EXHIBIT 2

RATE BASE

EB-2017-0073

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Exhibit 2: Rate Base

2.1 Rate Base

2.1.1 Overview

The rate base used for the purpose of calculating the revenue requirement used in this Application follows *Chapter 2 of the Filing Requirements for Electricity Distribution Applications* issued by the Ontario Energy Board ("**Board**") on July 14, 2016 (the "**Filing Requirements**"). In accordance with the Filing Requirements, SLHI has calculated the rate base as an average of the net capital balances at the beginning and the end of the 2018 Test Year plus a working capital allowance, which is 7.5% of the sum of the cost of power and controllable expenses. The use of a 7.5% rate is consistent with the Board`s letter of June 3, 2015 and the Filing Requirements as issued by the OEB. At this time, SLHI has not completed a lead-lag study or equivalent analysis to support a different rate and has submitted this application using the default value of 7.5%.

SLHI was not previously directed by the OEB to undertake a lead/lag study.

SLHI converted to Modified International Financial Reporting Standards (MIFRS) on January 1, 2015 and has prepared this application under MIFRS.

SLHI has reported PP&E under historical acquisition costs for regulatory purposes in accordance with Article 315 in the Accounting Procedures Handbook. SLHI adopted a change in capitalization and useful lives policies as described in Exhibit 4 as part of SLHI's 2013 Cost of Service Application (EB-2012-0165).

Net capital assets include in service assets that are associated with activities that enable the conveyance of electricity for distribution purposes minus accumulated depreciation and contributed capital from third parties. For purposes of this Exhibit, distribution assets refer to those assets that are most directly related to the distribution system, such as poles, overhead and underground lines, and transformers. General plant refers to assets that support the operation of the distribution system such, as computer hardware and software, vehicles, buildings, equipment. Capital assets include property, plant and equipment ("**PP&E**") and intangible assets; these are referred to as "capital" or "fixed" assets throughout this evidence. The rate base calculation excludes any non-distribution assets. SLHI has not applied for, nor received, any Incremental Capital Module ("**ICM**") adjustments. Controllable expenses include operations and maintenance, billing and collecting, and administration expenses.

This exhibit will compare historical data with the 2017 Bridge Year and 2018 Test Year

SLHI has calculated its 2018 Test Year rate base to be $5,983,945. This rate base is also used to determine the proposed Revenue Requirement found at Exhibit 6. Table 2-1 illustrates SLHI's Rate Base Calculations for the Test Year