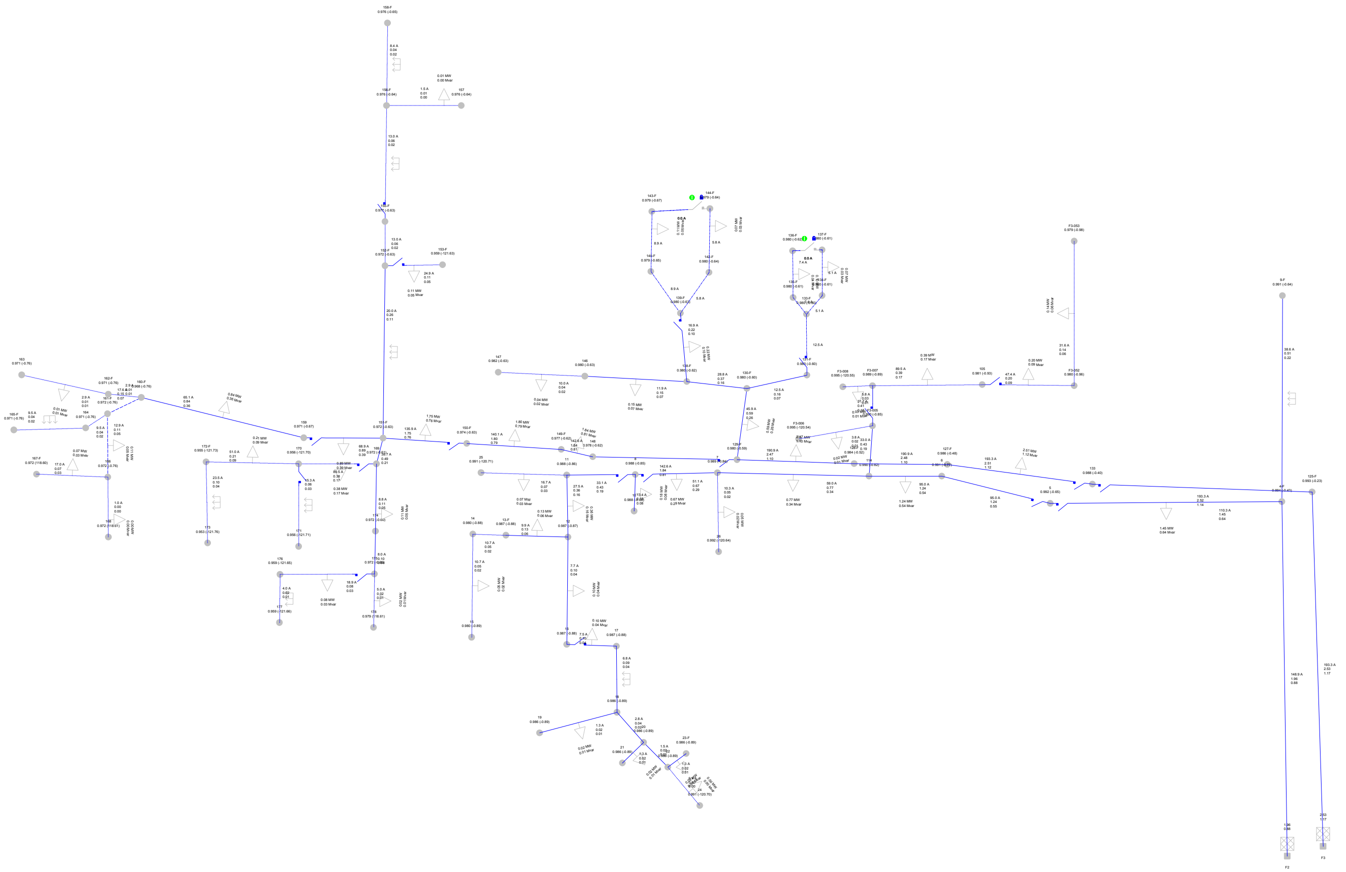
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

Alfred: Present 2019 - Winter Peak Loading Conditions - Loading



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- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

Line Types :
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- Overhead phase C
- Overhead phase AB
- Overhead phase AC
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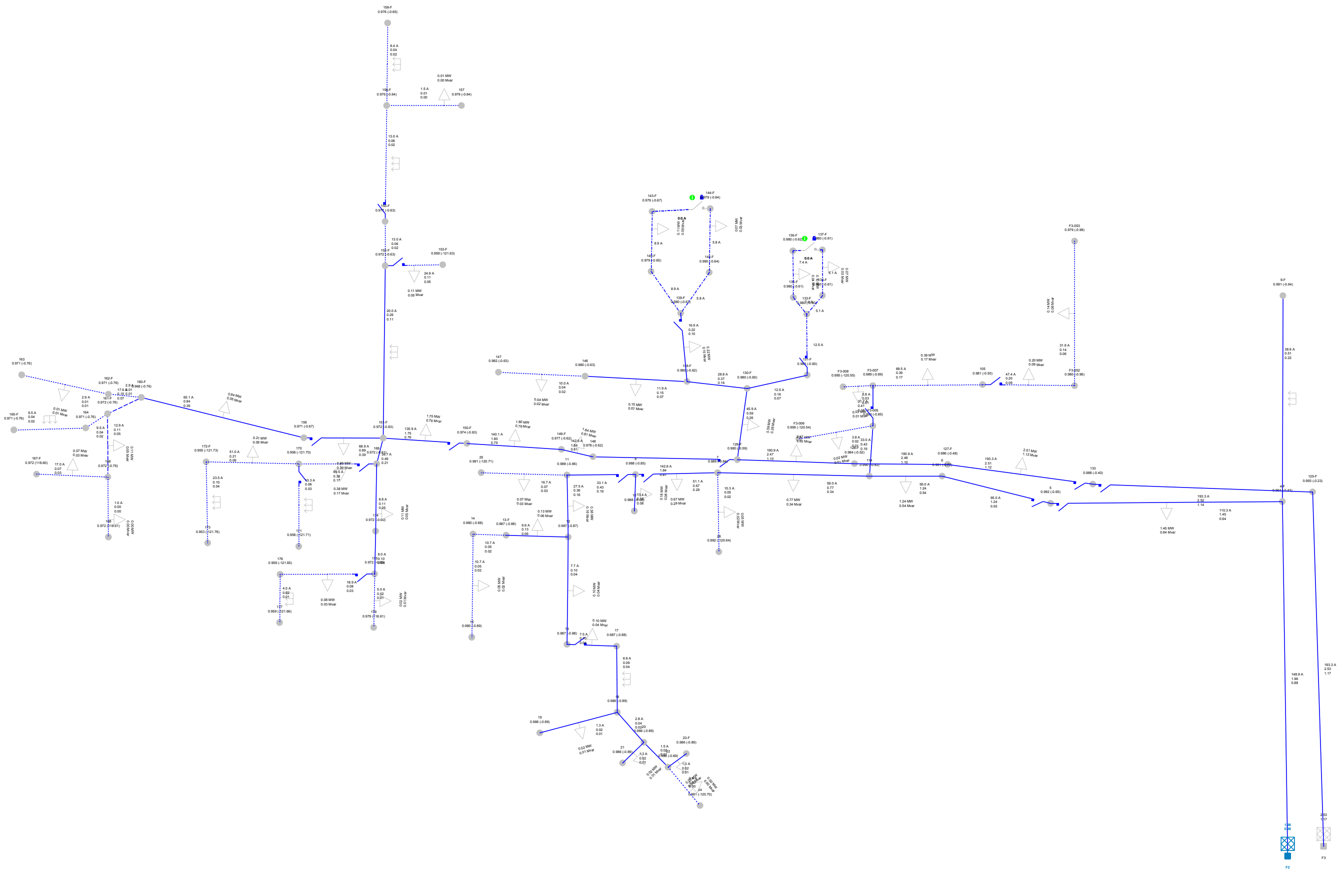
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

Alfred: Present 2019 - Winter Peak Loading Conditions - Voltage



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Voltage level color(%)

Colors :
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- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
- Overhead phase A
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- Overhead phase C
- Overhead phase AB
- Overhead phase AC
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- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
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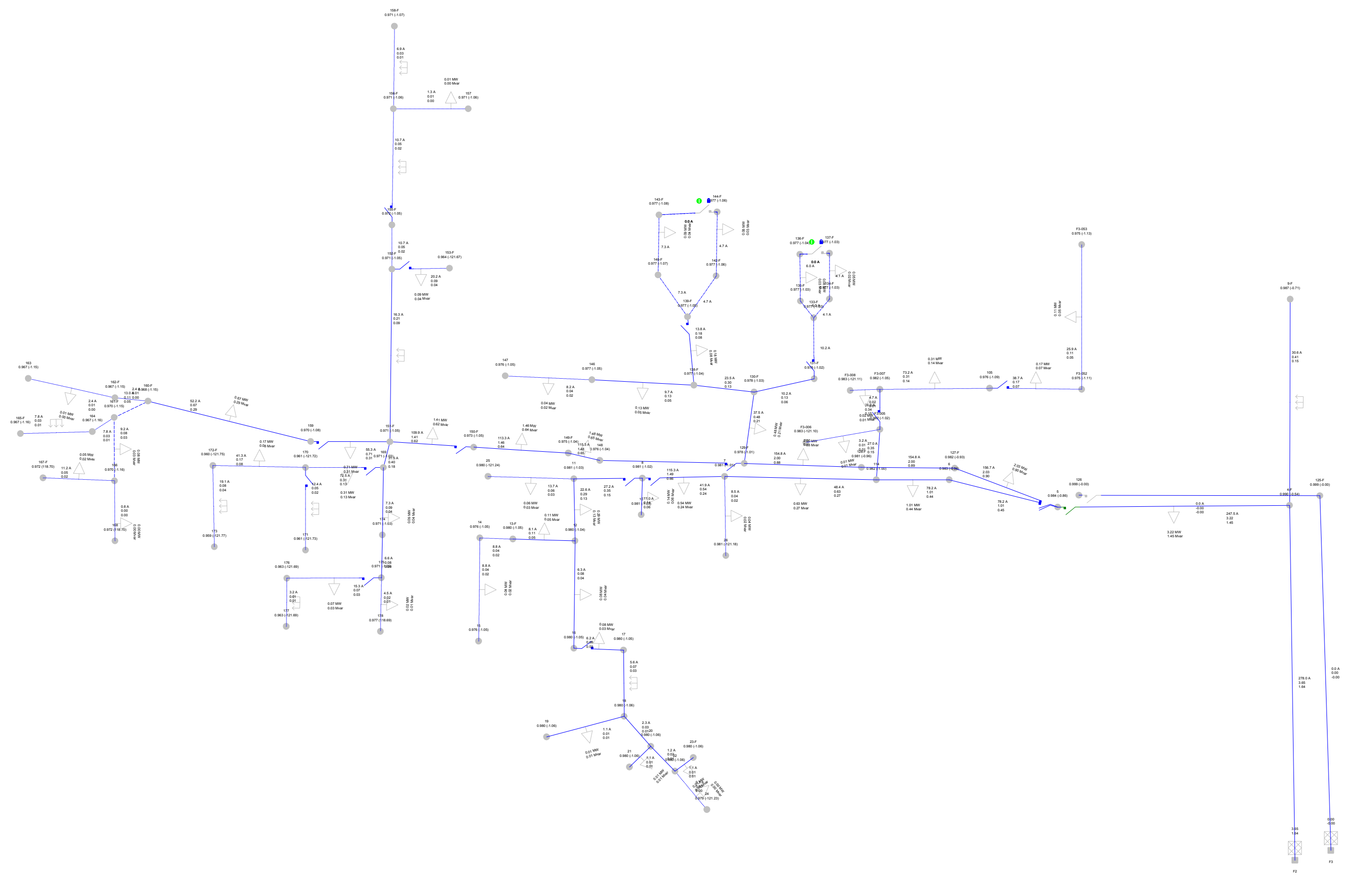
- Switch, (O)
- Distributed Load

Alfred: Present 2019 - Loss of Feeder under Summer Peak Loading Conditions - Loading



Legend

Layer :
Loading level color(%)

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- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

Line Types :
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- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
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- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

ALFRED_REV6_CYME- Summer.XST

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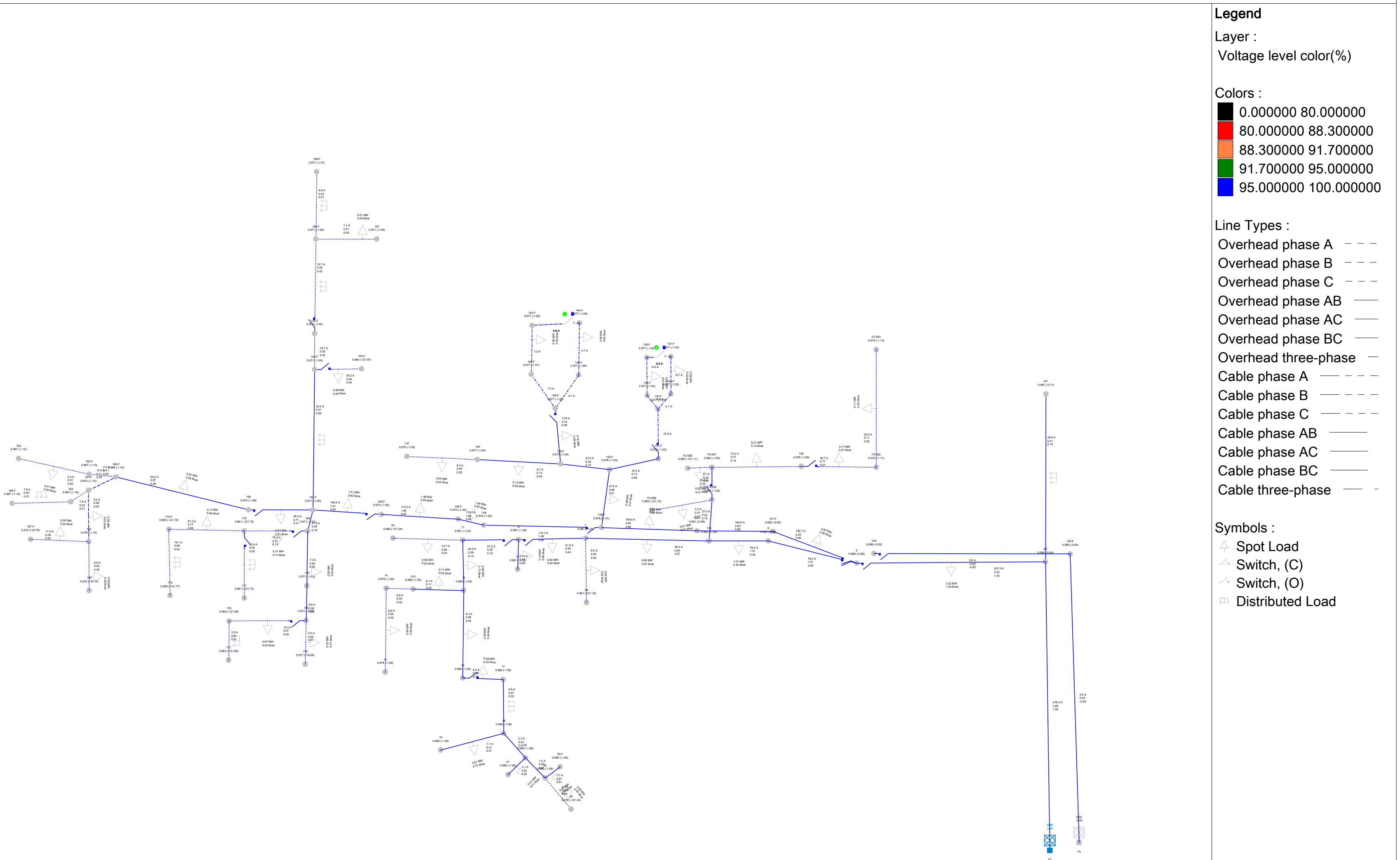
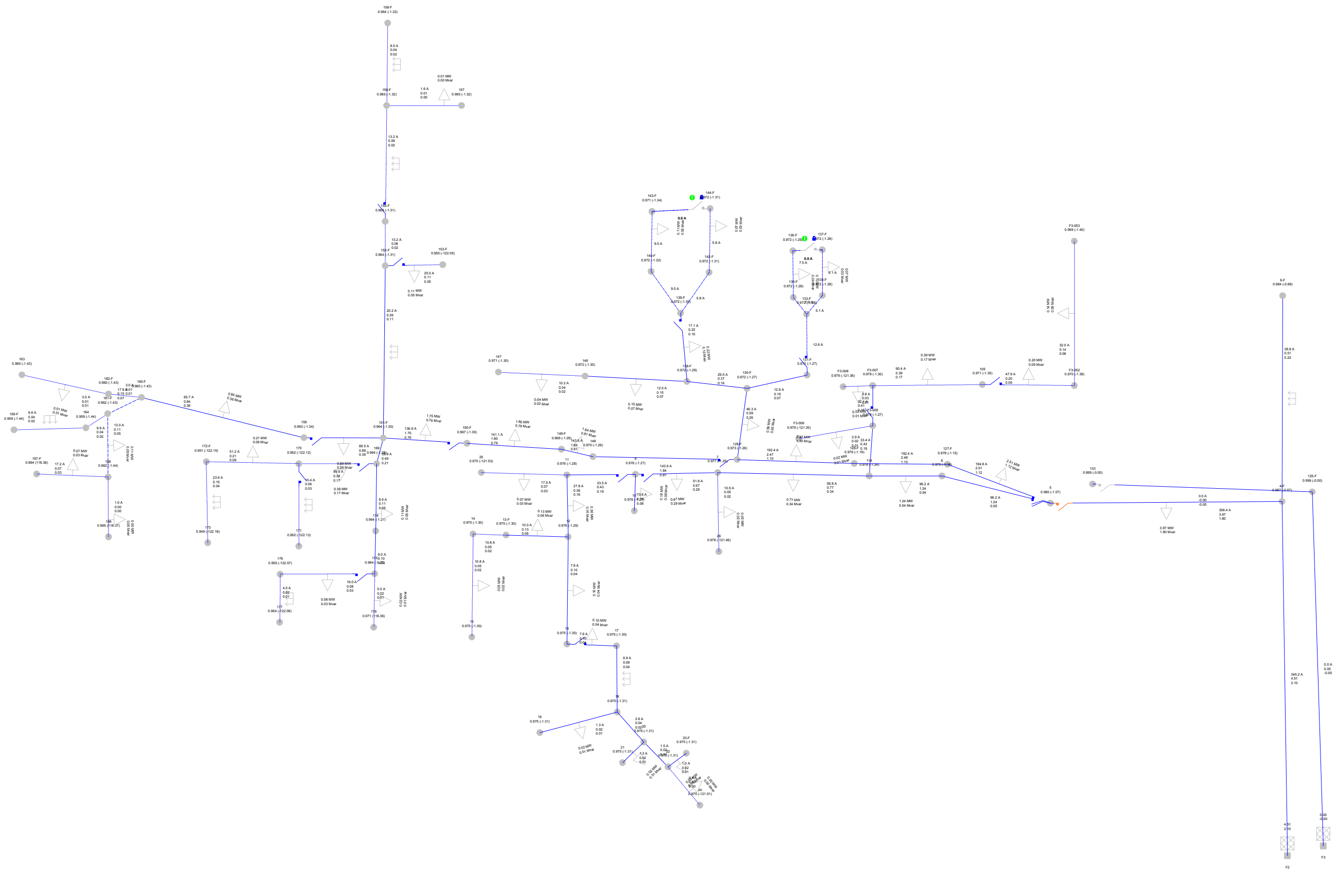
Alfred: Present 2019 - Loss of Feeder under Summer Peak Loading Conditions - Voltage



Alfred: Present 2019 - Loss of Feeder under Winter Peak Loading Conditions - Loading



Legend

Layer :
Loading level color(%)

Colors :
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80.000000 90.000000
90.000000 95.000000
95.000000 125.000000
125.000000 150.000000
150.000000 999999.0000

Line Types :
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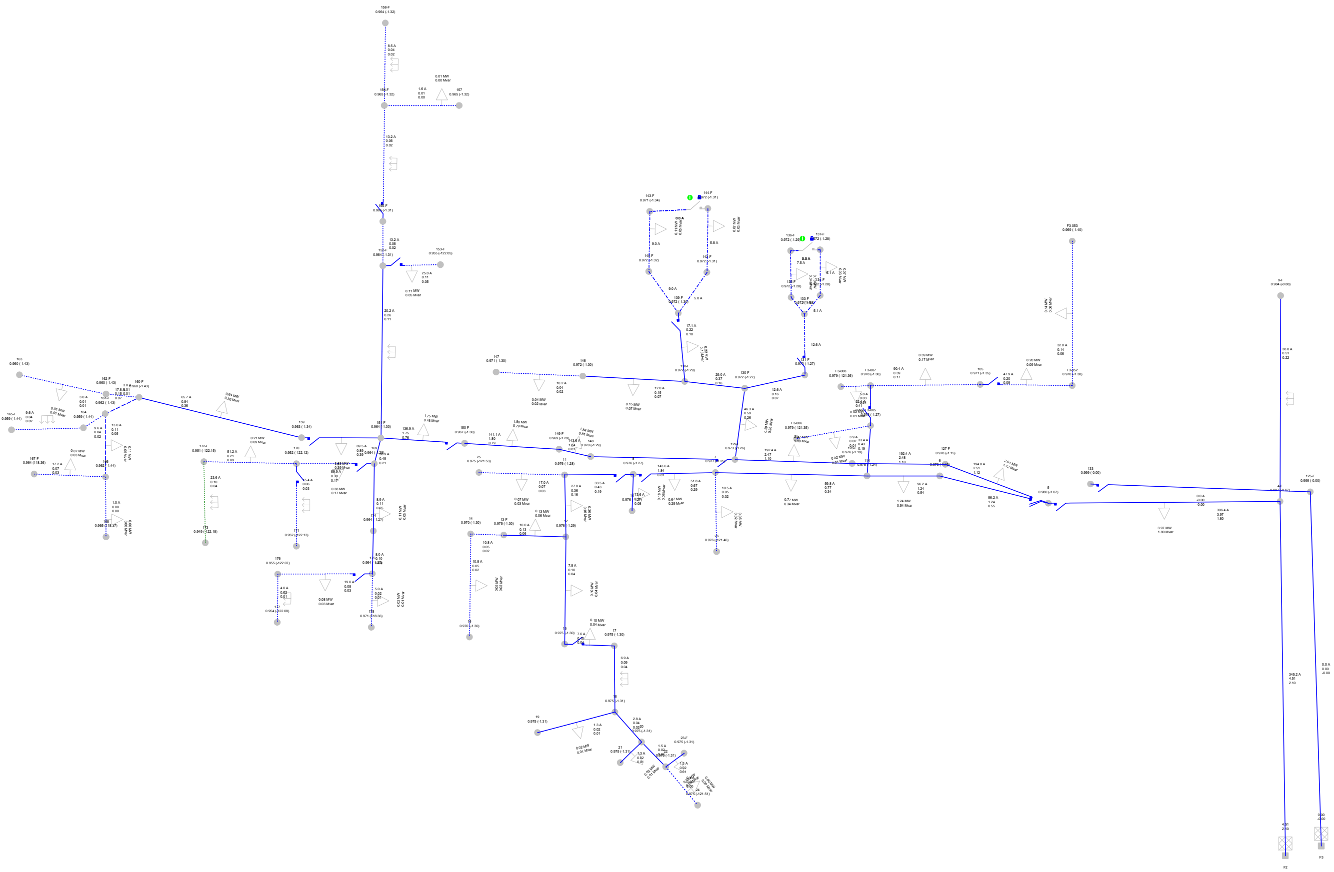
Overhead phase B
Overhead phase C
Overhead phase AB
Overhead phase AC
Overhead phase BC
Overhead three-phase
Cable phase A
Cable phase B
Cable phase C
Cable phase AB
Cable phase AC
Cable phase BC
Cable three-phase

Symbols :
Spot Load
Switch, (C)
Switch, (O)
Distributed Load

Alfred: Present 2019 - Loss of Feeder under Winter Peak Loading Conditions - Loading



Legend

Layer :
Voltage level color(%)

Colors :
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- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
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- Cable phase AB
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- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

ALFRED_REV6_CYME- Winter.XST

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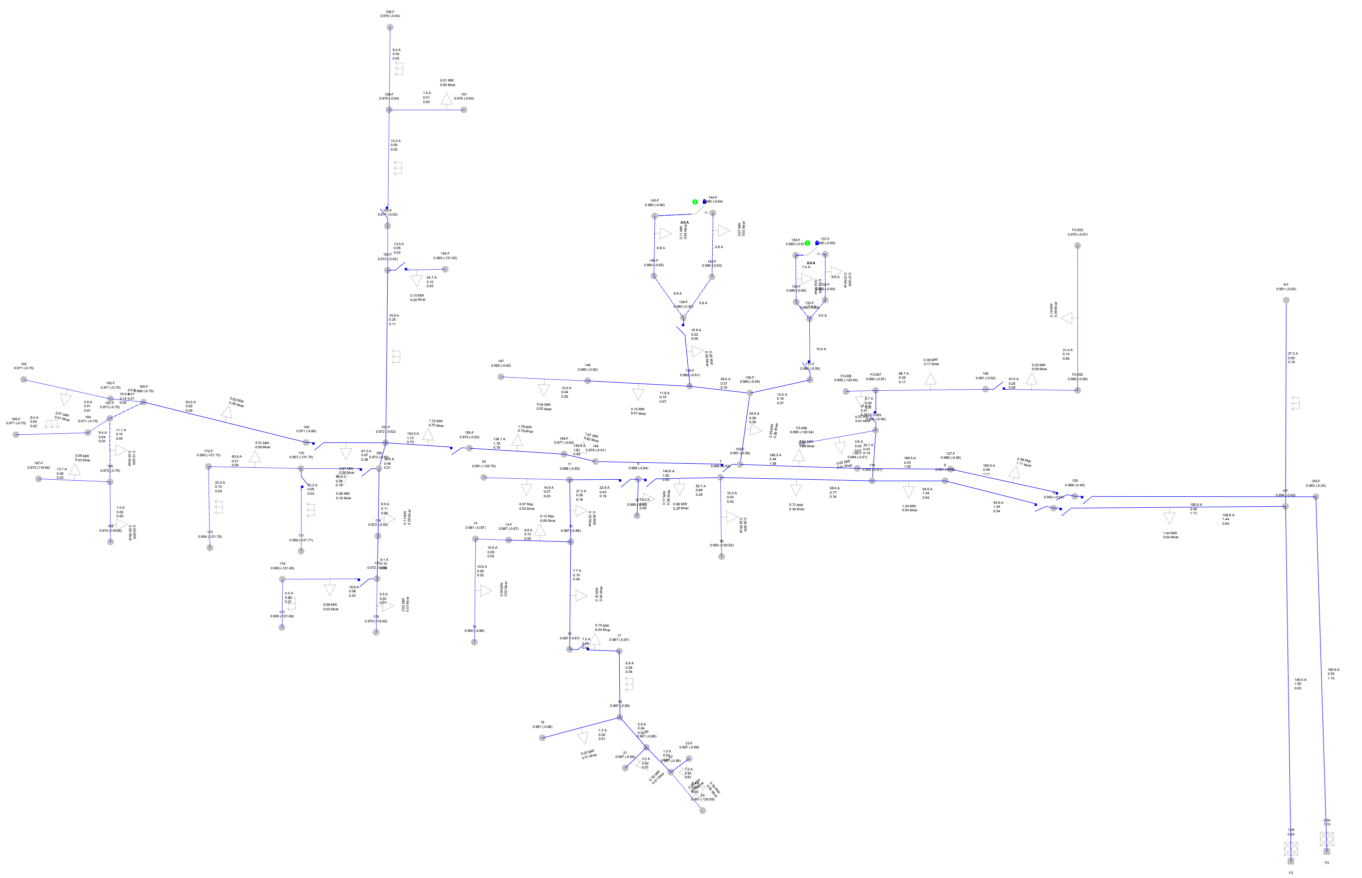
Alfred: Future 2029 - Loss of Feeder under Summer Peak Loading Conditions - Loading



Legend

Layer :

Loading level color(%)

Colors :

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- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

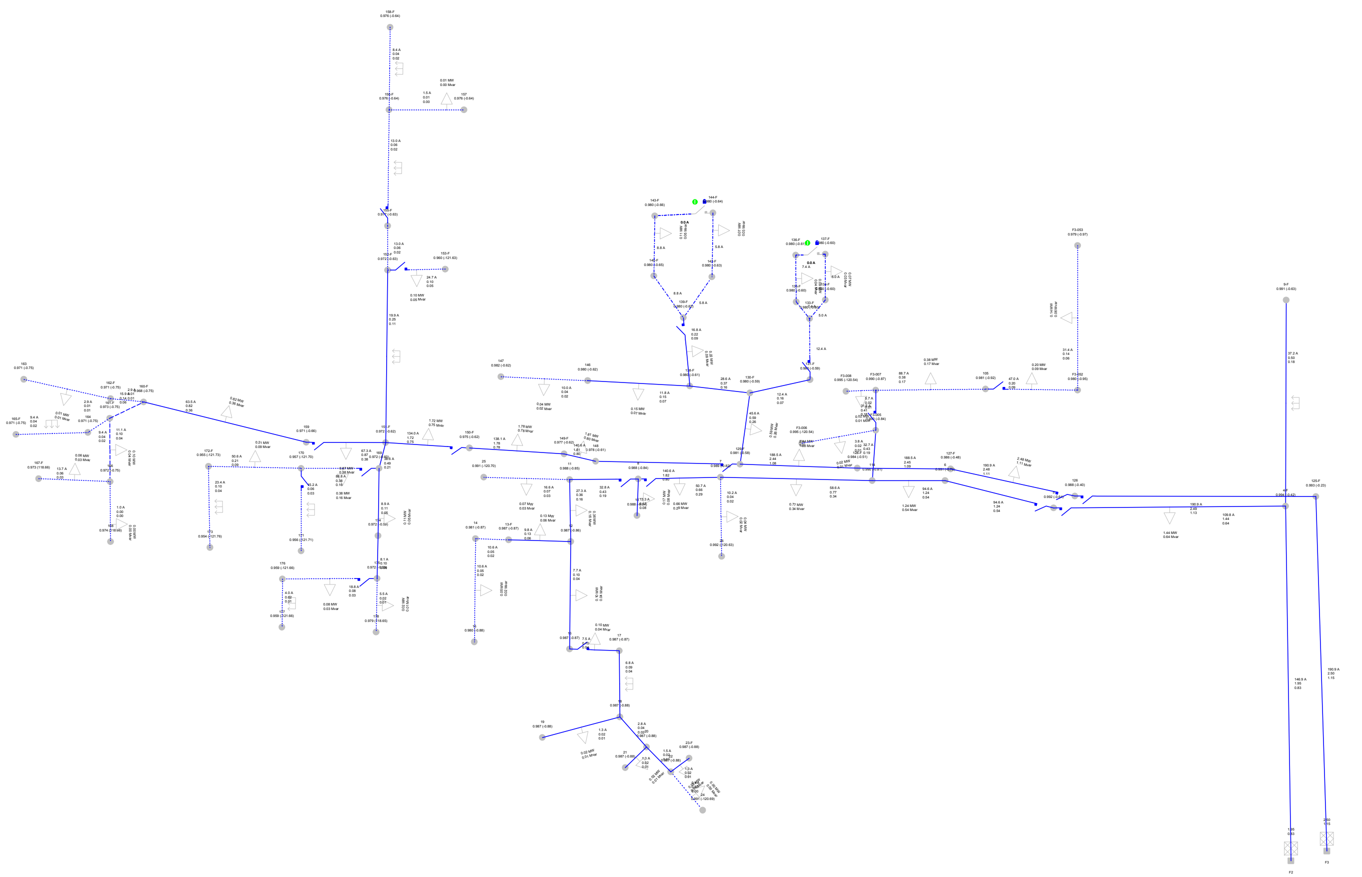
Line Types :

- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :

- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

Alfred: Future 2029 - Loss of Feeder under Summer Peak Loading Conditions - Voltage



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Voltage level color(%)

Colors :
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- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
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Symbols :
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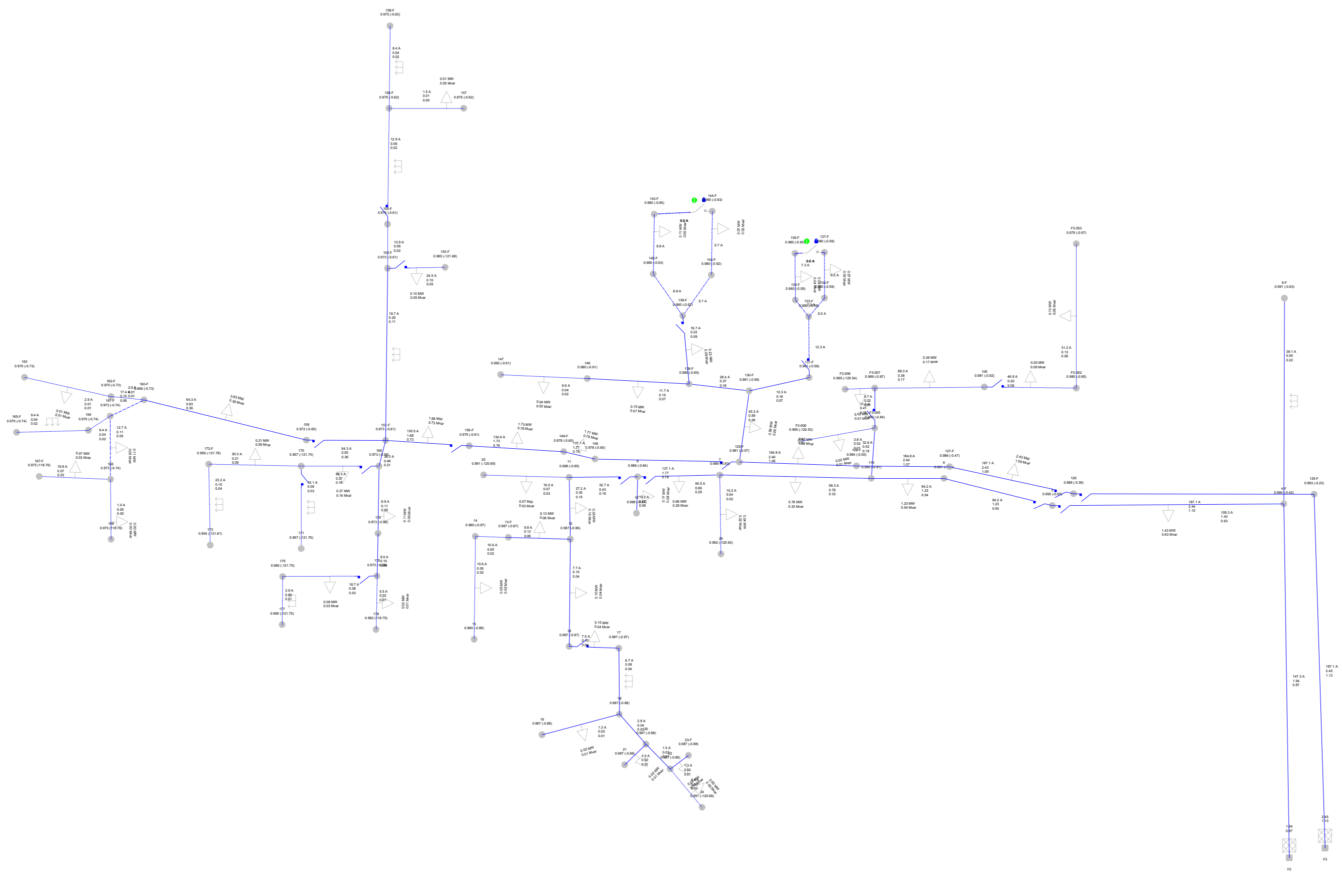
- Switch, (O)
- Distributed Load

Alfred: Future 2029 - Winter Peak Loading Conditions - Loading



Legend

Layer :

Loading level color(%)

Colors :

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- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 105.000000
- 105.000000 150.000000
- 150.000000 999999.0000

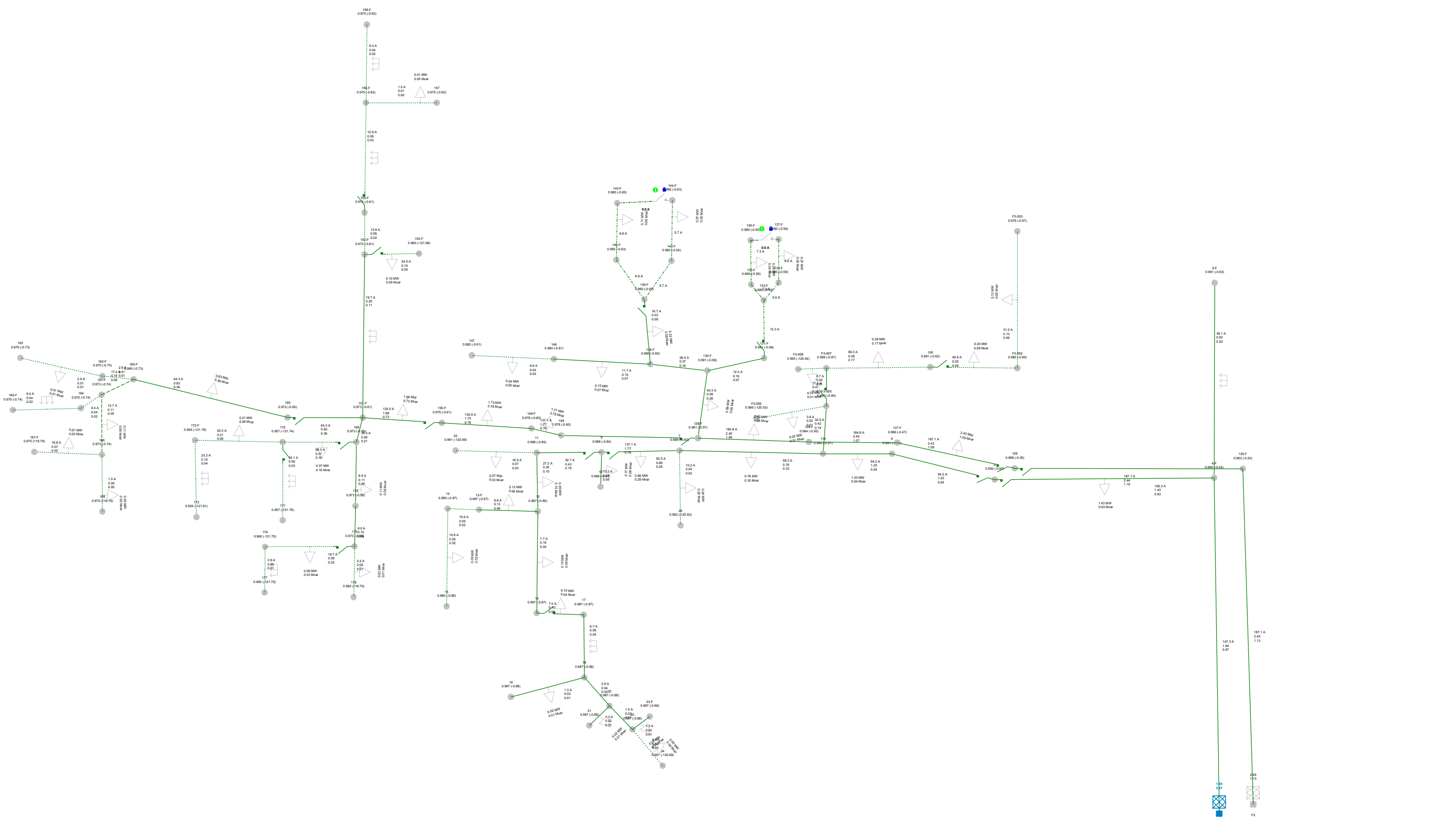
Line Types :

- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :

- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

Alfred: Future 2029 - Winter Peak Loading Conditions - Voltage



Legend

Layer :
Voltage level color(%)

Colors :
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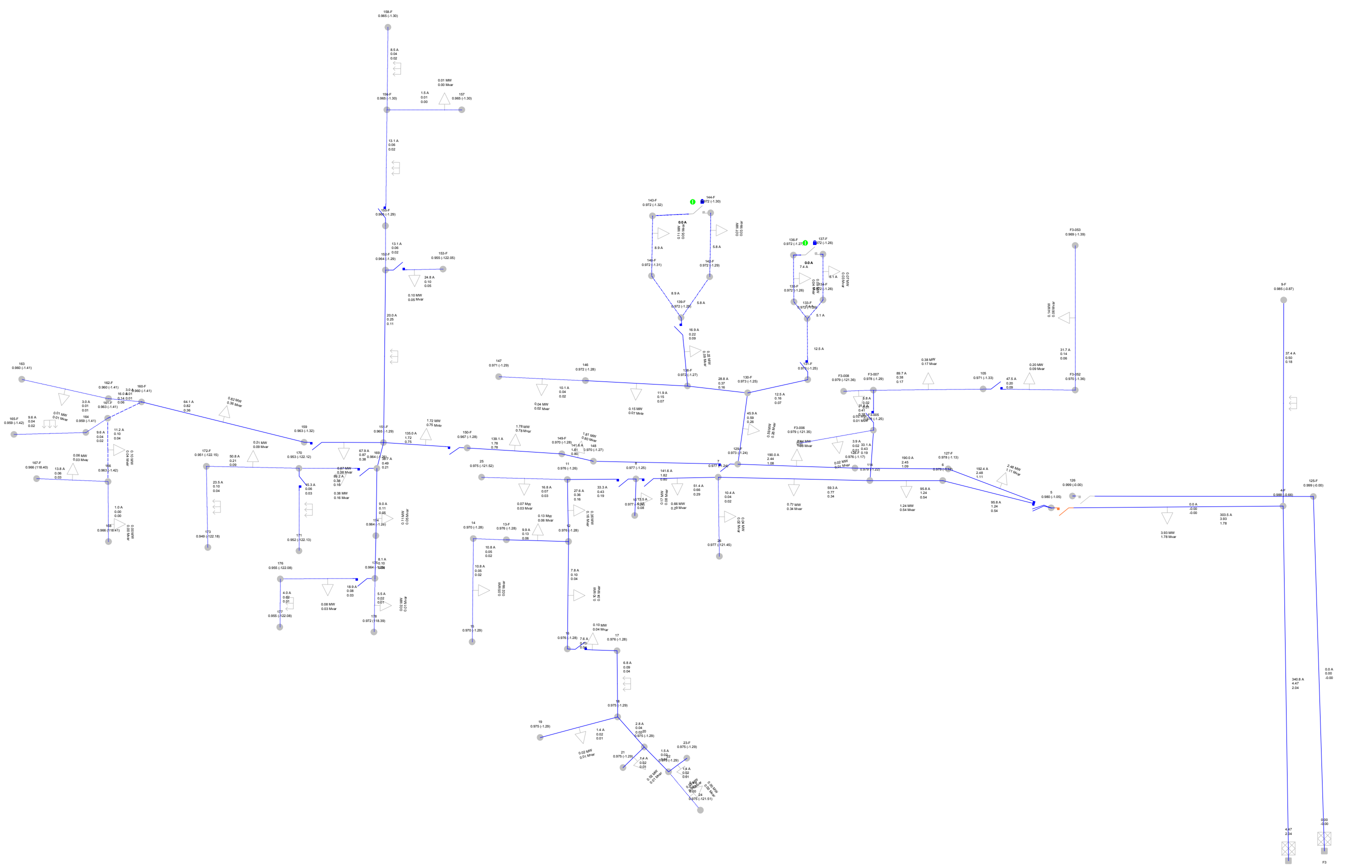
- 85.000000 90.000000
- 90.000000 95.000000
- 95.000000 105.000000
- 105.000000 999999.0000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

Alfred: Future 2029 - Loss of Feeder under Summer Peak Loading Conditions - Loading



Legend

Layer :
Loading level color(%)

Colors :
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- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

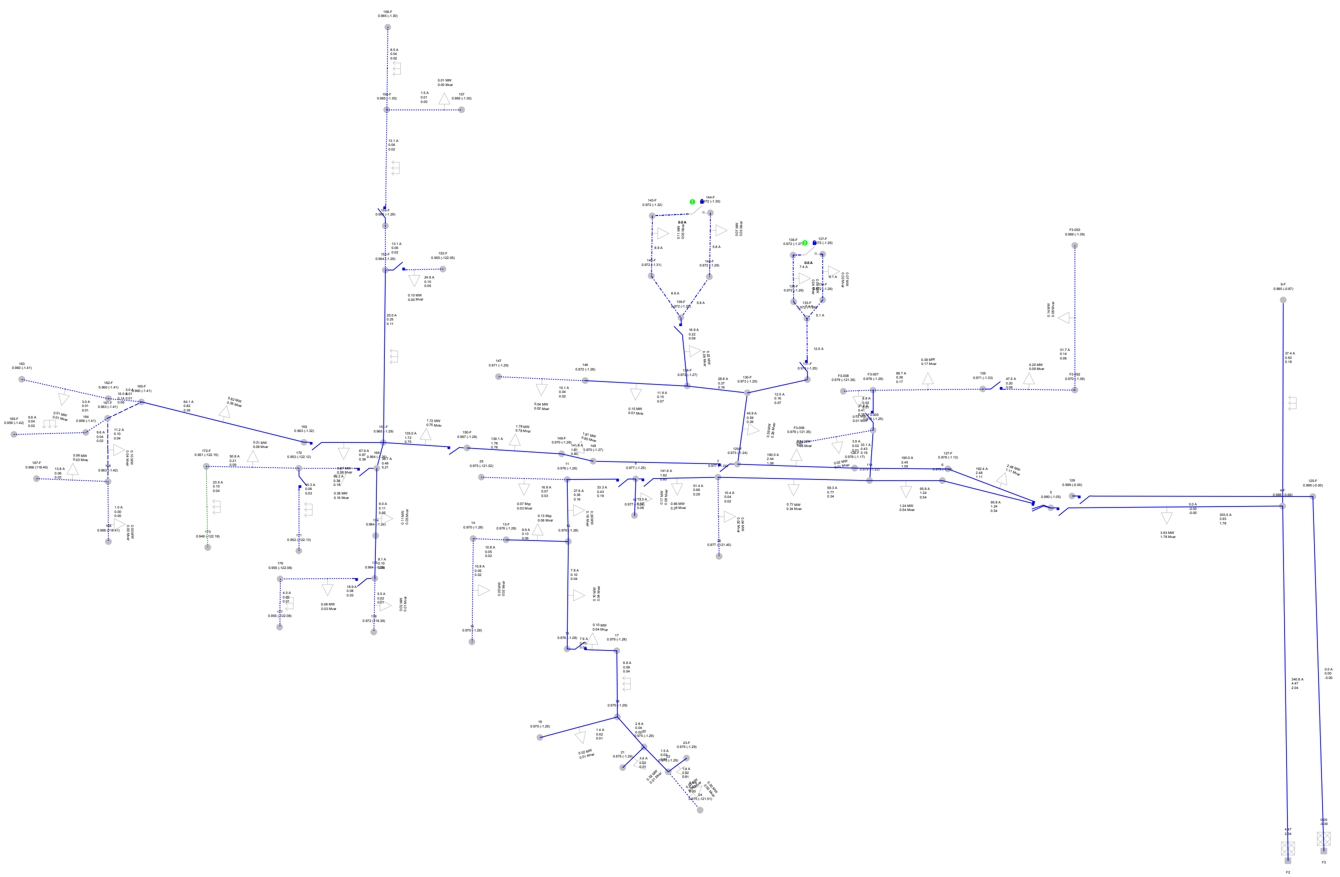
Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

ALFRED_REV6_CYME- Summer -2029.XST

Friday, November 15, 2019, 3:25:28 PM

Alfred: Future 2029 - Loss of Feeder under Summer Peak Loading Conditions - Voltage



Legend

Layer :

Voltage level color(%)

Colors :

- 0.000000 80.000000
- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :

- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

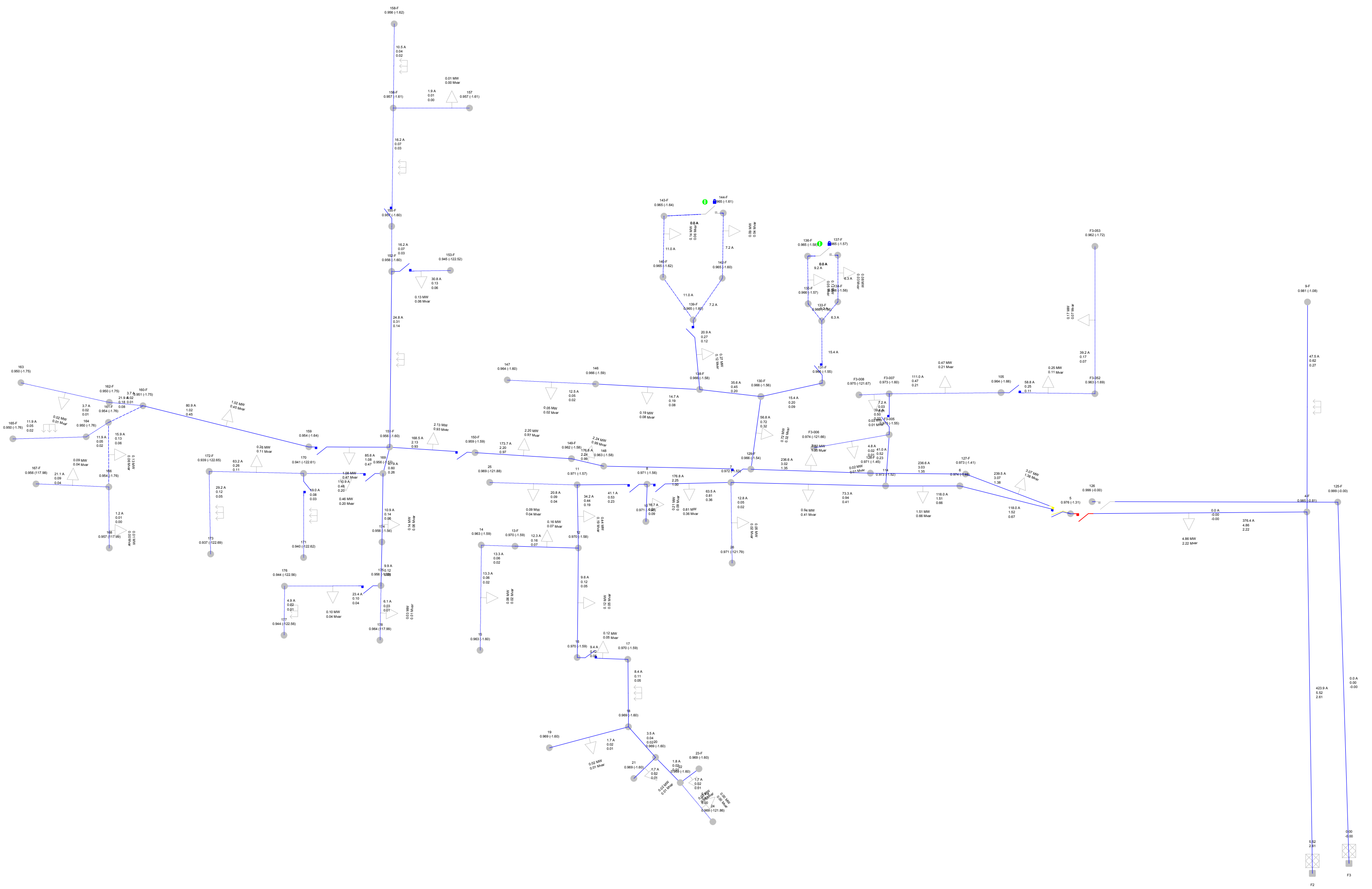
Symbols :

- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

ALFRED_REV6_CYME- Summer -2029.XST

Friday, November 15, 2019, 3:25:04 PM

Alfred: Future 2029 - Loss of Feeder under Winter Peak Loading Conditions - Loading



Legend

Layer :
Loading level color(%)

Colors :
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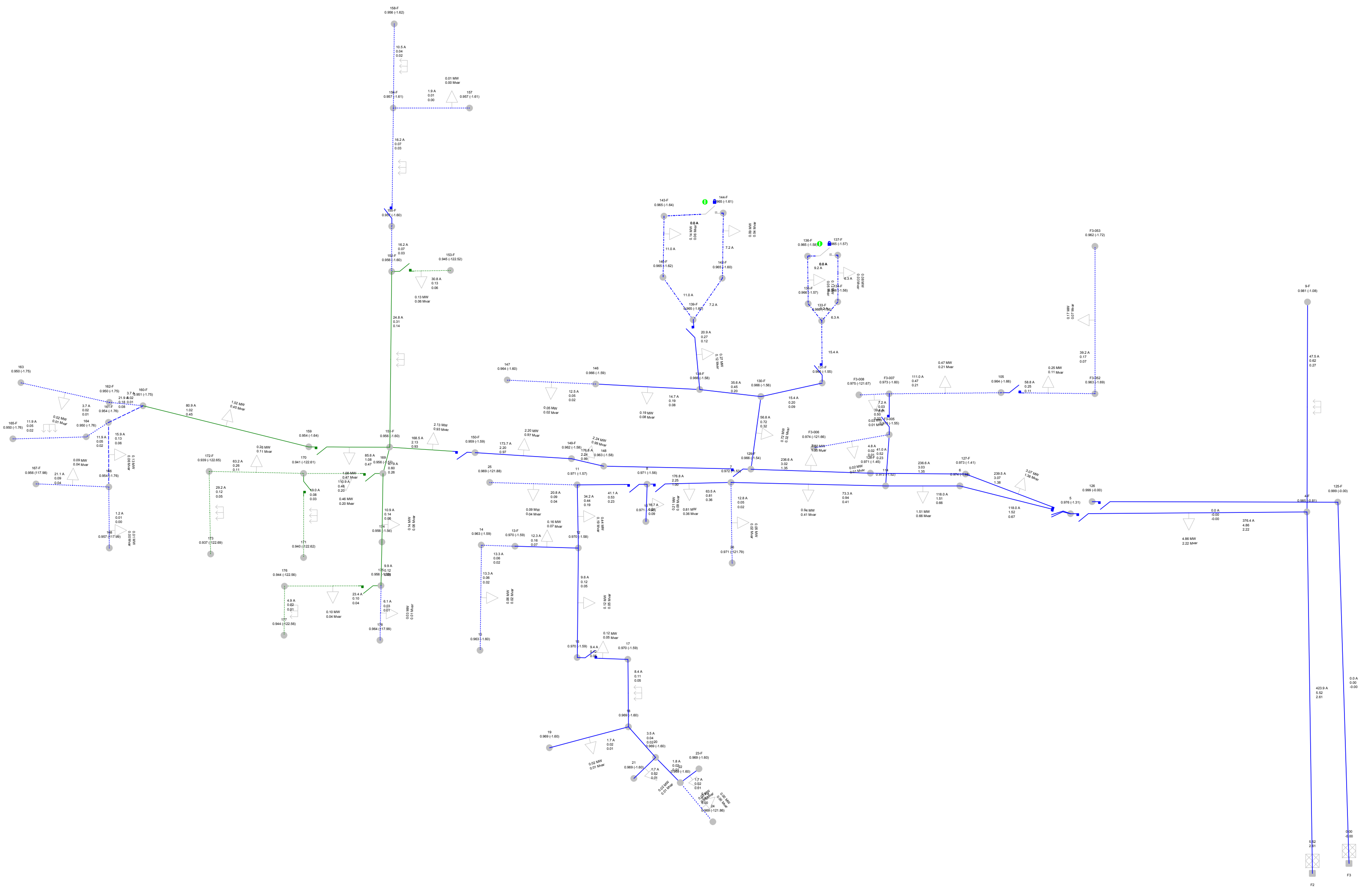
- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

Alfred: Future 2029 - Loss of Feeder under Summer Peak Loading Conditions - Voltage



Legend

Layer :
Voltage level color(%)

Colors :
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- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Switch, (C)
- Switch, (O)
- Distributed Load

Appendix B - PLANTAGENET

B.01 Plantagenet: Present 2019 – Summer Peak Loading Conditions - Loading

B.02 Plantagenet: Present 2019 – Summer Peak Loading Conditions - Voltage

B.03 Plantagenet: Present 2019 – Winter Peak Loading Conditions – Loading

B.04 Plantagenet: Present 2019 – Winter Peak Loading Conditions – Voltage

B.05 Plantagenet: Present 2019 – Loss of Feeder under Summer Peak Loading Conditions – Loading

B.06 Plantagenet: Present 2019 – Loss of Feeder under Summer Peak Loading Conditions – Voltage

B.07 Plantagenet: Present 2019 – Loss of Feeder under Winter Peak Loading Conditions – Loading

B.08 Plantagenet: Present 2019 – Loss of Feeder under Winter Peak Loading Conditions - Voltage

B.09 Plantagenet: Future 2029 – Summer Peak Loading Conditions - Loading

B.10 Plantagenet: Future 2029 – Summer Peak Loading Conditions - Voltage

B.11 Plantagenet: Future 2029 – Winter Peak Loading Conditions – Loading

B.12 Plantagenet: Future 2029 – Winter Peak Loading Conditions – Voltage

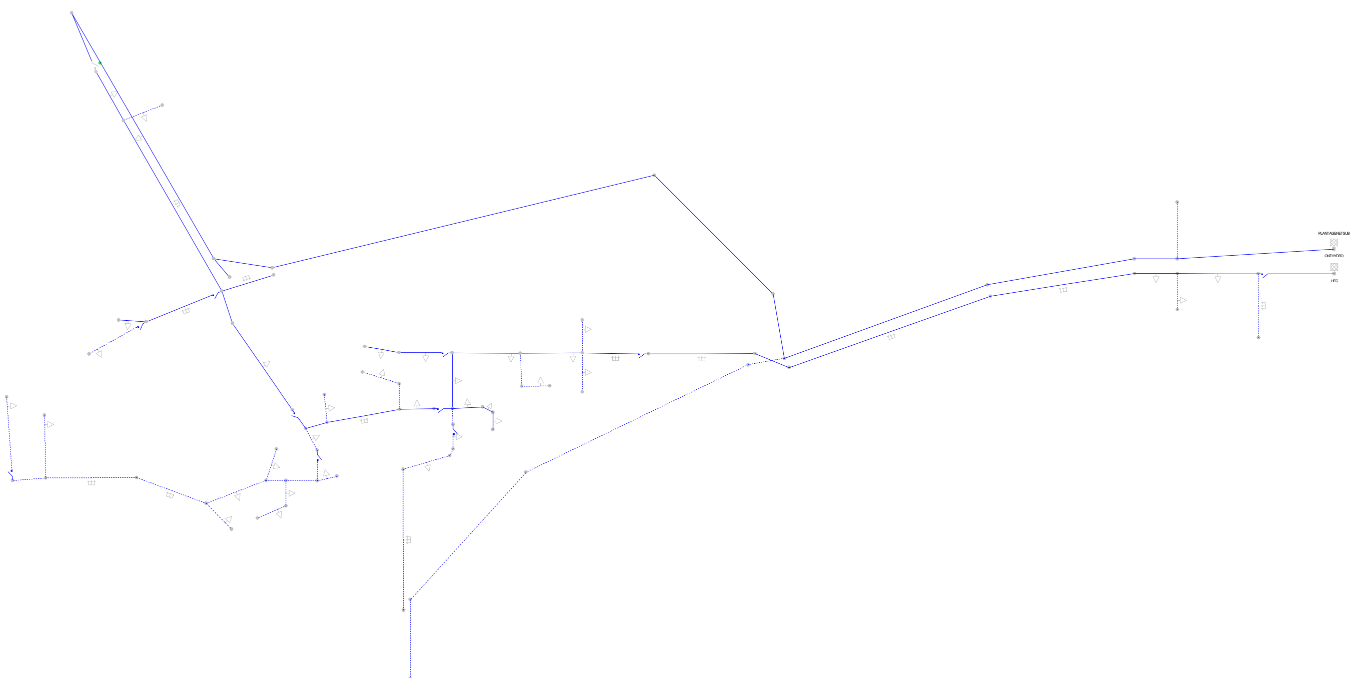
B.13 Plantagenet: Future 2029 – Loss of Feeder under Summer Peak Loading Conditions – Loading

B.14 Plantagenet: Future 2029 – Loss of Feeder under Summer Peak Loading Conditions – Voltage

B.15 Plantagenet: Future 2029 – Loss of Feeder under Winter Peak Loading Conditions – Loading

B.16 Plantagenet: Future 2029 – Loss of Feeder under Winter Peak Loading Conditions - Voltage

Plantagenet: Present 2019 - Summer Peak Loading Conditions - Loading



Legend

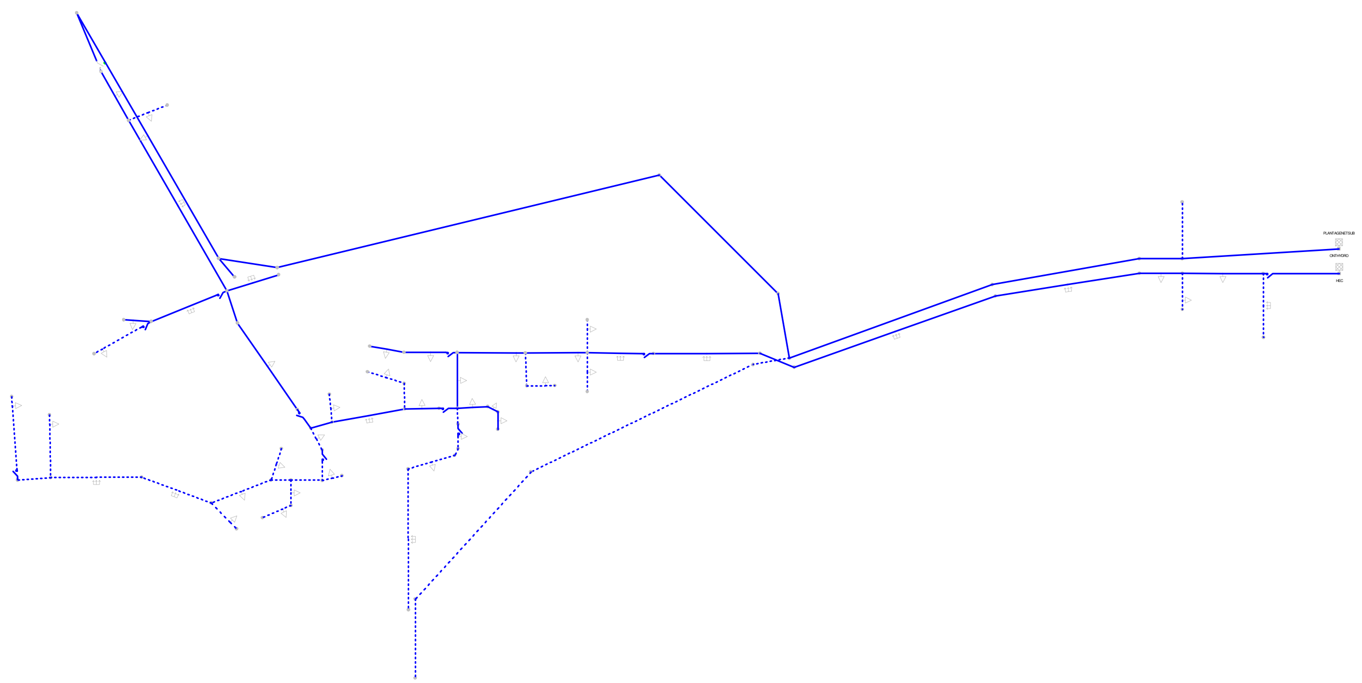
Layer :
Loading level color(%)

Colors :
- 0.000000 80.000000
- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000(

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)
- Switch, (O)

Plantagenet: Present 2019 - Summer Peak Loading Conditions - Voltage



Legend

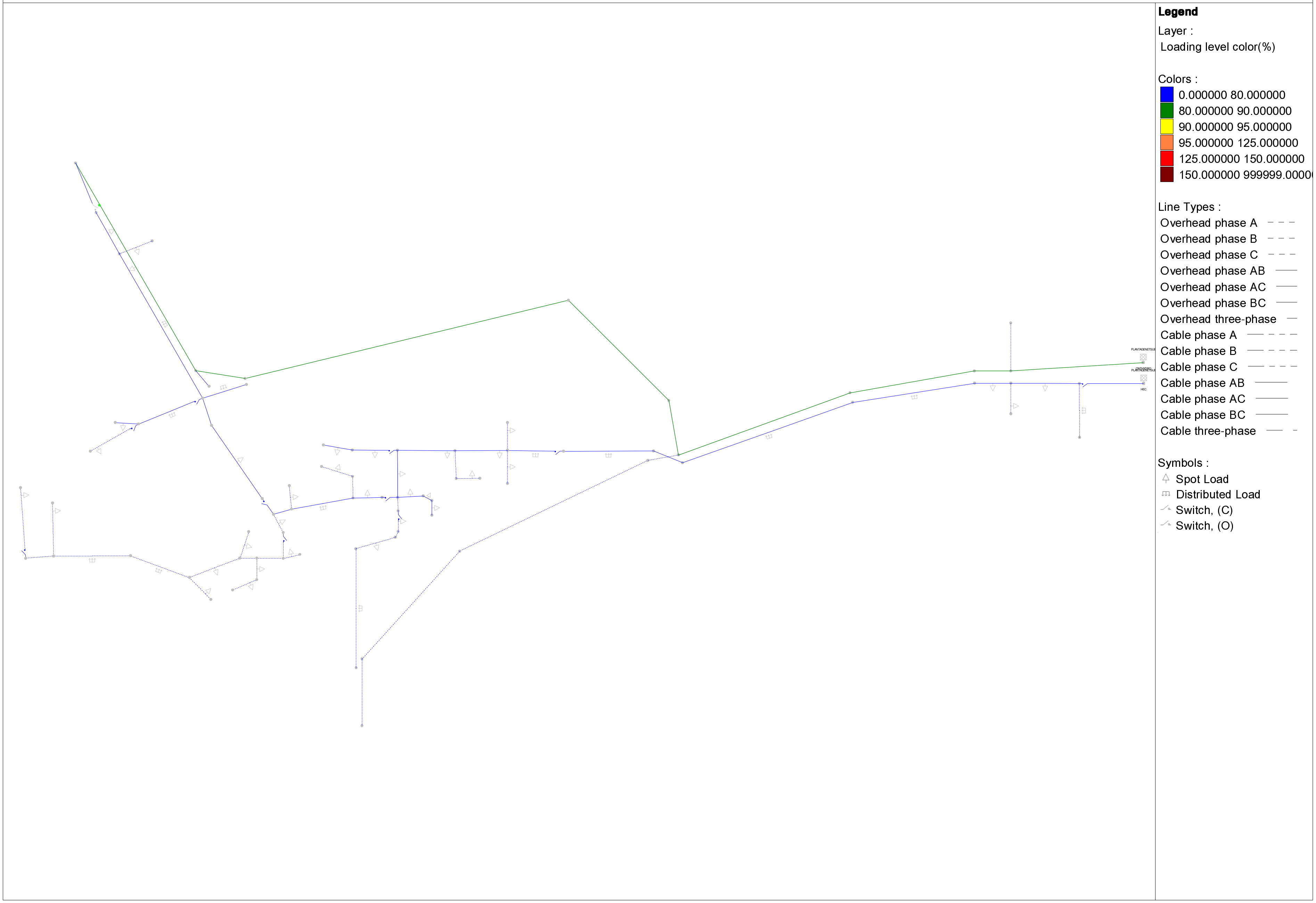
Layer :
Voltage level color(%)

Colors :
- 0.000000 80.000000
- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)
- Switch, (O)

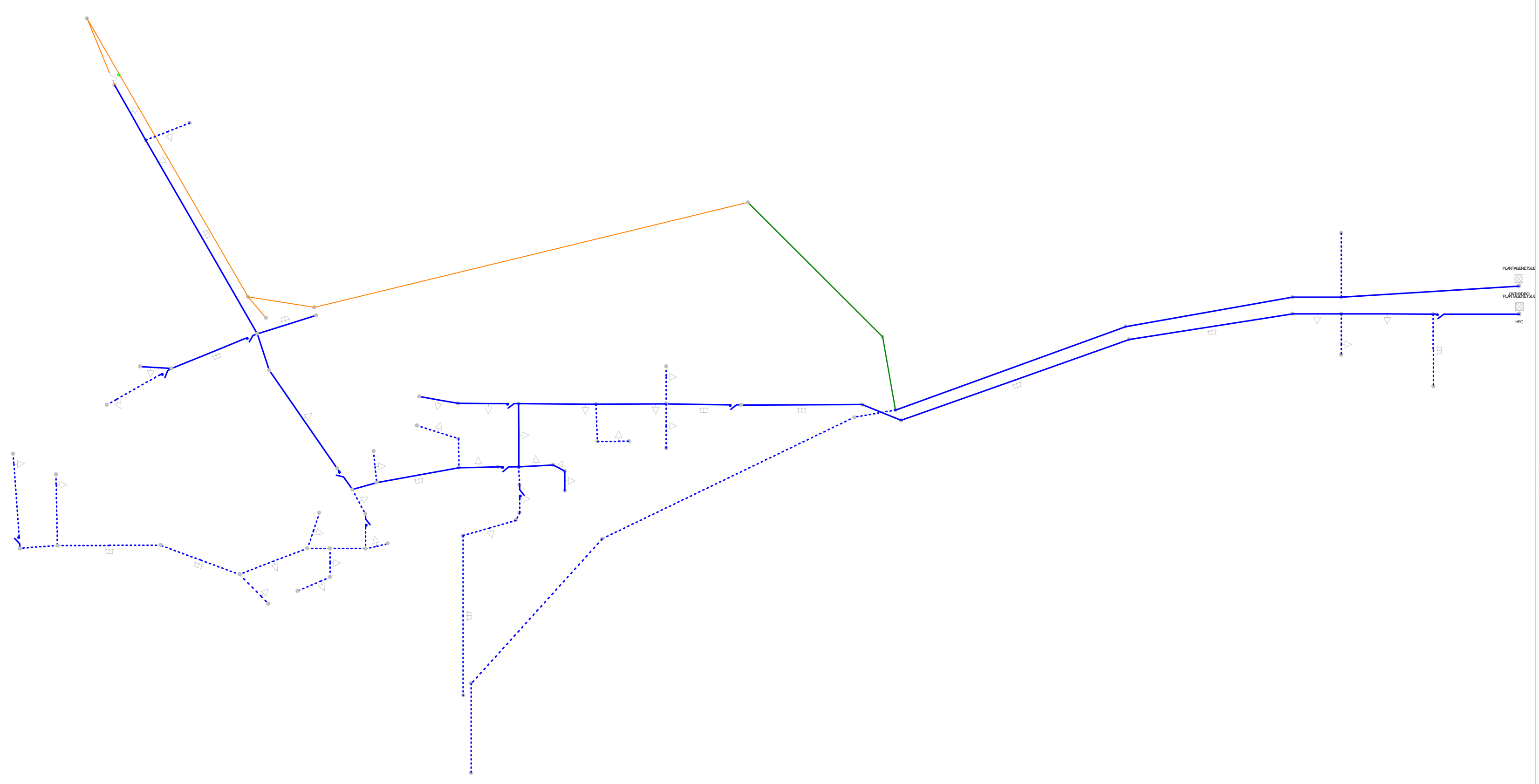
Plantagenet: Present 2019 - Winter Peak Loading Conditions - Loading



PLANTAGENET_Base Study_Winter.XST

Tuesday, November 19, 2019, 12:48:49 PM

Plantagenet: Present 2019 - Winter Peak Loading Conditions - Voltage



Legend

Layer :
Voltage level color(%)

Colors :
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- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

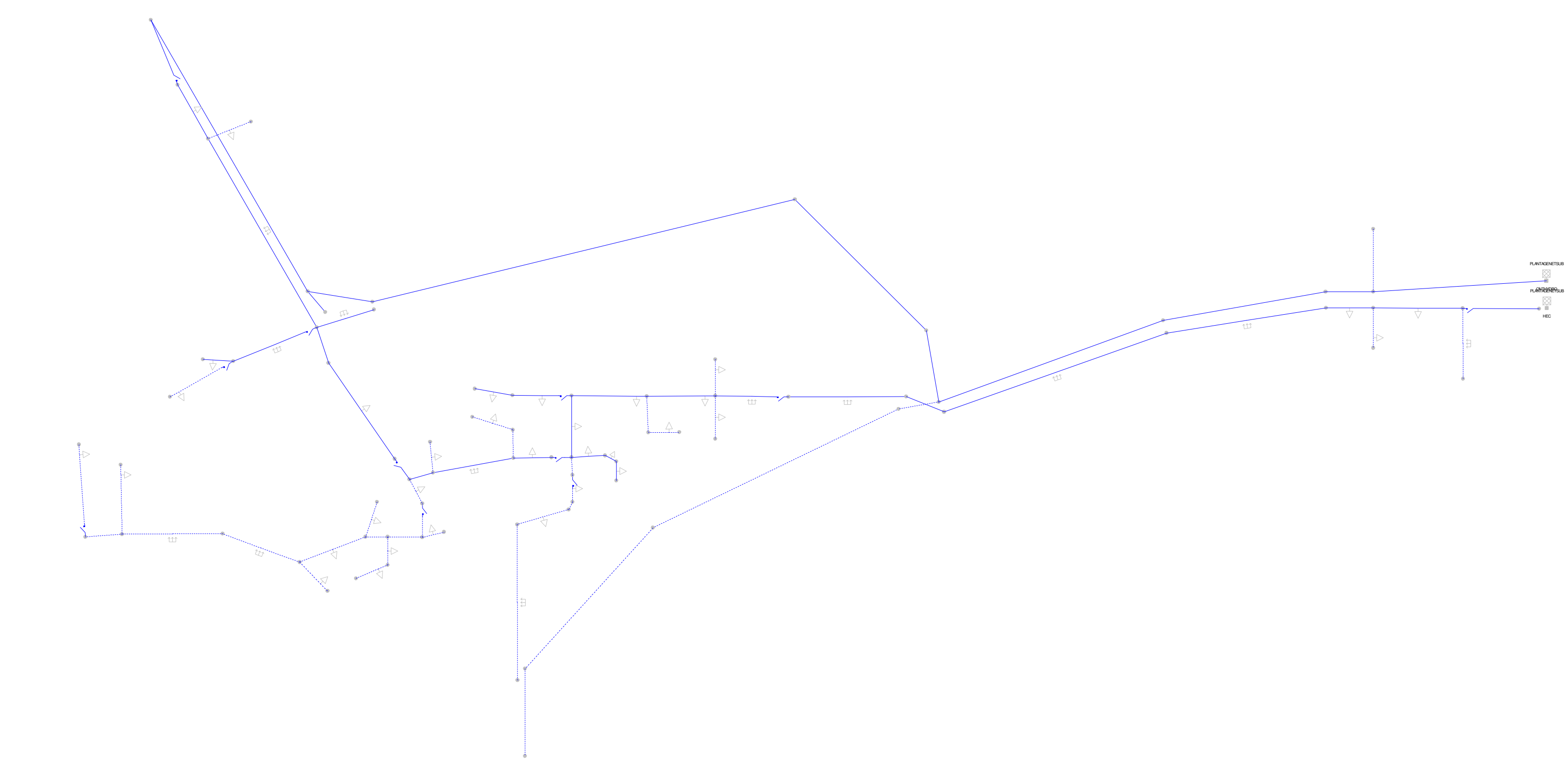
Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)
- Switch, (O)

PLANTAGENET_Base Study_Winter.XST

Tuesday, November 19, 2019, 12:48:25 PM

Plantagenet: Present 2019 - Loss of Feeder under Summer Peak Loading Conditions - Loading



Legend

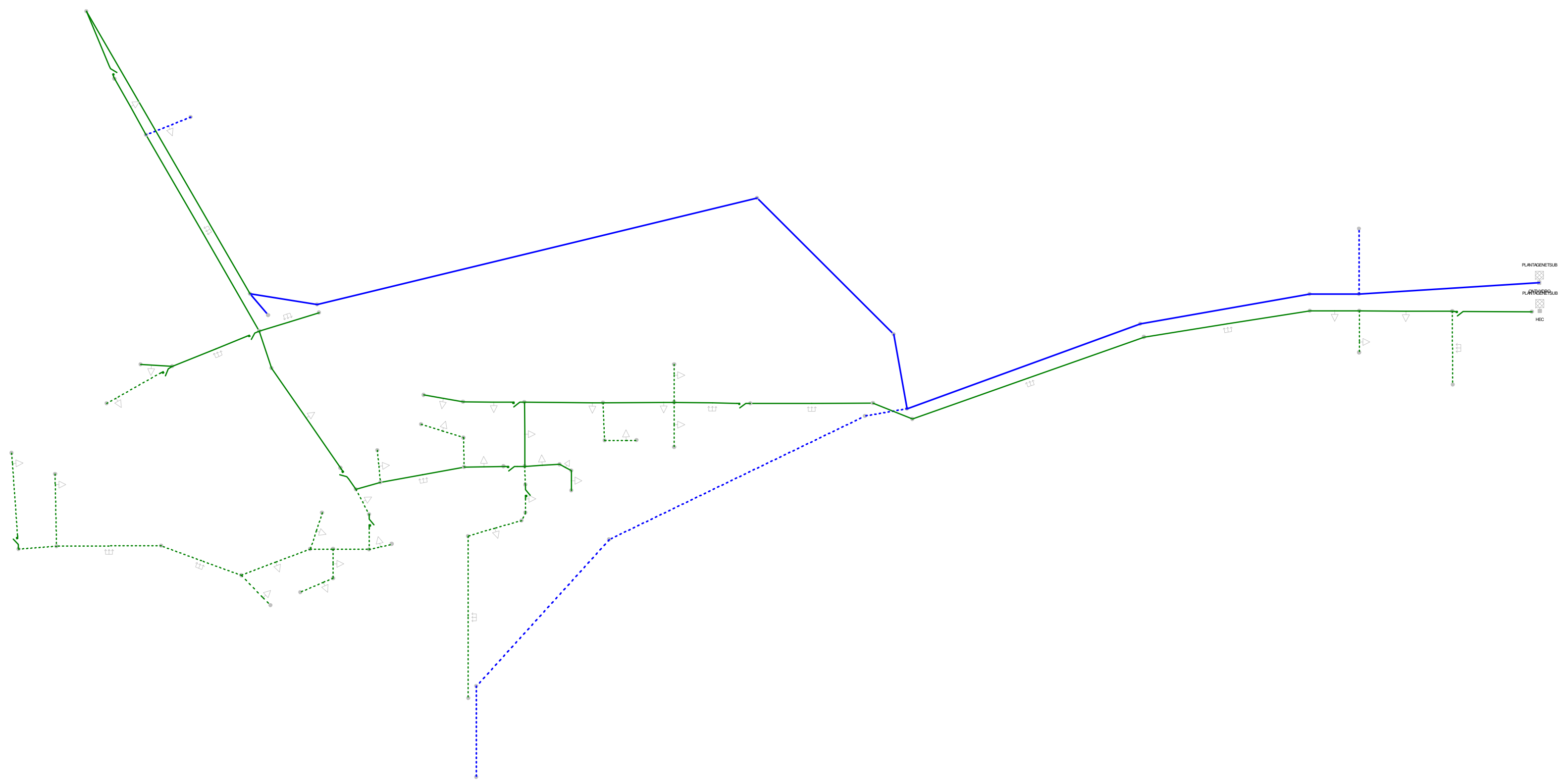
Layer :
Loading level color(%)

Colors :
- 0.000000 80.000000
- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 105.000000
- 105.000000 150.000000
- 150.000000 999999.0000(

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)

Plantagenet: Present 2019 - Loss of Feeder under Summer Peak Loading Conditions - Voltage



Legend

Layer :
Voltage level color(%)

Colors :
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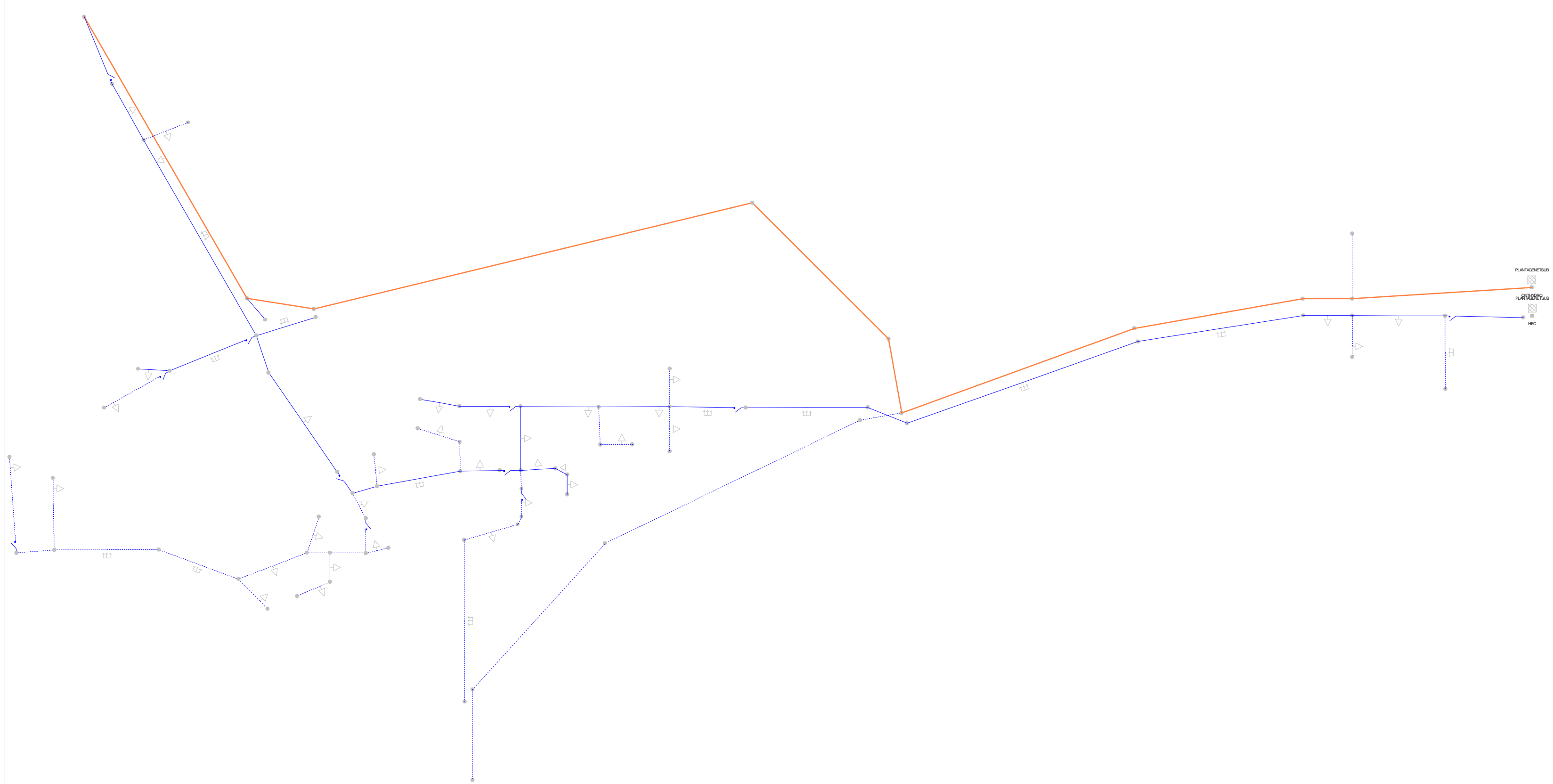
- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)

Plantagenet: Present 2019 - Loss of Feeder under Winter Peak Loading Conditions - Loading



Legend

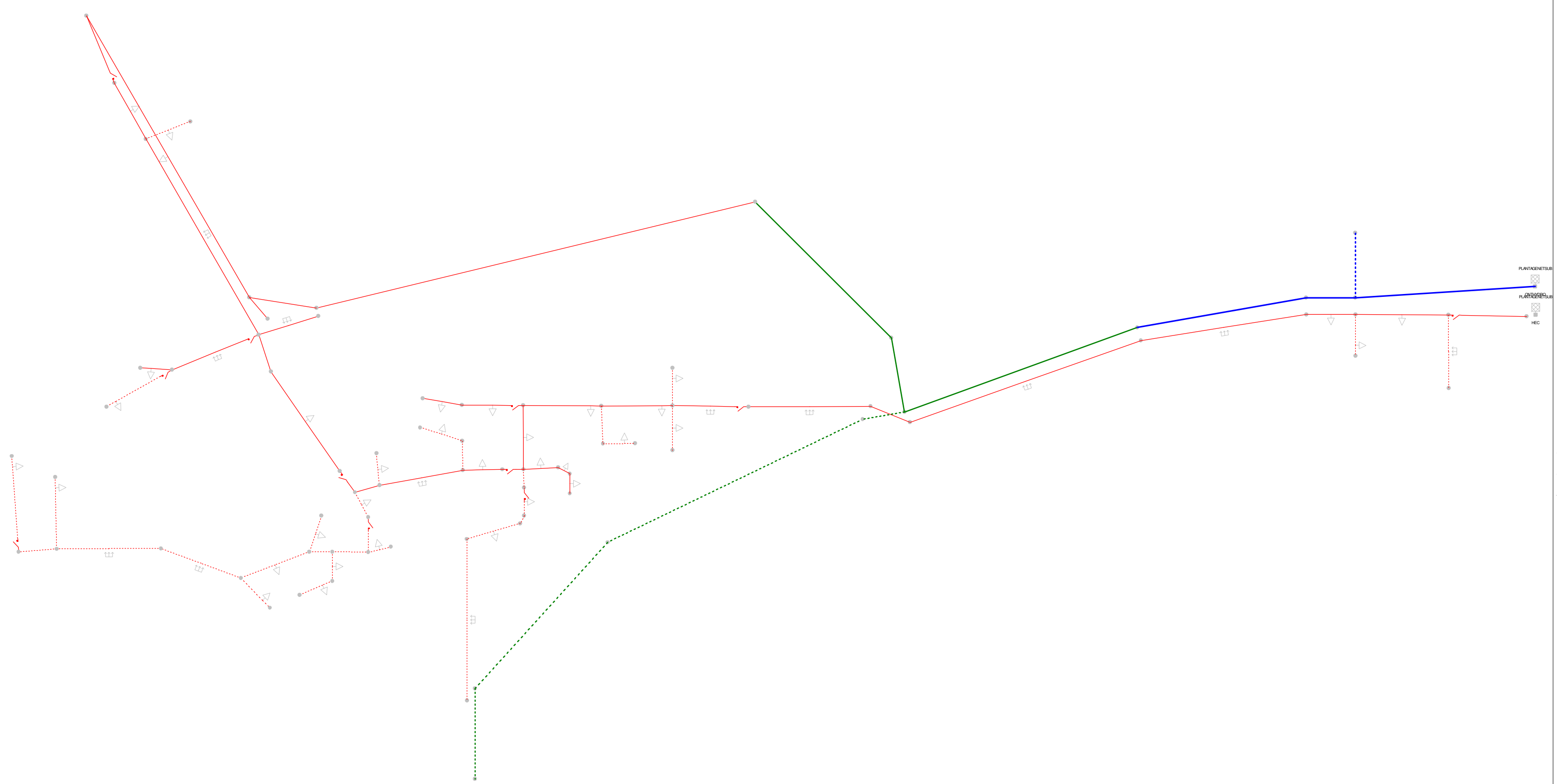
Layer :
Loading level color(%)

Colors :
- 0.000000 80.000000
- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)

Plantagenet: Present 2019 - Loss of Feeder under Winter Peak Loading Conditions - Voltage



Legend

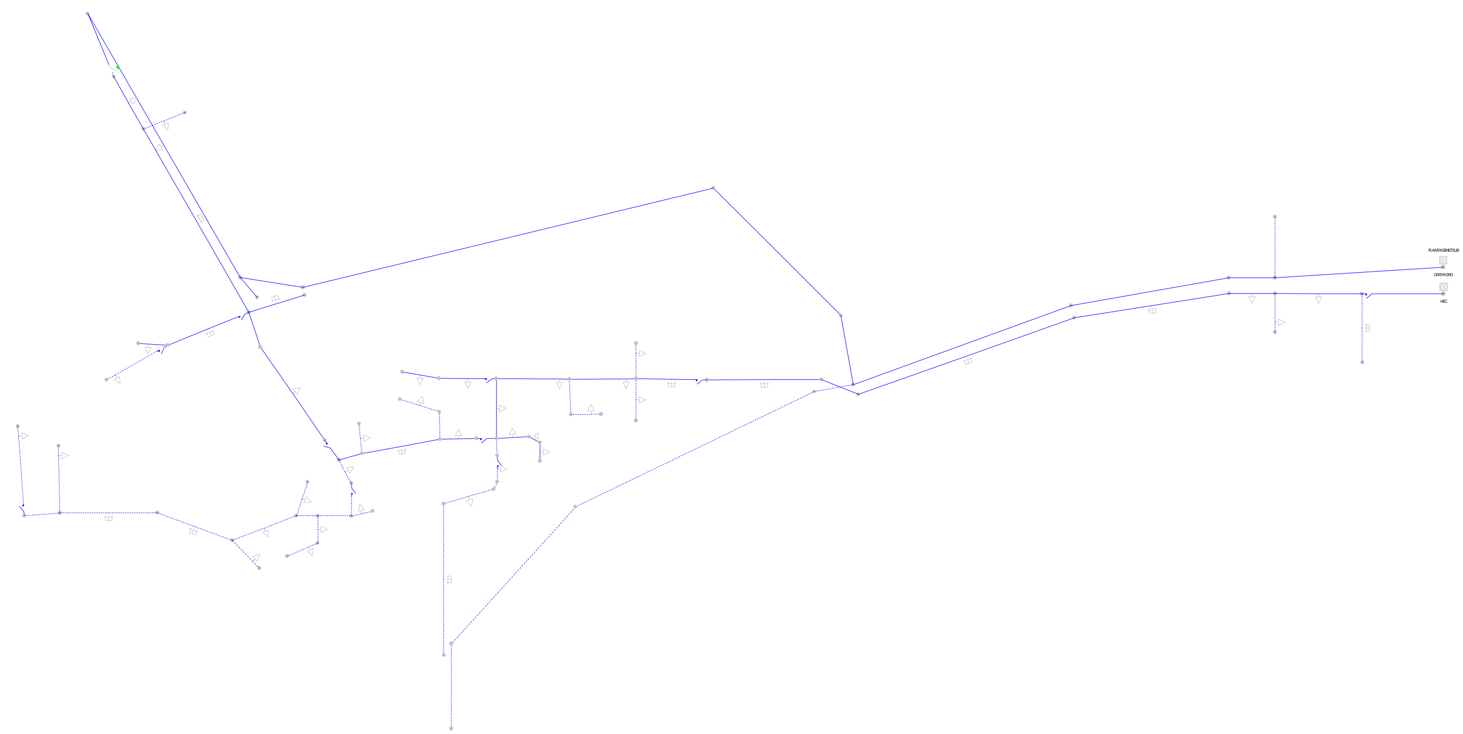
Layer :
Voltage level color(%)

Colors :
- 0.000000 80.000000
- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)

Plantagenet: Future 2029 - Summer Peak Loading Conditions - Loading



Legend

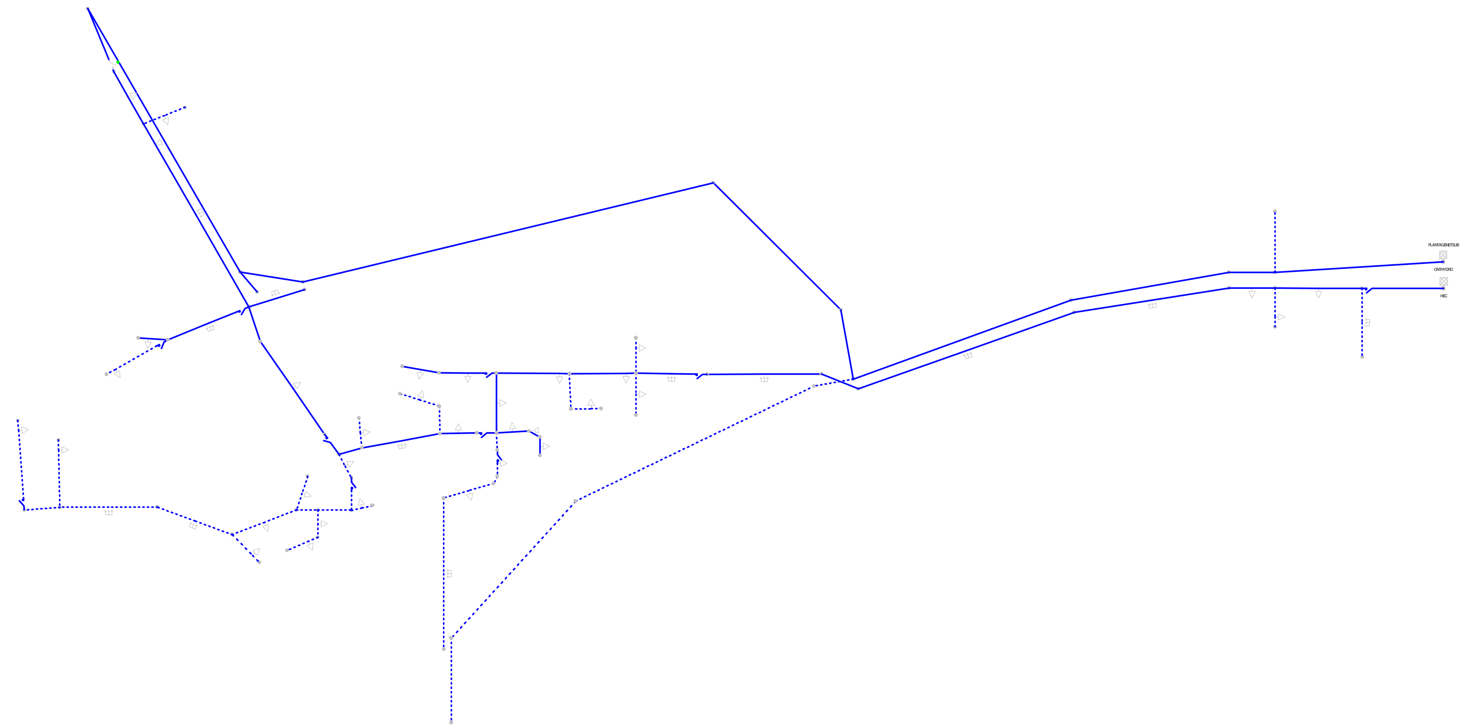
Layer :
Loading level color(%)

Colors :
0.000000 80.000000
80.000000 90.000000
90.000000 95.000000
95.000000 125.000000
125.000000 150.000000
150.000000 999999.0000(

Line Types :
Overhead phase A
Overhead phase B
Overhead phase C
Overhead phase AB
Overhead phase AC
Overhead phase BC
Overhead three-phase
Cable phase A
Cable phase B
Cable phase C
Cable phase AB
Cable phase AC
Cable phase BC
Cable three-phase

Symbols :
Spot Load
Distributed Load
Switch, (C)
Switch, (O)

Plantagenet: Future 2029 - Summer Peak Loading Conditions - Voltage



Legend

Layer :

Voltage level color(%)

Colors :

- 0.000000 80.000000
- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

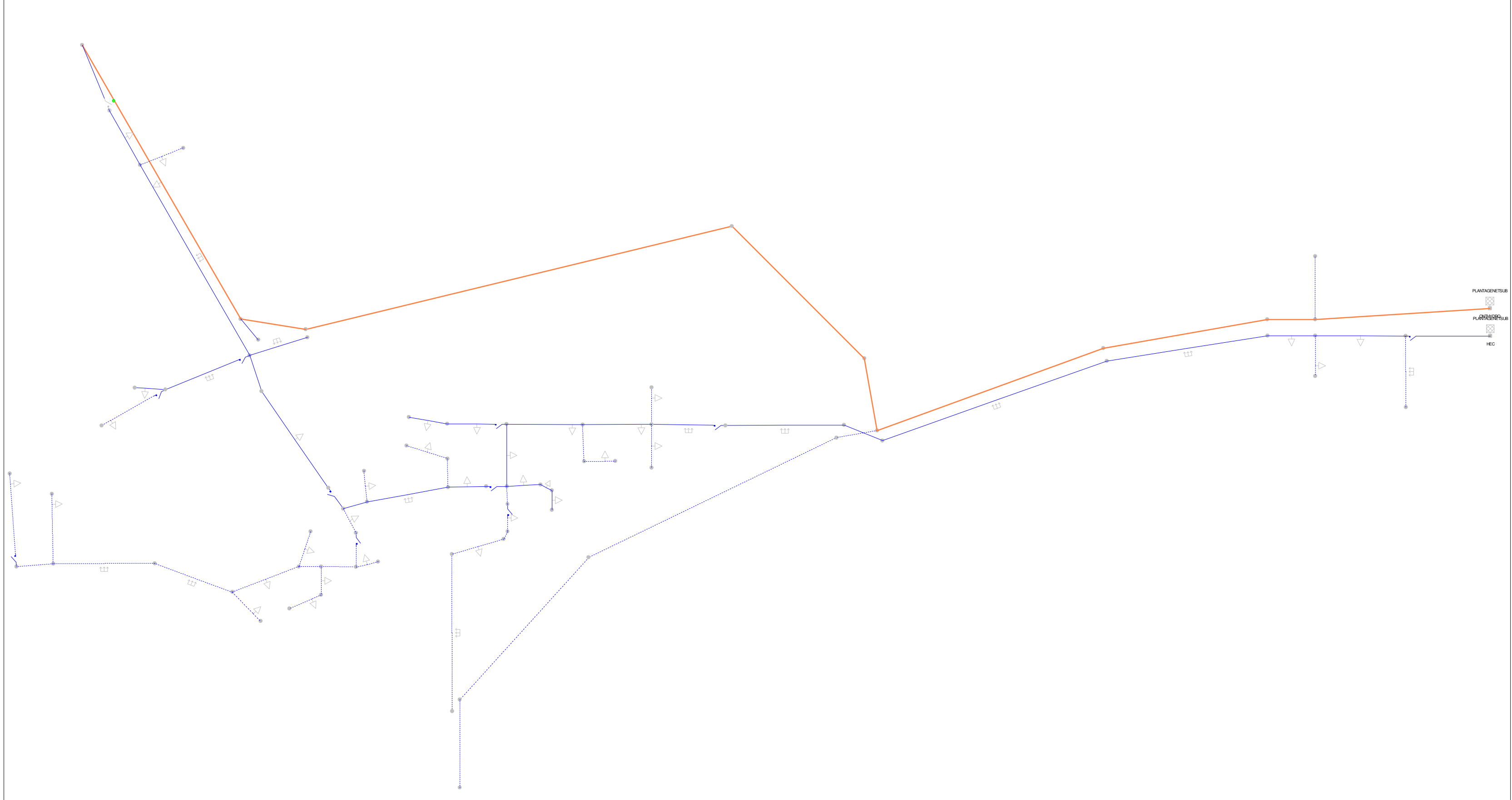
Line Types :

- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :

- Spot Load
- Distributed Load
- Switch, (C)
- Switch, (O)

Plantagenet: Future 2029 - Winter Peak Loading Conditions - Loading



Legend

Layer :
Loading level color(%)

Colors :
- 0.000000 80.000000
- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

Line Types :
- Overhead phase A
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- Overhead phase C
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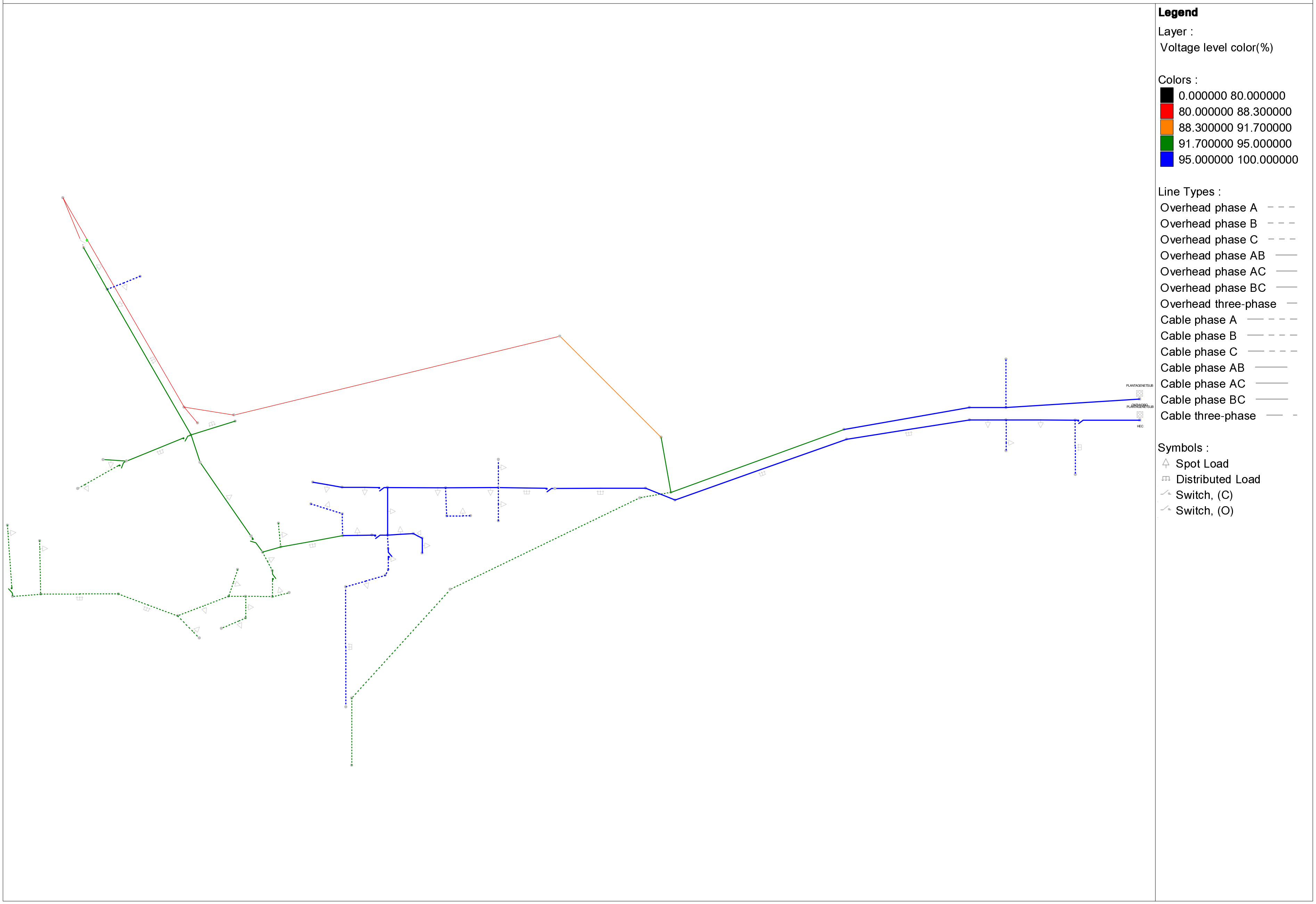
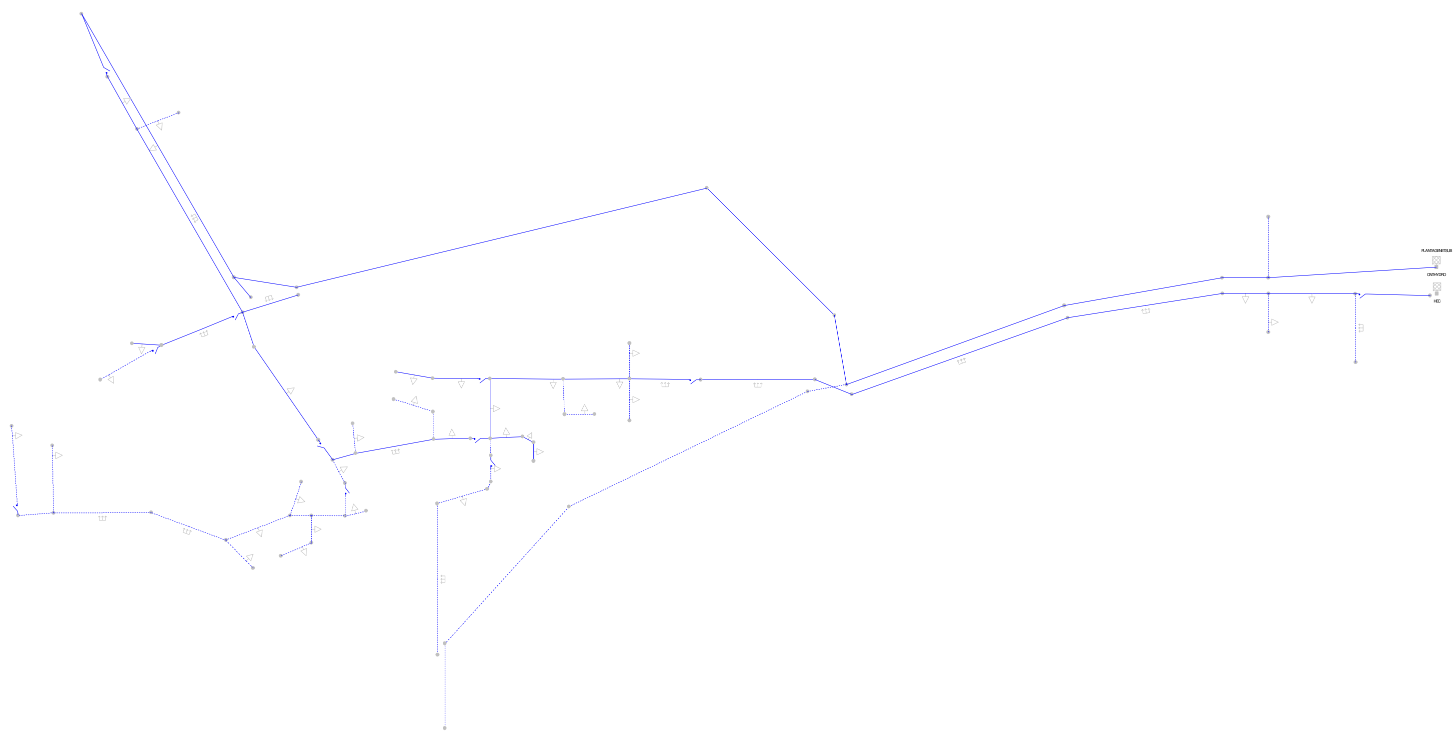
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)
- Switch, (O)

Plantagenet: Future 2029 - Winter Peak Loading Conditions - Voltage



Plantagenet: Future 2029 - Loss of Feeder under Summer Peak Loading Conditions - Loading



Legend

Layer :
Loading level color(%)

Colors :

- 0.000000 80.000000
- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000(

Line Types :

- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

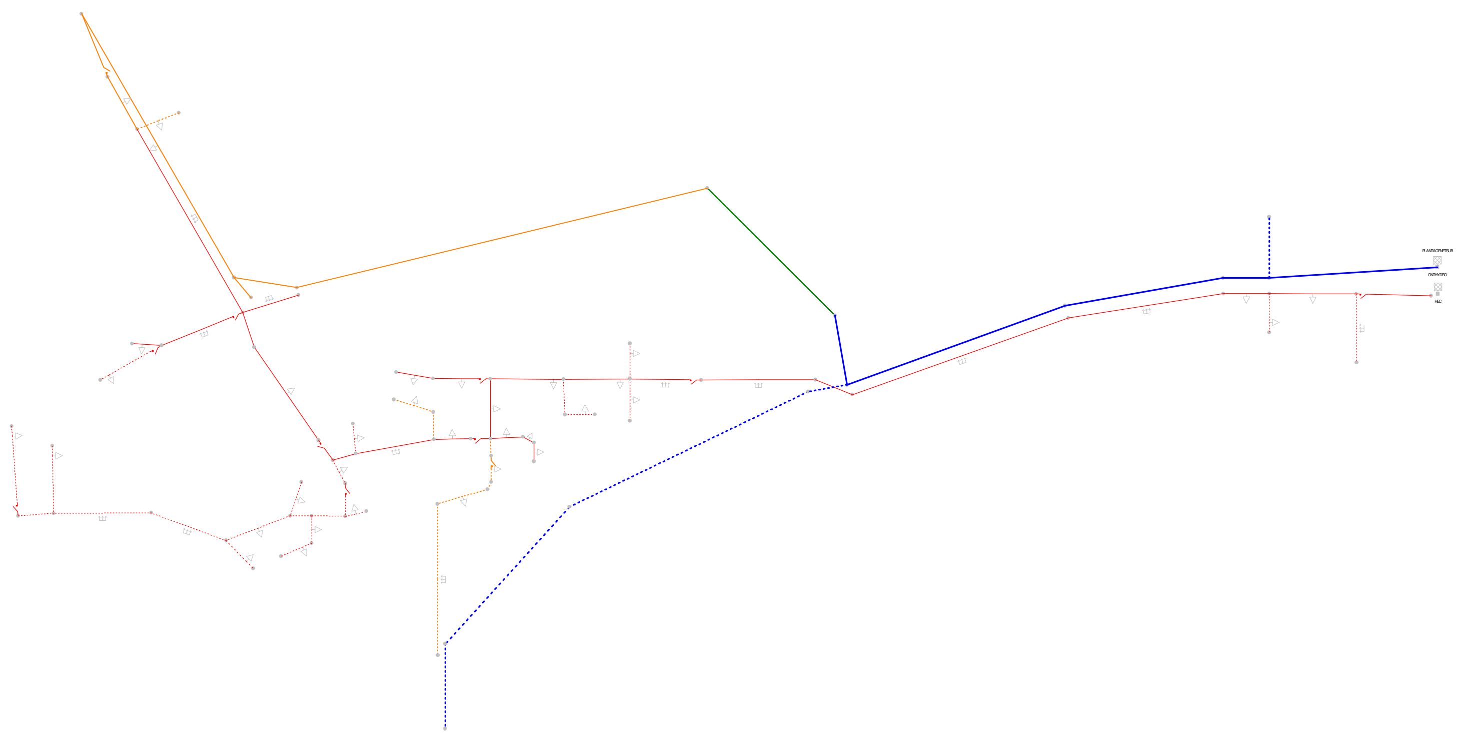
Symbols :

- Spot Load
- Distributed Load
- Switch, (C)

PLANTAGENET_Base Study_Summer - 2029.XST

Tuesday, November 19, 2019, 12:42:02 PM

Plantagenet: Future 2029 - Loss of Feeder under Summer Peak Loading Conditions - Voltage



Legend

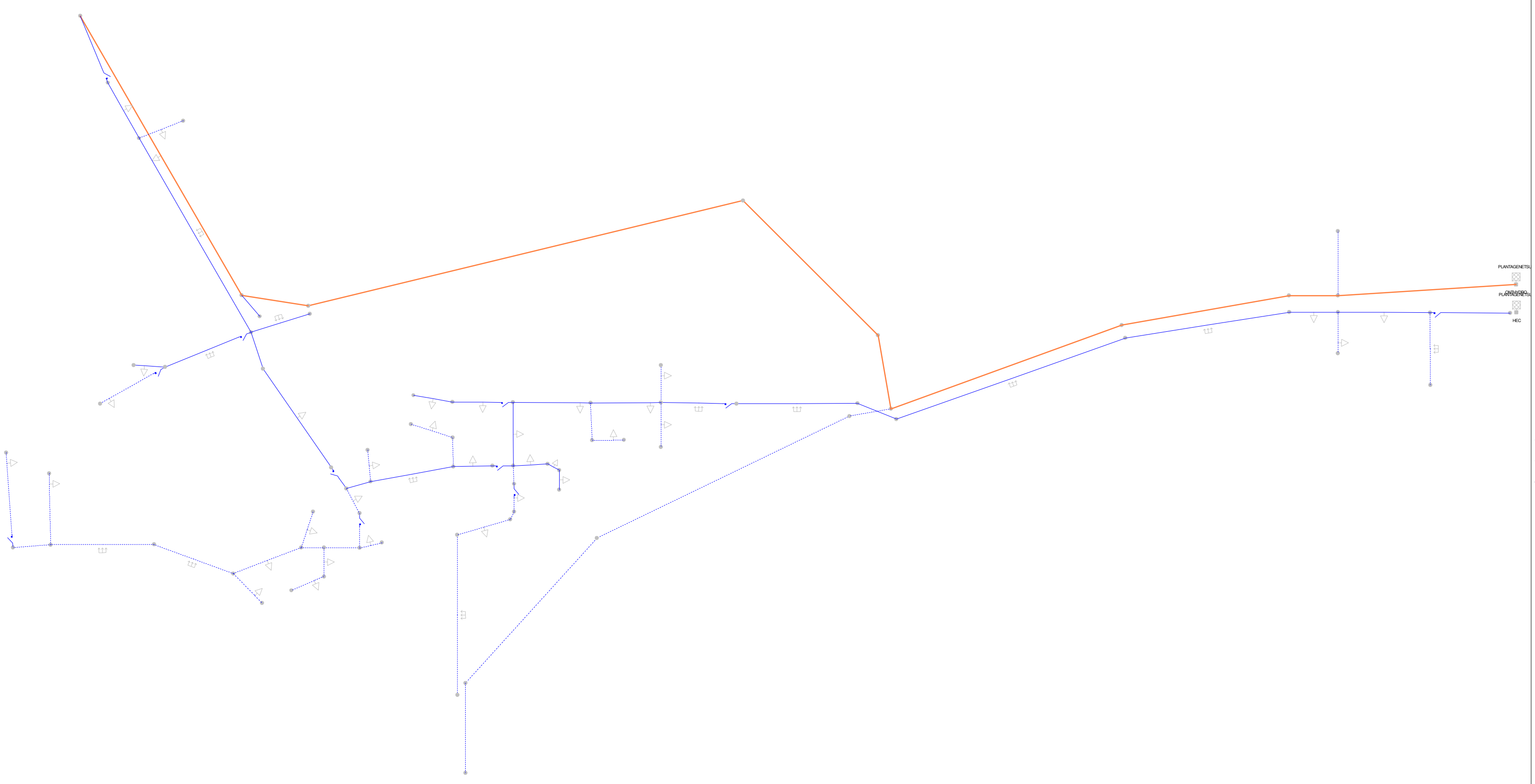
Layer :
Voltage level color(%)

Colors :
- 0.000000 80.000000
- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
- 95.000000 100.000000

Line Types :
- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)

Plantagenet: Future 2029 - Loss of Feeder under Winter Peak Loading Conditions - Loading



Legend

Layer :

Loading level color(%)

Colors :

- 0.000000 80.000000
- 80.000000 90.000000
- 90.000000 95.000000
- 95.000000 125.000000
- 125.000000 150.000000
- 150.000000 999999.0000

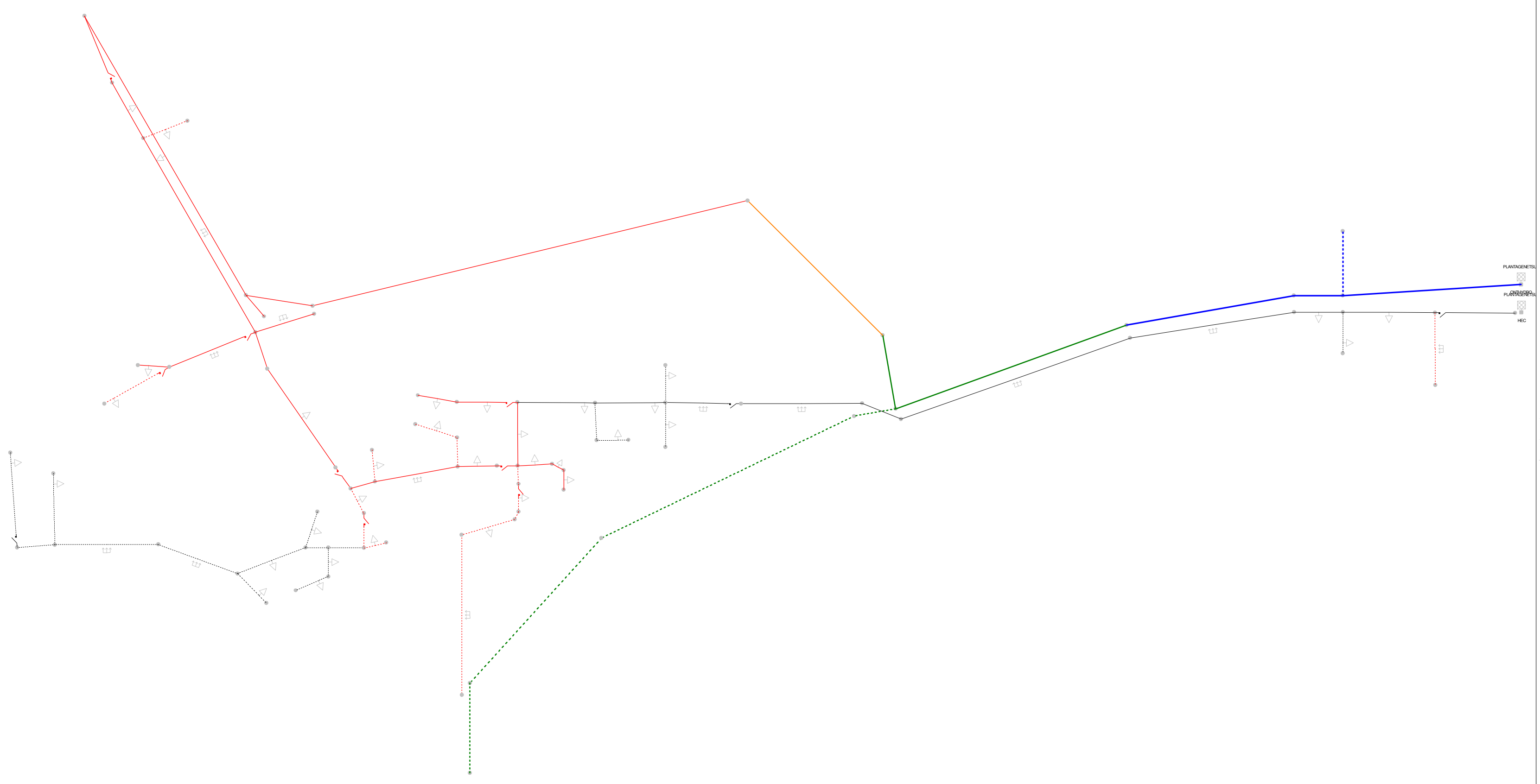
Line Types :

- Overhead phase A
- Overhead phase B
- Overhead phase C
- Overhead phase AB
- Overhead phase AC
- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :

- Spot Load
- Distributed Load
- Switch, (C)

Plantagenet: Future 2029 - Loss of Feeder under Winter Peak Loading Conditions - Voltage



Legend

Layer :
Voltage level color(%)

Colors :
- 0.000000 80.000000
- 80.000000 88.300000
- 88.300000 91.700000
- 91.700000 95.000000
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Line Types :
- Overhead phase A
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- Overhead phase C
- Overhead phase AB
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- Overhead phase BC
- Overhead three-phase
- Cable phase A
- Cable phase B
- Cable phase C
- Cable phase AB
- Cable phase AC
- Cable phase BC
- Cable three-phase

Symbols :
- Spot Load
- Distributed Load
- Switch, (C)

APPENDIX C

Complete Description and Location of Each Pole in the Service Territory

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
1	35	C-5	2018	2017	P	0%	
2	35	C-5		2017	P	0%	
3	40	C-5	1975	2017	P	0%	42
4	40	C-5	1976	2017	P	0%	28
5	40	C5	1979	2017	P	0%	
9	35	C-5	1986				
14				2017	P	0%	
24	50	C3	1979	2017	P	0%	
26				2017	P	0%	
32	50	C3	1980				
34	50	C3	1984	2017	P	0%	
35	30	5					
36				2017	P	0%	
37				2017	P	0%	
38	40	C-5	1976	2017	P	0%	
39	40	C-5	1989	2017	P	0%	27
40	35	C-5	2003	2017	P	0%	
41	30	C-6	1989	2017	P	0%	30
42	40	C-5		2017	p	0%	
43	35	C-5	1989	2017	P	0%	
44	40	C-4	2011	2017	P	0%	
45	35	C-7	1960	2017	P	0%	
46	35	C-5	1987	2017	P	0%	
47				2017	P	0%	
48	35	C-5	1969	2017	P	0%	
49	35	C-5	1983	2017	P	0%	
54	40	C5	1985	2017	P	0%	
55	35	C-5	1950	2017	P	0%	
56	40	C-5		2017			31
57	45	C-5	1997	2017	P	0%	
58	35	C-5	1986	2017	P	0%	
59	40	C-5	2008	2017	P	0%	
60	40	C-5	1980	2017	P	0%	
61	45	C4	1993	2017	P	8%	
62	40	C-5	1990	2017	P	0%	
63	40	C-5		2017	P	0%	38
64	45	C-3	2005	2017	P	19%	
65	40	C-5	1990	2017	P	0%	
67	35	C-5	1990	2017	P	0%	
69	35	C-5	1957	2017	F	27%	
70	40	C-5		2017	P	0%	
71	30	C5		2017	P	0%	

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
72	35	C-5	1990	2017	P	0%	
73	45	C-5	2018	2017	F	90%	25
74	40	C-5	1980	2017	P	0%	
75	35	C-4	2004	2017	P	0%	
76	45	C4		2017	P	0%	60
78				2017	P	12%	2
80				2017	P	0%	
82	50	C3	1984	2017	P	0%	
83	50	C3	1984	2017	P	0%	5
85				2017	P	0%	
86	50	C3	1984	2017	P	0%	
88	50	C3	1984	2017	P	0%	4
94	30	C5	1986	2017	P	0%	
96	45	C4	1985				
97	35	C-5	1980				
98	35	C-5	1960	2017	F	23%	6
99				2017	P	0%	
101	35	C-5	1990				
103				2017	P	0%	
105	40	C5	1982	2017	P	9%	11
106	40	C5	2001	2017	P	10%	
107	40	C5	1974	2017	F	33%	22
108	35	C5	1974	2017	p	19%	
109	40	C5	1990	2017	F	29%	10
110	40	C5	1979	2017	p	0%	19
111	45	C4	2001	2017	P	8%	12
113	45	C4	1980	2017	P	19%	14
114	45	C3	1980	2017	P	10%	15
115	40	C5	1985	20017	P	0%	
116				2017	P	0%	
117				2017	P	0%	
118	40	C5	1971	2017	P	9%	52
119	45	C3	1989	2017	P	8%	
120	35	C5	1980	2017	P	10%	57
121	30	C5		2017	P	0%	
122	40	C4	1990	2017	P	9%	
123	40	C5	2019	2017	F	83%	
124	30	C5		2017	P	6%	
125	40	C4	2009	2017	P	9%	
126	40	C3	1987	2017	F	60%	
127	45	C4	2004	2017	P	8%	16
128	35	C5	1974	2017	P	0%	

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
129	35	C5	1974	2017	p	0%	
130	40	C5	1982	2017	P	10%	
132	35	C5	2001	2017	P	0%	
133	35	C5	1974	2017	P	0%	
134	45	C5		2017	P	5%	
135	40	C5	1963	2017	P	0%	
136	45	C4	2006	2017	P	8%	
138	35	C5		2017	P	0%	
139	40	C5	1988	2017	P	10%	
140	45	C4	2005	2017	P	9%	30
141	45	C4	1980	2017	P	8%	41
142				2017	P	9%	54
143	35	C5	1988	2017	P	0%	
144	35	C3		2017	P	0%	
145	40	C-5	1982	2017	P	0%	33
146	45	C3		2017	P	0%	56
147	35	C5	2000	2017	P	10%	
148	45	C3		2017	P	9%	
149	40	C5	1974	2017	P	14%	55
150	30	C5	1973	2017	P	0%	
151	35	C5		2017	P	4%	
153	40	C5	1983	2017	P	9%	17
154	45	C3		2017	P	8%	
155	45	C3		2017	p	9%	63
156	40	C4	1985				
157	40	C3	1977	2017	P	0%	
165	40	C3		2017	P	0%	
166	40	C4	2007	2017	P	0%	
167	35	5	1976	2017	P	0	
169	40	C-5	1999	2017	P	0%	
171	35	5	1951				
172	40	C5	2001	2017	P	0%	
173	30	C5	1958				
175	35	C5	1948	2017	P	0%	
176	45	C5	1987	2017	P	0%	80
177	45	C5	1985	2017	F	33%	43
179	35	C5		2017	P	0%	
180	40	C5	1975	2017	P	0%	
181	30	C5	1970	2017	P	6%	
182	45	C-3	2011	2017	P	0%	
185	35	5	1993				
186	40	5	1951	2017	P	4	50

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
187	45	5	2015	2017	P	0	49
188	35	5	2001				
189	30	C-5	1982	2017	P	0%	
191	45	C-3	2014	2017	P	0%	
192	40	5	1988				
193	35						
194	35	5	1966	2017	P	0	
195	45	5	1960	2017	P	0	48
196							554
198	35	5	1993				
199	35	C5	1993	2017	P	0%	
200	40	C5	1985	2017	P	0%	35
201	45	C5	1987	2017	P	0%	
202	40	C5	1985	2017	P	0%	45
203	40	C5	1977	2017	P	0%	49
205	30	C5	1970	2017	P	0%	
209	40	4		2017	P	0	74
212	35	C4	1999	2017	P	10%	
214	30	C5	1969	2017	P	0%	
218							64
219	35	C5	2007	2017	P	0%	
220	35	C5	1992	2017	P	0%	
221	45	c4	2001	2017	P	0%	222
224	30	C5	2019	2017	P	0%	0
226	35	C5		2017	P	7%	
228	40	C5	1982				
229	40	C5	1993	2017	P	10%	53
230	45	C-4	1999	2017	P	0%	36
231	45	C-3	2014	2017	P	0%	
236	40	4	1987	2017	P	0	T
237	40	C5	1988	2017	P	0%	47
238	45	5	1969	2017	P	0	
239	35	5	1969	2017	P	9	46
240	35	5	1969	2017	P	0	
241	45	5	1986	2017	P	0	45
242	35	5	1967	2017	P	0	
245	40	5					51
246	35	5	1987				
247	40	4	??	2017	p	0	
248	45	4	1990	2017	F	63	
249	45	4	1989	2017	P	0	
250	40	4	??	2017	P	0	T

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
253	40	4	??	2017	P	0	30
256	35	5	1976	2017	P	0	
257	30	6	1954	2017	P	0	
258	35	5	??	2017	P	0	
259	35	5	1976	2017	P	0	
262	40	5	1980	2017`=	P	0	
263	35	C-5	1967	2017	P	0	
264	40	C-5	1988	2017	P	0	
266	45	C-5		2017	P	0	T-34
267	35	5	1983	2017	P	0	
268	45	4	2011	2017	P	0	
269	40	5	1975	2017	P	0	47
270	40	5	??	2017	P	0	51
271	40	5	1976	2017	P	0	
273	45	C-4	1977				
274	45	C-3	2006	2017	P	0	
275	35	C-5	1945	2017	P	0	
277	40	C-5	1983	2017	P	0	
278	35	5	1967	2017	P	0	
279	40	C-5	1980	2017	P	0	
280	45	C-4	2018	2017		20%	
281	35	C-5	1977	2017	P	0	
282	40	5	1982	2017	P	7	9
285	35	5	1991	2017	p	0	
286	30	C-5		2017	P	0	
287	35	C-5	1960	2017	P	0	
288	35	C-5	1966	2017	P	0	
289	45	C-5	1993	2017	P	0	9
290	45	C-3	2006	2017	P	0	
291	40	C-5	1985	2017	P	0	
292	50	C-4	1980	2017	P	0	
293	35	C-3	2000	2017	P	0	
294	35	C-5	1957	2017	P	9	
296	40	C-5	2001	2017	P	0	
297	35	C-5	2005				
298	30	C-5		2017	P	0	
299				2017	P	0	33
301	40	C-4	1980	2017	P	5	
303	45	4	??	2017	P	0	
304	35	5	1976	2017	P	0	
305	35	5	1967	2017	P	0	
308	35	C-5	1977	2017	P	9	

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
309	45	C-4	2001	2017	P	0	44
310	35	C-5	1966	2017	P	0	
311	35	C-5	1960	2017	P	0	
312	35	5	1987	2017	P	0	
313	40	5	1967	2017	P	0	
314	45	C-5	1993	2017	P	0	
316	40	C-5	1945	2017	P	0	
317	40	C-5	1959	2017	P	11	
318	30	C-4	1980	2017	P	0	
319	40	5	1967	2017	P	0	
320	40	4	1980	2017	p	0	40
321	30	C-5	1957	2017	P	0	
322	40	C-5	1982	2017	P	0	
323	40	C-5	1980	2017	P	0	
324	35	C-5	2005	2017	P	0	
325	30	C-5	1953	2017	P	0	
326	40	C-4	1980	2017	P	0	11
327	40	C-5	1983	2017	F	33	
328	30	C-5	1946	2017	P	0	
330	35	5	1957	2017	P	0	
333	4		2007				
338	35	5	1996				
342	3		1982				T
343	5		1980				
345	4		1985				T
346	30	C-5	1976	2017	P	0	
347	40	C-5	2000	2017	P	0	
349	45	4	1981	2017	P	0	15
350	40	C-5	1998	2017	P	0	18
351	40	5	1982	2017	P	0	
352	40	5		2017	P	6	
353	40	C-4	1960	2017	P	0	18
354	35	5	1976	2017	P	10	57
355	35	5	1976	2017	P	0	
356	40	5	1982	2017	P	0	
360	35	C-5	2014	2017	P	0	
361	40	5		2017	P	0	
362	35	5	1965	2017	P	0	
364	45	C-4	1988	2017	P	0	72
366	35	C-5	2000	2017	P	0	
367	35	C-5	1967	2017	P	0	
368	30	C-5	1949	2017	P	0	

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
369	45	4	1982	2017	P	0	55
372	40	5	2012	2017			
376	35	C-5	1967	2017	P	0	1
377	40	4	1965	2017	P	0	20
378	40	5	1976	2017	P	0	
379	40	5	1982	2017	P	0	
380	45	C-4		2017	P	0	
381	40	C-5	1978	2017	P	6	
382	40	5		2017	P	0	
383	35	5		2017	P	0	
384	35	6	1964	2017	P	0	
385	40	5	1974	2017	P	5	
387	35	5	1976	2017	P	0	
388	35	4	1963	2017	P	0	54
389	35	4	1994	2017	P	0	21
391	40	5	1964	2017	P	0	
393	40	C-5	1976	2017	P	0	
394	40	C-5	1978	2017	p	0	
395	35	C-5	1986	2017	P	0	35
404	40	5	1970				
405	35	5	1985				
407	5		1989				
410	35	C-5	1975	2017	P	0	
415	30	C-5		2017	P	0	
416	40	C-5	1975	2017	P	0	45
417	40	C-5	1985	2017	P	0	
418	40	C-3	1970	2017	P	0	
421	C-5		1973	2017	P	0	
422	40	C-5	1986	2017	P	0	
423	C-5		2012	2017	P	0	
424	C-5		1988	2017	P	9	
425	C-5		2008	2017	P	0	
426	C-5		2008	2017	P	0	
429	40	C-5	1985	2017	P	0	
430	C-5		1985	2017	P	0	
431	40	C-5	2007	2017	P	0	
432	C-5		1976	2017	P	0	
436	C-5		1976	2017	P	0	
441	35	C-5	1985				40
444	C-5			2017	P	0	
452	C-4		2012	2017	P	0	
468	40	5	2002				

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
469	45	4	2001				301
470	45	4	1995				
471	30	1	1978				28
473	40	4	1975				68
475	35	5	1961				
476	30	C5		2017	P	0%	
477	35	5	1988				
479	45	4	1996				
484	C-5		1986	2017	P	0	71
485	40	C-5	1975	2017	P	0	
486	35	C-5	1965	2017	p	0	
487	40	C-5	1986	2017	F	51	1
488	C-5		1951	2017	P	0	
489	C-4		1998	2017	P	0	
490	40	C-3	1988	2017	P	0	
492	30	C-5	1959	2017	P	0	
493	C-5		2008	2017	P	0	
494				2017	P	0	
495	C-4		1996	2017	P	0	38
497	C-5		1972	2017	P	0	
498	C-5			2017	P	0	
499	C-5		1976	2017	P	0	
502	45	2	1988				73
504	35	5	1953				
506	35	5	1960				
507	40	5	1979				23
508	35	5	1961				
509	40	4		2017	P	0	
510	35	5	2008				
513	45	4	2002				
536	40	5	2001				
538	35	4					
539	45	4	1995				26
540	40	4	1975				
541	40	4					302
542	40	5	1984				
546	35	5	1993				
547	40	4	1975				
548	40	5					
549	35	5	1953				
550	35	C-5	1957	2017	P	0	14
551	40	C-4	1996	2017	P	0	

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
552	30	C-4	2008	2017	P	6	
553	C-5		1973	2017	P	0	
555	40	5	1980				
556	40	5	2002				
557	45	4	2002				300
558	35	5	1985				
560	45	3	2000				
569	40	C-5	1966	2017	P	0	
573	50	3	1998				
577	40	5	1963				
578	45	4	2000				
SW11	50	C3	1989	2017	P	0%	
SW14	35	C-5	1957				
SW16	45	C-3		2017	F	67%	
SW18	45	C4	2004	2017	P	0%	
SW20	45	C-4	2004	2017	P	0%	
SW21	45	C3		2017	P	9%	
SW22	40			2017	P	8%	
SW23				2017	P	8%	
SW24	40	C4	2001	2017	P	7%	
SW26	40	C-5	1998	2017	P	0	
SW27	35	C5	1974	2017	P	0%	
SW29	40	C5	1985				
SW34				2017	P	0	
SW36	40	5	1979				
SW37	40	C-5		2017	P	0	
SW39	40	C5	1985				
SW46	40	C-5	1999	2017	P	0%	
SW51	40	C5	1990				
SW58	40	C-5	1990	2017	P	0%	
SW59	40	C5	1980	2017	P	8%	
SW60	40	5	1976	201	P	0	
	C-4		2007				37
							10
	45	C-3	2018				12
	35	C-5					
	35	C-5	1976				56
	35	5	1954				
	35	6	1954				31
	40	5	1974				
	40	5	1989				
	40	5	1988				

Pole				Drilling			TRANSFO
#	LENGTH	CLASS	YEAR	Year	Pass/ Fail	DECAY OR CAVITY DETECTION (%)	#
	40	5	1980				
	35	5	2008				
	45	4	2008				70
	35	5	1992				
	40	5	1992				
	45	3	1992				
	40	5	1992				
	45	3	1992				75
	45	4					
	40	4	1961				
	30	6	1960				
	35	5	1970				
	35	5	1970				

APPENDIX D

Complete Description and Location of Each Transformer in the Service Territory

Transfo	KVA	PH	POLE/PAD	VOLTAGE	MANU-	SERIAL	IMPEDIANT	YEAR	WEIGHT	PCB/FREE	POLE	ADDRESS	
#			MOUNT		FACTURER	#				TESTED	#	CIVIC	STREET
26	25	3	POLE	120/240	MALONEY	192348	1.8	1970	440 LBS	LEAKING	334	905-A	OLD HWY 17, PLANTAGENET
70	10	1	POLE	120/240	NO PLATE	INSULATOR	BROKEN	1970			341	MARINA LALONDE-A	JESSOP'S FALL, PLANTAGENET
30	37.5	1	POLE	120/240	NO RELLO	5672-32	2.7	1960	OLD				
300	15	1	POLE	120/240	PACKARD	110225	2	1960	525 LBS				
76	10	1	POLE	120/240	ENGLISH	105673	?	1950	612 LBS		B-114	2 PONTS	OLD HWY 17, PLANTAGENET
	25	1	POLE	120/240	WESTINGHOUSE	74425025	1.8	1951	715 LBS			594	BOLT, Alfred
73	25	1	POLE	120/240		K5198-2	2.6	1960	495 LBS		321	750-F	OLD HWY 17, PLANTAGENET
301	75	1	POLE	120/240	GE	506798	2.3	1963	935 LBS		117	25-S	LAROCQUE, ALFRED
302	37.5	1	POLE	120/240	GE	495699	1.7	1963	550 LBS		B-69	24-N	ST-PAUL
62	37.5	1	POLE	120/240	WESTINGHOUSE	425590	1963	1963	580 LBS		AL3C4C	215	OLD HWY 17, PLANTAGENET
65	5	1	POLE	120/240	WESTINGHOUSE	162589	2.6	1963	125 LBS		AL3CNC	173-N	OLD HWY 17, PLANTAGENET
66	37.5	1	POLE	120/240	FERRANTI	65304	2	1964	545 LBS		AKBRTU	611	BUTTERFIELD, ALFRED
67	75	1	POLE	120/240	FERRANTI	88241	2.5	1965	915 LBS		B-58	520-A	ST-PHILIPPE, ALFRED
27	37.5	1	POLE	120/240	WESTINGHOUSE	335156	2.7	1965	640 LBS		122	0	LAROCQUE, ALFRED
28	75	1	POLE	120/240	?	88242	2.5	1965	915 LBS		157	42-A	DUMOULIN, ALFRED
29	75	1	POLE	120/240	CGE	579732	2.3	1965	935 LBS		237	440-F	MAIN, PLANTAGENET
30	25	1	POLE	120/240	MALONEY	192339	1.8	1965	440 LBS		AL3J5J	553-F	#REF!
31	25	1	POLE	120/240	MALONEY	192340	1.8	1965	440 LBS		229	535	MARIA, PLANTAGENET
62	75	1	POLE	120/240	MALONEY	237146	3.1	1966	830 LBS		B-8	269-F	ST-JOSEPH
12	75	1	POLE	120/240	FERRANTI-PACKARD	2-105013	2.3	1966	935 LBS		221	510-F	WATER, PLANTAGENET
13	50	1	POLE	120/240	FERRANTI	2-109698	2	1967	660 LBS		64	532-F	TELEGRAPH, ALFRED
14	75	1	POLE	120/240	FERRANTI	2-107261	2.7	1967	935 LBS		B-63	599-F	ST-PHILIPPE, ALFRED
	50	1	POLE	120/240	RELIANCE	KW7649-8	2.4	1968	682 LBS		150		ST-MARY SCHOOL
	50	1	POLE	120/240	RELIANCE	KW7649-3	2.4	1968	682 LBS		149	370	ST-MARY
40-1	37.5	3	POLE	120/240	RELIANT	K5907-36	PLATE	1968			278	902-E	CONCESSION, PLANTAGENET
#VALUE!	50	1	POLE	120/240	RELIANT	KW8581-18	2.3	1968	678 LBS		241	650-F	EGLISE, PLANTAGENET
54-1	50	3	POLE	600	RELIANCE	KW8581-10	2.3	1968	678 LBS		287	BETWEEN SCHOOL AND AGE OR	MAIN, PLANTAGENET

Transfo	KVA	PH	POLE/PAD	VOLTAGE	MANU-	SERIAL	IMPEDIANT	YEAR	WEIGHT	PCB/FREE	POLE	ADDRESS	
54-2	50	3	POLE	600	RELIANCE	KW8581-11	2.3	1968	678 LBS		287	BETWEEN SCHOOL AND AGE OR	MAIN, PLANTAGENET
54.3	50	3	POLE	600	RELIANCE	KW8581-12	2.3	1968	678 LBS		287	BETWEEN SCHOOL AND AGE OR	MAIN, PLANTAGENET
55-1	25	3	POLE	600	PACKARD	218256	2	1968	495 LBS		286	235-A	MAIN, PLANTAGENET
55-2	25	3	POLE	600	PACKARD	218261	2	1968	495 LBS		286	235-A	MAIN, PLANTAGENET
55-3	25	3	POLE	600	PACKARD	218254	2	1968	495 LBS		286	235-A	MAIN, PLANTAGENET
57	75	1	POLE	120/240	RELIANT	KW7907-1	2.7	1969	885 LBS	NO PCB	293	238-F	ALFRED, PLANTAGENET
	75	3	POLE	347/600	CGE	695511	2.3	1969	966 LBS		198	636-F	WATER, PLANTAGENET
1	100	1	POLE	120/240	GE	485773	1.8	1970	545 LBS		137	71-N	LANIEL, ALFRED
2	75	1	POLE	120/240	MALONEY	232649	3.1	1970	830 LBS		B-51	421-F	ST-PHILIPPE, ALFRED
25	75	1	POLE	120/240	FERRANTI	2-22837	2.5	1970	745 LBS		130	52-S	VICTOR, ALFRED
64-2	50	1	POLE	600	RELIANCE	WP281907	2.4	1970	682 LBS		AL3CPM	173	OLD HWY 17, PLANTAGENET
64-3	50	1	POLE	600	RELIANCE	WP----44	2.4	1970	682 LBS		AL3CPM	173	OLD HWY 17, PLANTAGENET
71	75	1	POLE	120/240	RELIANCE	KW9000-6	2.6	1971	920 LBS		18	194-F	St-Joseph, Alfred
72	50	1	POLE	120/240	RELIANCE	KW9576-56	2.4	1971	682 LBS		80	222-E	TELEGRAPH, ALFRED
15	75	1	POLE	120/240	WESTINGHOUSE	703922	1.7	1971	815 LBS		291	540-A	OTTAWA, PLANTAGENET
51	25	3	POLE	120/240	CGE	786974	1.8	1971	410 LBS		337	935-A	OLD HWY 17, PLANTAGENET
61-1	50	3	POLE	347/600	RELIANT	KW8999-8	2.4	1971	683 LBS		CMQ932	235	OLD HWY 17, PLANTAGENET
61-2	50	3	POLE	347/600	RELIANT	KW8999-9	2.4	1971	683 LBS		CMQ932	235	OLD HWY 17, PLANTAGENET
61-3	50	3	POLE	347/600	RELIANT	KW8999-0	2.4	1971	683 LBS		CMQ932	235	OLD HWY 17, PLANTAGENET
#VALUE!	25	1	POLE	120/240	MALONEY	KW8999-7	2.4	1971	683 LBS		329	837-A	OLD HWY 17, PLANTAGENET
	75	3	POLE	347/600	RELIANCE	KW9000-7	2.6	1971	920 LBS		198	636-F	WATER, PLANTAGENET
	50	1	POLE	120/240	RELIANCE	KW9175-7	2.7	1972	655 LBS		144	67	ST-PLACIDE
1	50	1	POLE	120/240	RELIANCE	EW1105-6	2.5	1972	672 LBS		247	535-A	EGLISE, PLANTAGENET
17	50	1	POLE	120/240	CGE	831381	2	1972	710 LBS		AL3K8C	617-F	CTY RD 9 , PLANTAGENET
18	50	1	POLE	120/240	RELIANCE	EW1105-7	2.5	1972	672 LBS		265	600-F	CONCESSION, PLANTAGENET
41	25	1	POLE	120/240	CGE	831371	2	1972	710 LBS		AL3K42	603-F	CTY RD 9 , PLANTAGENET
	75	1	POLE	120/240	RELIANCE	EW1033-2	2.7	1972	890 LBS		393	385	OLD HWY 17, PLANTAGENET
	75	3	POLE	347/600	WESTINGHOUSE	145P695H01	1.7	1972	815 LBS		198	636-F	WATER, PLANTAGENET

Transfo	KVA	PH	POLE/PAD	VOLTAGE	MANU-	SERIAL	IMPEDIANT	YEAR	WEIGHT	PCB/FREE	POLE	ADDRESS	
1	75	1	POLE	120/240	ONAN	2-150588	2.1	1974	825 LBS		97	172-F	ST-PHILIPPE, ALFRED
5	75	1	POLE	120/240	MALONEY	205586	2	1974	950 LBS		AL3KNJ	585-F	CTY RD 9 , PLANTAGENET
9	25	1	POLE	120/240	WESTINGHOUSE	186451	1.8	1974	725 LBS		211	535-A	ALBERT, PLANTAGENET
9	25	1	POLE	120/240	RELIANCE	LW1398	2.6	1974	698 LBS		269	497-C	COUNTY ROAD 9, PLANTAGENET
10	50	1	POLE	120/240	RELIANCE	WP80751-2	2.4	1974	672 LBS		166	819-A	STATION, PLANTAGENET
40-1	10	3	POLE	347/600	RELIANCE	WP80752-6	3.5	1974	231 LBS		AL3K3D	594-A	CTY RD 9 , PLANTAGENET
40-2	10	3	POLE	347/600	RELIANCE	WP80752-5	3.5	1974	231 LBS		AL3K3D	594-A	CTY RD 9 , PLANTAGENET
40-3	10	3	POLE	347/600	RELIANCE	WP80752-1	3.5	1974	231 LBS		AL3K3D	594-A	CTY RD 9 , PLANTAGENET
64-1	50	1	POLE	600	RELIANCE	WP8075-1	2.4	1974	682 LBS		AL3CPM	173	OLD HWY 17, PLANTAGENET
75-1	50	1	POLE	600	WESTINGHOUSE	882498	1.6	1974	575 LBS		346	100	PARENT, PLANTAGENET
75-2	50	1	POLE	600	WESTINGHOUSE	882606	1.6	1974	575 LBS		346	100	PARENT, PLANTAGENET
	25	1	POLE	120/240	MALONEY	112205	2.5	1975	650 LBS		119	75-N	LAROCQUE, ALFRED
	75	1	POLE	120/240	RELIANCE	WP81638-1	2.7	1975	885 LBS		B-16	350-F	ST-JOSEPH
	75	1	POLE	120/240	RELIANCE	WP81638-2	2.7	1975	885 LBS		150		ST-MARY SCHOOL
1	50	1	POLE	120/240	FERRANTI-PACKARD	?	2	1975	620 LBS		213	625-A	ALBERT, PLANTAGENET
	25	1	POLE	120/240	PLATE MISSING	?	?	1975	?		314	157	COMTE, PLANTAGENET
33	50	1	POLE	120/240	CGE	1048377	2	1976	710 LBS		132	74-F	VICTOR, ALFRED
45	50	1	POLE	120/240	CGE	1042892	2	1976	710 LBS		47	543-AN	BOLT, Alfred
56-1	15	3	POLE	600	CGE	1008695	1.7	1976	320 LBS		256	295-F	WATER, PLANTAGENET
56-2	15	3	POLE	600	CGE	1008697	1.7	1976	320 LBS		256	295-F	WATER, PLANTAGENET
56-3	15	3	POLE	600	CGE	1008696	1.7	1976	320 LBS		256	295-F	WATER, PLANTAGENET
	50	1	POLE	120/240	CGE	1042007	2	1976	710 LBS		223	455	NATION STREET
1	75	1	POLE	120/240	CG	1089863	1.9	1977	828 LBS		B-54	463	ST-PHILIPPE, ALFRED
1	50	1	POLE	120/240	CG	1089843	2	1977	621 LBS		141	30-N	LANIEL, ALFRED
49	50	1	POLE	120/240	CGE	1089840	2.7	1977	621 LBS		41	560-N	BOLT, Alfred
	50	1	POLE	120/240	MALONEY	297291	1.6	1977	600 LBS		150		ST-MARY SCHOOL
4	50	1	POLE	120/240	CGE	1085482	2	1977	710 LBS		AL3J6P	549-547	CTY RD 9 , PLANTAGENET
44	50	1	POLE	120/240	CGE	1085481	2	1977	710 LBS		231	601-E	NATION, PLANTAGENET

Transfo	KVA	PH	POLE/PAD	VOLTAGE	MANU-	SERIAL	IMPEDIANT	YEAR	WEIGHT	PCB/FREE	POLE	ADDRESS	
75-3	50	1	POLE	600	CGE	1089842	2	1977	621 LBS		346	100	PARENT, PLANTAGENET
	25	1	POLE	120/240	CGE	1088932	2.2	1977	470 LBS		ATLDJZ	597	CTY RD 9 , PLANTAGENET
1	50	1	POLE	120/240	FERRANTI-PACKARD	2-174347	1.9	1978	665 LBS		194	662-656	WATER, PLANTAGENET
2	50	1	POLE	120/240	CARTE	E806-1	1.9	1978	603 LBS		AL3KCF	631-F	NATION, PLANTAGENET
3	75	1	POLE	120/240	GE	1226550	2	1979	888 LBS		56	420-A	TELEGRAPH, ALFRED
4	75	1	POLE	120/240	CARTE	G282-1	2.4	1979	900 LBS		374	235	PITCH OFF, PLANTAGENET
68	50	1	POLE	120/240	CARTE	G281-2	2	1979	612 LBS		354	119	JESSOP'S FALL, PLANTAGENET
69	100	3	POLE	347/600	ONAN	G1249-1	2.1	1980	1067 LBS		63	520-F	TELEGRAPH, ALFRED
12	100	3	POLE	347/600	CARTE	G1249-2	2.1	1980	1077 LBS		63	520-F	TELEGRAPH, ALFRED
13	75	1	POLE	120/240	ONAN	G1277-1	2.3	1980	900 LBS	NO PCB	85	322-A	TELEGRAPH, ALFRED
14	50	1	POLE	120/240	CARTE	G1276-1	2	1980	612 LBS		49	529-A	BOLT, Alfred
15	75	1	POLE	120/240	ONAN	H897-2	2.2	1980	900 LBS		3	194-F	ST-PHILIPPE, ALFRED
	75	1	POLE	120/240	ONAN	G1248-1	2.3	1980	900 LBS		128	429	LANDRIAULT
11	50	1	POLE	120/240	CARTE	G1270-2	2	1980	612 LBS		217	570-F	WATER, PLANTAGENET
14	50	1	POLE	120/240	CARTE	H906-1	1.9	1980	612 LBS		258	280-A	WATER, PLANTAGENET
25	50	1	POLE	120/240	CARTE	G1270-1	2	1980	612 LBS		AL3CRW	205-W	LANDRIAULT
26	75	1	POLE	120/240	CARTE	H897-1	2.2	1980	900 LBS		367	191	JESSOP'S FALL, PLANTAGENET
27-1	50	1	POLE	600				1980					JESSOP'S LALONDE LUMBER
27-2	50	1	POLE	600				1980					JESSOP'S LALONDE LUMBER
27-3	50	1	POLE	600				1980					JESSOP'S LALONDE LUMBER
60	75	1	POLE	120/240	CARTE	G1271-1	2.3	1980	900 LBS	NO PCB	AL3C2S	247	OLD HWY 17, PLANTAGENET
4	100	1	POLE	120/240	ONAN	J791-2	2.3	1981	1077 LBS		100	224-F	ST-PHILIPPE, ALFRED
52	75	1	POLE	120/240	CARTE	J693-2	2.2	1981	900 LBS		14	37-F	ST-PHILIPPE, ALFRED
	75	1	POLE	120/240	ONAN	J693-1	2.2	1981	900 LBS		103	269	ST-PHILIPPE
	100	1	POLE	120/240	CARTE	J791-3	2.3	1981	1077 LBS		B-48	365	ST-PHILIPPE
	100	1	POLE	120/240	CARTE	J791-1	2.3	1981	1077 LBS			599	ST-PHILIPPE
59	75	1	POLE	120/240	CARTE	J1273-2	2.9	1982	817 LBS	NO PCB	B-12	320-A	ST-JOSEPH
	75	1	POLE	120/240	CARTE	J1273-1	2.9	1982	817 LBS		B-56	499	ST-PHILIPPE CAISSE POP

Transfo	KVA	PH	POLE/PAD	VOLTAGE	MANU-	SERIAL	IMPEDIANT	YEAR	WEIGHT	PCB/FREE	POLE	ADDRESS	
1	75	1	POLE	120/240	CARTE	J1274-3	2.9	1982	817 LBS		AL3J3Z	568-F	LANDRIAULT
72-1	10	3	POLE	600	FERRANTI-PACKARD	43433	2.5	1982	235 LBS	NO PCB	238	420-F	MAIN, PLANTAGENET
72-2	10	3	POLE	600	FERRANTI-PACKARD	41628	2.5	1982	235 LBS	NO PCB	238	420-F	MAIN, PLANTAGENET
72-2	10	3	POLE	600	FERRANTI-PACKARD	41629	2.5	1982	235 LBS	NO PCB	238	420-F	MAIN, PLANTAGENET
	75	1	POLE	120/240	CARTE	J1274-2	2.9	1982	1982 LBS		201	608-F	WATER, PLANTAGENET
1	25	3	POLE	120/240	FERRANTI-PACKARD	60480	1.8	1983	490 LBS	NO PCB	332	880-E	OLD HWY 17, PLANTAGENET
22	75	1	POLE	120/240	MACGRAW	EPEON310541	1.9	1984	406 KG	NO PCB	70	584-F	TELEGRAPH, ALFRED
1	75	1	POLE	120/240	MACGRAW	310541	1.9	1984	406 KG	NO PCB	B-26	131-E	ST-PHILIPPE,ALFRD
69-2	75	3	POLE	600	MCGRAW EDISSON	310541-10	1.9	1984	496 KG	NO PCB		625	NATION
69-3	75	3	POLE	600	MCGRAW EDISSON	310541-11	1.9	1984	496 KG	NO PCB		625	NATION
30	75	1	POLE	120/240	ONAN	N001K-2	2.75	1985	397 KG	NO PCB	90	394	TELEGRAPH, ALFRED
47	37.5	1	POLE	120/240	CGE	487046	1.8	1985	545 LBS	NO PCB	45	548-N	BOLT, Alfred
48	75	1	POLE	120/240	CARTE	N0013-1	2.7	1985	397 KG	NO PCB	17	176-F	St-Joseph, Alfred
49	75	1	POLE	120/240	CARTE	N0965-3	2.88	1985	397 KG	NO PCB	26	320-F	St-Joseph, Alfred
64	75	1	POLE	120/240	CARTE	N0965-5	2.88	1985	397 KG	NO PCB	26	320-F	St-Joseph, Alfred
64	75	1	POLE	120/240	CARTE	N0965-4	2.88	1985	400 KG	NO PCB	26	320-F	St-Joseph, Alfred
65	100	1	POLE	120/240	CARTE	P0858-1	2.69	1986	449 KG	NO PCB	104	283-F	ST-PHILIPPE, ALFRED
66	75	1	POLE	120/240	CARTE	P0255-1	2.7	1986	397 KG	NO PCB	182	633-B	COUNTY ROAD 9, PLANTAGENET
54	100	1	POLE	120/240	CAMTRAN	KC87CC10205	2.5	1988	466 KG	NO PCB	10	213	ST-PHILIPPE, ALFRED
55	50	1	POLE	120/240	CARTE	H906-2	1.9	1988	612 LBS	NO PCB	316	130-A	COMTE, PLANTAGENET
	100	1	POLE	120/240	CAMTRAN	KC-8A3014	NV	1988	470 KG	NO PCB		185	COMTE, PLANTAGENET
	75	1	POLE	120/240	FERRANTI	2-150098	1.9	1989	425 KG	NO PCB			
45	25	1	POLE	120/240	CGE	507109	1.8	1989	410 LBS	NO PCB	327	835-A	OLD HWY 17, PLANTAGENET
46	75	1	POLE	120/240	CAMTRAN	KCH90L07204	2.1	1990	531 KG	NO PCB	B-58	520	ST-PHILIPPE,ALFRED
41	75	1	POLE	120/240	RELIANCE	KW10336	2.7	1990	890 LBS	NO PCB	87	352-A	TELEGRAPH, ALFRED
42	100	1	POLE	120/240	CAMTRAN	KC90L07202	2.2	1990	531 LBS	NO PCB	83	0	QUESNEL, ALFRED
28	100	1	POLE	120/240	AMTRAN	KC90B01215	2	1990	490 KG	NO PCB	359	145	JESSOP'S FALL, PLANTAGENET
59-1	25	3	POLE	600	MALONEY	8287-4	2	1990	175 KG	NO PCB	379	OCWA-A	PITCH OFF

Transfo	KVA	PH	POLE/PAD	VOLTAGE	MANU-	SERIAL	IMPEDIANT	YEAR	WEIGHT	PCB/FREE	POLE	ADDRESS	
59-2	25	3	POLE	600	MALONEY	8287-5	2	1990	175 KG	NO PCB	379	OCWA-A	PITCH OFF
59-3	25	3	POLE	600	MALONEY	8287-6	2	1990	175 KG	NO PCB	379	OCWA-A	PITCH OFF
	75	1	POLE	120/240	CAMTRAN	KC-90B07211	2.2	1990	440 KG	NO PCB	AL3K2C	641-3	CTY RD 9 , PLANTAGENET
	75	1	POLE	120/240	CAMTRAN	KC90J04209	2.3	1990	470 KG	NO PCB	252	370-F	WATER, PLANTAGENET
502	100	1	PAD	120/240	CAMTRAN	BC87027208	2.5	1991	530 KG	NO PCB		87	ALEXANDRE
503	100	1	PAD	120/240	CAMTRAN	BC91A04210	1.8	1991	619 KG	NO PCB		99	LALANDE
304	167	1	PAD	120/240	ABB	91-03E7771-001	1.4	1991	880 KG	NO PCB		384-13	CHATELAIN
314	100	1	PAD	120/240	ABB	91-03E7770-001	1.7	1991	645 KG	NO PCB		384-25	CHATELAIN
324	100	1	PAD	120/240	ABB	91-03E7770-002	1.7	1991	645 KG	NO PCB		384-1	CHATELAIN
334	100	1	PAD	120/240	ABB	91-03E7770-003	1.7	1991	645 KG	NO PCB		384-16	CHATELAIN
335	100	1	POLE	120/240	CAMTRAN	KC91I27208	1.7	1991	542 LBS	NO PCB	285	255-F	MAIN, PLANTAGENET
336	75	1	POLE	120/240	CAMTRAN	KC91A10211	1.8	1991	475 KG	NO PCB	172	785-F	STATION, PLANTAGENET
69-1	75	3	POLE	600	CANTRAN	KC91T27209	1..9	1991	496 KG	NO PCB		625	NATION
1	50	1	POLE	120/240	FERRANTI-PACKARD	2-131883	2.5	1992	700 LBS	NO PCB	190	674-680	WATER, PLANTAGENET
69	100	1	PAD	120/240	CAMTRAN	BC93G29222	1.8	1993	600 KG	NO PCB		64	RICHARD
70	100	1	PAD	120/240	CAMTRAN	BC93G29224	1.8	1993	600 KG	NO PCB		86	RICHARD
71	100	1	PAD	120/240	CAMTRAN	BC93G2607	2	1993	600 KG	NO PCB		69	PITRE
72	100	1	PAD	120/240	CAMTRAN	BC93G29223	1.8	1993	600 KG	NO PCB		83	PITRE
73	50	1	POLE	120/240	FPE	5613-34	1.6	1994	634 LBS	NO PCB	74	23	JOHNSTON, ALFRED
14	75	1	POLE	120/240	RELIANCE	KW7206-41	2.6	1995	885 LBS	NO PCB	89	384-A	TELEGRAPH, ALFRED
46	75	1	POLE	120/240	CGE	83024	2.2	1995	940 LBS	NO PCB	302	710-A	GERARD, PLANTAGENET
47	50	1	POLE	120/240	CAMTRAN	96KC368318	2.7	1996	318 KG	NO PCB	275	750-A	CONCESSION, PLANTAGENET
48	75	1	POLE	120/240	RELIANCE	KW9474-4	2.6	1998	510 KG	NO PCB	1	84-N	Leduc, Alfred
47	50	1	POLE	120/240	CAMTRAN	KW7839-14	2.2	1998	682 LBS	NO PCB	307	770-S	GERARD, PLANTAGENET
48	75	1	POLE	120/240	WESTINGHOUSE	9499754	1.9	1999	785 LBS	NO PCB	B-10	59	ALEXANDRE
302	50	1	POLE	120/240	MALONEY	T2499-1	2	1999	260 KG	NO PCB	383	411-A	PITCH OFF, PLANTAGENET
303	25	1	POLE	120/240	MALONEY	T3109-197	2.35	2001	135 KG	NO PCB	121	WT	LAROCQUE, ALFRED
554	10	1	POLE	120/240	MALONEY	C3109-608	2.3	2001	135 KG	NO PCB	323	800-F	0

Transfo	KVA	PH	POLE/PAD	VOLTAGE	MANU-	SERIAL	IMPEDIANT	YEAR	WEIGHT	PCB/FREE	POLE	ADDRESS	
12	100	3	POLE	347/600	ONAN	02C1827601	2.6	2002	420 KG	NO PCB	63	520-F	TELEGRAPH, ALFRED
222	25	1	POLE	120/240	SURELCO	SUR2105	2.2	2002	180 KG	NO PCB	44	390	MARCEL, ALFRED
223	100	1	PAD	120/240	SURELCO	L6379	1.6	2004	1500 LBS	NO PCB		100	RICHARD
224	50	1	POLE	120/240	FERRANTI-PACKARD	2-131854	1.7	2004	700 LBS	NO PCB	389	630	OLD HWY 17, PLANTAGENET
90	50	1	PAD	120/240	ONAN	20114-004	2.3	2005	460 KG	NO PCB		FRONT-20	VALAIN
91	100	1	PAD	120/240	CAMTRAN	BC-87C27200	2.5	2005	530 KG	NO PCB		FRONT-26	VALAIN
92	100	1	PAD	120/240	CARTE	20565-001	2.3	2006	547 KG	NO PCB		24-28	VALAIN
93	100	1	POLE	120/240	MALONEY	A4911-4	2.6	2007	516 KG	NO PCB	77	595	BUTTERFIELD, ALFRED
80	25	1	POLE	120/240	CGE	6807755	1.8	2008	410 LBS	NO PCB	52	515-AN	BOLT, Alfred
	25	1	POLE	120/240	MALONEY	ARP1647-8	1.7	2008	144 KG	NO PCB		579	ST-PHILIPPE YVAN CARRIERE BACK
1	25	3	POLE	120/240	MALONEY	ARP1647-7	1.7	2008	144 KG	NO PCB	277	800-W	CONCESSION, PLANTAGENET
501	100	1	PAD	120/240	CGE	1150049	2	2009	1496 LBS	NO PCB		87	LALANDE
500	75	1	PAD	120/240	CGE	1150048	2	2010	1496 LBS	NO PCB		84	ALEXANDRE
35	50	1	POLE	120/240	MALONEY	281890	?	2011	610 LBS	NO PCB	33	584-580	BOLT, Alfred

APPENDIX E

HYDRO 2000 CORPORATE RISK PROFILE

HYDRO 2000 CORPORATE RISK PROFILE

PROJECT: IMPLEMENTATION OF THE « ONTARIO CYBERSECURITY FRAMEWORK »

GoSecure
POWERED BY COUNTERTACK

Hydro 2000 inc.

Feb 28th, 2019

GoSecure | HYDRO 2000 CORPORATE RISK PROFILE

CONTEXT & OBJECTIVES

In 2016, the Ontario Energy Board (OEB) announce the *"Protecting Privacy of Personal Information and the Reliable Operation of the Smart Grid in Ontario"* initiative. The objective was to review the state of cyber security of the (non-bulk) electrical grid and associated business systems that could impact the protection of personal information and grid reliability.

Local distribution systems and electricity transmitters with non-bulk assets are not covered by the NERC CIP standards. Therefore, in order to fulfill the OEB objectives, a framework has been developed to manage cyber security and privacy risks.[1] This recently develop framework will ensure that local electricity transmitters and distributors companies (LCDs) take appropriate actions with respect to their security, reliability and privacy obligations.[2]

Cyber security

Is about protecting and controlling information and the operating systems supplying energy to consumers.[1]

Privacy

Is about recognizing that the collection, use and disclosure of personal information are a matter of energy consumers' individual consent and personal preferences.[1]

- The framework provides LCD's guidelines to:
  - Assess their risk;
  - Identify the critical security controls to implement in accordance to their risk level;
  - Assess their posture against the controls and take the appropriate steps to address any gaps identified during the assessment;
  - Implement governance to manage cyber security;
  - Provide the OEB with assurances that they are achieving the appropriate level of cyber maturity.

In this context, Hydro 2000 is planning to comply with the OEB requirement to implement its ***"Ontario Cybersecurity framework."***
One of the first steps specified in this framework is to conduct a ***risk profile*** of the organization, using the tool and methodology provided in the framework.

- Objective: Execute risk profile (not an exhaustive corporate risk analysis) that will allow to guide efforts and support decisions making in implementing adequate security controls. This will be achieved mainly by obtaining a high level positioning of CHEI risk exposure as of today, in order to:
  - Target the security control baseline needed, according to the enterprise business and operational functions as well as risk exposure;
  - Define control domains that needs to be supported by the pertaining policies and processes documentation;
  - Prioritize which control to implement.

[1]/ *Staff report on the board-OEB, June 2017*
[2]/ *Cybersecurity framework to protect access to electronic operating devices and business IS within ON's non-bulk power assets-AESI, 2017.*

GoSecure | HYDRO 2000 CORPORATE RISK PROFILE

LIMITATIONS & ASSUMPTIONS

- The risk profile was executed with the collaboration of Hydro 2000 limited staff and pertinent third parties, that provided their best knowledge on specialized domains with which they were not always familiar (ex. IT infrastructure, security management, risk assessments, regulations, etc.);
- The OEB framework's methodology used is enabling a *"snap shot"* of Hydro 2000 risk exposure, but is by no means a complete risk assessment as would provide the use of, for example: the standards ISO27005, ISO31000 or even the MEHARI framework, etc.;
- No penetration test or other cybersecurity test has been executed to provide input for this risk profile analysis;
- The data available to be used as references were limited to the interviewer's best knowledge since not much pertinent IT documentation is yet developed in the organization;

Hydro 2000 , as all Ontario LCD's need to comply with at least the following requirements:

LCD's main regulatory and legislative obligations

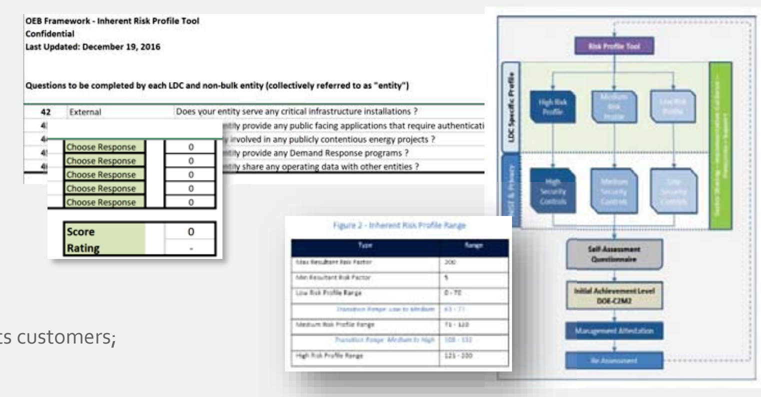
1	OEB	Ontario Cyber Security Framework / Regulatory instruments: Codes, guidelines and accounting / Electronic Business Transaction (EBT) Standards
2	PIPEDA	Personal Information Protection and Electronic Documents Act
3	MFIPPA	Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56
4	CCA	Co-operative Corporations Act, R.S.O. 1990, c. C.35

Hydro 2000 does not have in its possession a business plan, but we can assume that its corporate objectives would be similar to those of two analogous LCD's (CHE and HHI). They would be the following[1-2]:

- To provide safe, efficient, and reliable delivery of electricity to customers;
- To maintain costs at a reasonable level, find cost efficiencies wherever possible and to make prudent investments on behalf of its customers;
- To provide a safe and engaging work environment for its employees;
- To engage with customers and the community;
- To plan and deliver system improvements required to ensure future supply.

METHODOLOGY

- A risk profile assessment was conducted to justify and target security controls priorities and orientation guidelines, in accordance with the *"Ontario cybersecurity framework"* approach;
- A questionnaire was used (that is provided by the framework) as the main tool to assess the security risk profile level of Hydro 2000 and measure its exposure. This tool allows once the risk level is known, to map the recommended mitigation controls according to the identified risk exposure;
- Additional information was obtained through further interviews and provided documents in order to have a more comprehensive understanding of Hydro 2000 environmental context, their specific critical assets and business obligations;
- The information used as input for this risk profile was gathered from the following Hydro 2000 key manager:
  - Lise Wilkinson, Manager



1/ CHEI Business Plan, 2017
2/ HHI Business Plan, 2017

GoSecure | HYDRO 2000 CORPORATE RISK PROFILE

RESULT / RISK PROFILE TYPE RANGE

The level of Hydro 2000's risk profile, according to the data collected and the approach used, is: **LOW**

MAIN DECISIVE FACTORS

- The above result can be explained mainly by several internal and external factors from the enterprise context. In order to provide a more comprehensive understanding of Hydro 2000 risk exposure and help decision-making pertaining to its assets protection initiatives, the analysis took into account also (beside the OEB questionnaire), as input, the following:
  - CHEI and HHI 2017 Business plan's (since no business plan was available for Hydro 2000 organization, the ones from two similar LCDs were used as reference)
  - Additional interviews and data gathering on the LCD's structure, processes and assets
  - General publications on critical infrastructure industries

- The main decisive factors that justify the risk profile results and that **should guide safeguards effort priorities** are the undermentioned elements:

GENERAL FACTORS

CRITICAL

1. Provide essential services to the population as a critical infrastructure.
2. Information (such as invoicing and meter data) is core and critical for business operations as well as their availability, confidentiality and integrity.
3. Service interruptions must be handled quickly.
4. Finding employees with specific competencies is a significant challenge.
5. Capacity to invest in the LCD's improvement or growth is limited.
6. Challenges to comply with the OEB regulations in regard to the LCD's small structure/organization.

LESS CRITICAL

7. A corporate risk assessment has not been executed or executed in the last years.
8. Customer's very high service expectations.
9. Provide electricity for the University of Guelph
10. LCD continuity could be challenged by potential consolidation of the area utilities.

INTERNAL FACTORS

CRITICAL

1 IT and OT environments are connected.

2 Handle, exchange, and processes customers' personal or sensitive information/data (internally and externally).

4 Has a smart meter/AMI system with connections separated from the AMI system.

5 OT infrastructure is critical for enabling business operations.

6 Insufficient IT business continuity/DR strategies.

7 Employees use their own device at times.

LESS CRITICAL

8 USB's or other devices belonging to the LCD are inserted into computing devices.

9 Has distribution substations.

10 Has distributed energy resources / Microgrids connected to their systems.

11 Has limited capacity related to resources and knowledge (employees, expertises,

13 Information/data are not classified (in order to apply adequate protection and comply with the organization internal/external obligations).

14 Lack of documented processes.

EXTERNAL FACTORS

CRITICAL

1. Data are stored offsite (at partner's or provider's locations).
2. Process (via a provider in March, 2019) credit card transactions or pre-authorized bank payments.
3. Several legal and regulatory requirements to
4. Outsourcing of some services (ex. cloud).
5. Reputation / image sensitive.
6. Economic/ competitive sensitive.
7. Great dependency on external third parties' expertise.

LESS CRITICAL

8 Is connected physically or logically with another LCD.

10 Political, social environment sensitive.

11 Provides a public facing application that require authentication for e-billing and account info.

MAIN DECISIVE FACTORS…*continuation*

The preceding factors may lead to potential risk exposure in correlation with the following identified **Hydro 2000 critical assets**:

POTENTIAL IMPACTS IN CASE OF A INFORMATION SECURITY INCIDENT

	#	Asset	Breach of information security (CIA: Confidentiality, Integrity, Availability)	Impaired oprations (internal or third parties)	Loss of business and financial value	Disruption of plans and deadlines	Damage of reputation	Breach of legal, regulatory or contractual requirements
PROCESSES	1	Custumer billing	✓	✓	✓	✓	✓	✓
PROCESSES	2	Meter reading (electricity comsumption)	✓	✓	✓	✓	✓	✓
PROCESSES	3	Accounting	✓	✓	n/a	n/a	n/a	✓
PROCESSES	4	Energy (electricity) distribution	✓	✓	✓	✓	✓	✓
PROCESSES	5	Compliance to OEB codes for LCD's	n/a	✓	✓	✓	✓	✓
PROCESSES	7	Customer's service call support	✓	✓	n/a	✓	✓	✓
DATA/ INFORMATION	1	Meter data on customer's energy consumption	✓	✓	✓	✓	n/a	n/a
DATA/ INFORMATION	2	Customer driver's licence and social insurance number	✓	n/a	n/a	n/a	✓	✓
DATA/ INFORMATION	3	Customer's payment card data	✓	✓	✓	n/a	✓	✓
DATA/ INFORMATION	4	Customer's location data (name, address, account) for service call	✓	✓	n/a	✓	✓	✓

	#	SUPPORTING ASSETS
SUPPORTING ASSETS	1	LCD's employees (availability)
SUPPORTING ASSETS	2	Electricity distribution equipment/operational site
SUPPORTING ASSETS	3	Corporate IT network
SUPPORTING ASSETS	4	Corporate IT systems (O/S, software, hardware, etc.)
SUPPORTING ASSETS	5	Corporate web site (access to portal for e-billing, customer account)
SUPPORTING ASSETS	6	Utility-Smart (external)
SUPPORTING ASSETS	7	Harris (external)
SUPPORTING ASSETS	8	Northstar (external)
SUPPORTING ASSETS	9	Paymentus payment process server (external)

Supporting Assets

- Are supporting assets (on which the critical processes/ data rely);
- These assets could have vulnerabilities that would be exploitable by threats aiming to impair the critical assets.

Critical Processes

- Whose loss or degradation makes it impossible to carry out the mission of the organization;
- That are secret/confidential;
- If modified, can greatly affect the accomplishment of the organization's mission;
- That is necessary for the organization to comply with contractual, legal or regulatory requirements.

Sensitive or Critical Data/Information

- That is vital information for the exercise of the organization's mission or business;
- Personal information, as can be defined by the national laws regarding privacy;
- Strategic information required for achieving objectives.

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KEY FINDINGS

- A ***"low"*** level score will translate with security requirements for 54 controls according to the OEB methodology, in order to protect Hydro 2000 information assets. This will be reflected through the implementation of solutions and processes measures along with the supporting document structure forming the Hydro 2000's ISMS (Information security management system);
- These controls will be evaluated and if applicable (<u>if risks are considered unacceptable</u>), where appropriate, prioritized for implementation.

<u>At a minimum</u>, the results obtained require to consider that the following sections and controls be assessed and eventually addressed if applicable.:

CLAUSES	OEB NIST & PRIVACY TARGETED SUBJECTS FOR CONTROLS TO ASSESS & PRIORITIZE
Asset Management	Inventory/Mapping of data flows/Information identification/Privacy and security responsibilities/
Business Environment	Business objectives and priorities/Critical infrastructure , processes and assets identification/
Governance	Security policy/Indentification of requirements (legal, regulatory)/Privacy policy/
Risk Assessment and Management	Vulnerabilities/Threats and impacts/Treatment/Risk management processes/Risk tolerance/
Access Control	Management of identities and credentials/Physical and remote access management/
Awareness	Training/policies understanding/responsibilities/Third parties/
Data Security and Information Protection	Data security managed for entire life-cycle/Data protection for C.I.A/Backup/Incident response/ HR screening/
Protective Technology	Removable media protection/Network protection/
Anomalies and Events	Privacy treatment complaint or inquiries processes/
Response Planning, Communication and Recovery	Response plan/Event reporting/Recovery plan/Public relations/

APPENDIX

Industry general risk context to consider when selecting information security measure protection.

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INDUSTRY SECTOR GENERAL THREATS & RISKS LANDSCAPE[1,2,3,4]

THREATS FACTORS OR VECTORS

- Increase demand for more real-time data exchange
- Implementation of smart grids/digital grids, net-metering
- Increased use of automation
- Diverse communication networks and wireless networks
- Data flows
- Hand-held electronic devices
- Internet of things (IoT)
- Third parties (vendors, partners, etc.)
- Convergence of IT and OT
- Human resources challenges
- Lack of security tools (detect, respond, recover)
- Employee miscellaneous errors or negligence
- Manipulation and infection of historian systems
- Distributed energy resource (DER) remote management
- Cloud computing technologies
- Environmental hacktivist, hail-Mary threat actors, cybercriminal and cyber terrorists
- Nation state threats, China, Russia and Iran APT's (Advanced persistent threat groups)
- Lack of expertise
- SCADA access as a service
- Programmable logic controller (PLC) rootkit
- Non secure ICCP connections for data exchange
- Non secure TC connections (Transmission connected customers)
- Lack of physical security
- Lack of security controls on communications links between LCD's and bulk systems
- Lack of security controls from bulk systems on detection/protection or privacy can impact the LCD's
- Lack of manual backup functionality
- Legacy systems lacking cybersecurity design
- Vulnerabilities in ICS or SCADA system management software or third party network (ex. insecure credential management or default settings)
- Smart grid technologies (UCS, AMI, etc.)
- Malware, cross-site scripting, ransomware, phishing, etc.
- Inadequate security awareness
- Deficient or absence of security controls
- Many OT systems must operate in real-time with 24/7 availability and are unable to go offline for patching or upgrades
- OT components may be simple devices and may not have enough computing resources to support additional cybersecurity capabilities

VENDORS
They may secure their systems, but they look to the utility to secure the interconnection

SCADA
System designs did not anticipate security threats

Security of the stored information is only as strong as the security of the **weakest** stakeholder system

[1]/ Staff report on the board-OEB, June 2017
[2]/ Cybersecurity framework to protect access to electronic operating devices and business IS within ON's non-bulk power assets-AESI, 2017.
[3]/ The energy sector-Hacker Report-ICIT, 2016
[4]/ Securing cyber assets-NIAC, 2017

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INDUSTRY SECTOR GENERAL THREATS & RISKS LANDSCAPE[1,2,3]

The Energy & Utilities sector experience $14.8 million per company of average annualized loss to cybercrime.
-Ponemon Institute, 2016

Critical infrastructure refers to processes, systems, facilities, technologies, networks, assets and services essential to the health, safety, security or economic well-being of Canadians and the effective functioning of government. Disruptions of critical infrastructure could result in catastrophic loss of life, adverse economic effects and significant harm to public confidence.
-Public Safety Canada

Natural
Tornado
Hurricane
Fire
Ice
Wind
Lightning
Extreme heat
Flood
Pandemic

Unintentional Internal
Under trained employee
Irresponsible employee
Apathic employee
Lack of separation of duty
Human error

Environmental
HVAC
Power
Hardware & Software failure
Network connectivity failure
CPU failure
Operating systems crashes

External
Hacker/Cracker/ Criminal
Terrorist
Espionage
Former employee
Global hotspots
Extortion
Kidnapping
Civil disturbance
Bomb explosion
Chemical

Intentional Internal
Disgruntled employee
Contractor
Dishonest employee
Political activist
Corruption

IMPACTS

- ✕ Power stations blackout
- ✕ Holding of corporate data, network and industrial control systems ransom
- ✕ Compromising of industrial control systems (ICS)
- ✕ Compromising of I/O peripherals
- ✕ Compromising of engineer workstation
- ✕ Compromising of OT networks
- ✕ Alteration of system efficiency and decision making process
- ✕ Malicious manipulation or monitoring of PMU measurements
- ✕ Malicious control of DER creating damage, voltage alteration, etc.
- ✕ Malicious monitoring of employee
- ✕ Infected systems updates
- ✕ Cyber-physical sabotage (equipment physical tempering)
- ✕ Data compromising (Integrity, availability, confidentiality)
- ✕ Failure to protect border, port, secure sites from terrorism
- ✕ Law enforcement impeding
- ✕ Increase of crime
- ✕ LCD's operation disruptions
- ✕ Legal proceeding, financial penalties
- ✕ Loss of operating licence
- ✕ Market loss
- ✕ Communications hampering
- ✕ Economy stalling
- ✕ Electricity restoring delays
- ✕ Societal harm, citizen discomfort, chaos and risk to livestock and human lives
- ✕ Cyber-kinetic or financial harm on enemy nation-states and organizations
- ✕ Disruption of critical infrastructure, security and surveillance systems

1/ Staff report on the board-OEB, June 2017
2/ Cybersecurity framework to protect access to electronic operating devices and business IS within ON's non-bulk power assets-AESI, 2017.
3/ The energy sector-Hacker Report-ICIT, 2016

2.5.4 CAPITALIZATION OF OVERHEAD

Indirect overhead costs, such as general and administration costs that are not directly attributable to an asset, are not, nor have they ever been capitalized. (as such Appendix 2-D is not applicable in this case)[23][24]

2.5.5 COSTS OF ELIGIBLE INVESTMENTS FOR DISTRIBUTORS

Hydro 2000 attests that it has not included any costs or included any Investments to Connect Qualifying Generation Facilities in its capital costs or in its Distribution System Plan.

As such, details of any capital contributions made or forecast to be made to a transmitter with respect to a Connection and Cost Recovery Agreement are not applicable in this case.[25]

Hydro 2000 is not considering incremental conservation initiatives in order to defer or avoid future infrastructure projects as part of distribution system planning processes [26] nor is it planning on applying for funding through distribution rates to pursue activities such as energy efficiency programs, demand response programs, energy storage programs, etc. [27] Lastly, Hydro 2000 is not considering a generation facility. [28]

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[23] MFR - Appendix 2-D complete; identification of burden rates and burden rates prior to changes, if any

[24] MFR - Changes to capitalization policy since its last rebasing application as a result of the OEB's letter dated July 17, 2012 or for any other reasons, the applicant must identify the changes and the causes of the changes.

[25] MFR - If applicable, details of any capital contributions made or forecast to be made to a transmitter with respect to a Connection and Cost Recovery Agreement. Details to be provided include, initial forecast used to calculate contribution, amount of contribution (if any), true-up dates and potential true-up payments

[26] MFR - Description of how incremental conservation initiatives have been considered in order to defer or avoid future infrastructure projects as part of distribution system planning processes

[27] MFR - If applying for funding through distribution rates to pursue activities such as energy efficiency programs, demand response programs, energy storage programs etc. the application must include a consideration of the projected affects to the distribution system on a long term basis and the projected expenditures. Distributors should explain the proposed program in the context of the distributors five year Distribution System Plan or explain any changes to its system plans that are pertinent to the program

[28] MFR - Generation Facilities - If applicable, proposal to divide the costs of eligible investments between the distributor's ratepayers and all Ontario ratepayers per O.Reg. 330/09:
- Appendices 2-FA through 2-FC identifying all eligible investments for recovery

2.5.6 NEW POLICY OPTIONS FOR THE FUNDING OF CAPITAL

Hydro 2000 is not proposing any special or different approach to funding its capital expenditure[29]

2.5.7 ADDITION OF ICM ASSETS TO RATE BASE

Hydro 2000 has never applied for a rate adder to recover an investment through the OEB's Incremental Capital Module.[30] And as such, Hydro 2000 does not need to balances in Account 1508 sub-accounts, reconciliation with proposed rate base amounts; recalculated revenue requirement should be compared with rate rider revenue. At the time of the application, Hydro 2000 is not forecasting the need for an Advanced Capital Module or Incremental Capital Module. [31][32][33]

[29] MFR - Distributor may propose ACM capital project coming into service during Price Cap IR (a discrete project documented in DSP). Provide cost and materiality calculations to demonstrate ACM qualification
[30] MFR - Distributor with previously approved ICM(s) - schedule of ICM amounts, variances and explanation
[31] Balances in Account 1508 sub-accounts, reconciliation with proposed rate base amounts; recalculated revenue requirement should be compared with rate rider revenue
[32] MFR - Distributor must establish need for and prudence of these projects based on DSP information; identification that distributor is proposing ACM treatment for these future projects, preliminary cost information
[33] MFR - Complete Capital Module Applicable to ACM and ICM

2.5.8 SERVICE QUALITY AND RELIABILITY PERFORMANCE[34]

Hydro 2000 records and reports annually the following Service Reliability Indices:

- SAIDI = Total Customer-Hours of Interruptions/Total Customers Served
- SAIFI = Total Customer Interruptions/Total Customers Served
- CAIDI = Total Customer-Hours of Interruptions/Total Customer Interruptions

These indices provide Hydro 2000 with annual measures of its service performance that are used for internal benchmarking purposes when making comparisons with other distribution companies (e.g., to better understand the rankings that will support the OEB's Incentive Rate Making Mechanism and Performance-Based Regulation). They are reported in accordance with Section 7.3.2 of the OEB's Electricity Distribution Rate Handbook.

Hydro 2000's performance metrics are discussed in detail in Section 2.3 of the DSP[35]

Hydro 2000 is not proposing any benchmarking metrics that are not already in place.[36]

[34] MFR - 5 historical years of ESQRs, explanation for any under-performance vs standard and actions taken
[35] MFR - 5 historical years of SAIDI and SAIFI - for all interruptions, all interruptions excluding loss of supply, and all interruptions excluding major events; explanation for any under-performance vs 5 year average and actions taken
[36] MFR - Explanation for any under-performance vs 5 year average and actions taken

Table 23 – OEB App 2-G ESQR Results[37][38]

Indicator	OEB Minimum Standard	2012	2013	2014	2015	2016	2017	2018
Low Voltage Connections	90.0%	100.0%	100.0%	0.0%	100.0%	100.0%	100.0%	100.0%
High Voltage Connections	90.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Appointment Scheduling	65.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Appointments Met	90.0%	100.0%	100.0%	100.0%	100.0%	98.8%	100.0%	100.0%
Telephone Accessibility	80.0%	98.5%	99.7%	99.4%	99.6%	99.7%	100.0%	100.0%
Rescheduling a Missed Appointment	80.0%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	0.0%
Telephone Call Abandon Rate	10.0%	1.5%	0.3%	0.6%	0.4%	0.3%	0.0%	0.1%
Written Response to Enquires	80.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Emergency Urban Response	90.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	100.0%
Emergency Rural Response	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Reconnection Performance Standard	85.0%	100.0%	100.0%	100.0%	100.0%	0.0%	100.0%	100.0%
Micro-embedded generation facilities	90.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%

- **No explanations are required as all results have exceeded the 5 year average.**

Table 24 – OEB App 2-G SAIFI SAIDI Results

Index	Includes outages caused by loss of supply							Excludes outages caused by loss of supply						
	2012	2013	2014	2015	2016	2017	2018	2012	2013	2014	2015	2016	2017	2018
SAIDI	0.170	0.020	0.000	0.010	0.010	0.010	0.000	6.120	0.020	0.010	0.030	0.030	0.000	0.040
SAIFI	0.090	0.020	0.000	1.000	1.000	0.160	1.010	1.500	0.020	0.010	0.060	0.060	0.000	0.81
5 Year Historical Average														
SAIDI					0.031					0.893				
SAIFI					0.469					0.351				

As explained at section 2.3 of the Distribution System Plan, "*The purpose of H2000 is to provide a continuous availability of electric power to its customers with enough capacity to meet all the customer's needs in a sustainable manner.*

[37] MFR - Distributors may propose SAIDI and SAIFI benchmarks different than 5 year average; provide rationale

[38] MFR - Completed Appendix 2-G

H2000 has a small service territory, and as such, does not have the workload to sustain a complement of staff to provide all the functions of the utility in-house. It acquires the services it needs on a contract basis. As a result, Engineering and Engineering Studies are contracted out, as is the system construction, maintenance, and emergency trouble calls, trouble response and billing. The overall management, purchasing and finance functions, as well as customer service, are maintained in-house.

This approach works well for H2000 from a cost management and timing perspective for the physical work as well as for the timely financial billing or project costing. Project work is contracted on a fixed price basis and maintenance and repair work is based on unit prices negotiated in advance and authorized prior to the work being started except in the case of emergency work after hours.

This approach also means that H2000 does not incur fixed or ongoing costs for engineering work or power system work unless there is work to be done. Then the work is defined, and the costs are contained. In this way cost efficiency and work performance is kept high."

Telephone Abandon Rate (past four years)	2015: 17/4069
	2016: 0
	2017: 0
	2018:1/2209
Emergency Response (past four years)	2015: 1
	2016: 6
	2017: 0
	2018: 0
Connection of New Services – LV (past four years)	2015: 2
	2016: 1
	2017: 6
	2018: 8
Connection of New Services – HV (past four years)	2015: 0
	2016: 1
	2017: 0
	2018: 0
Appointments Scheduling (past four years)	2015: 42
	2016: 164
	2017: 112
	2018: 56
Appointments Met (past four years)	2015: 42
	2016: 162
	2017: 112
	2018: 56

Missed Appointment Rescheduling (past four years)	2015: 0
	2016: 2
	2017: 0
	2018: 0
Written Responses to Inquiries (past four years)	2015: 8/8
	2016: 38/38
	2017: 49/49
	2018: 9/9
Emergency Response – Urban (past four years)	2015: 1/1
	2016: 6/6
	2017: 0
	2018: 8/8
Emergency Response – Rural (past four years)	0

APPENDIX

LIST OF APPENDICES

N/A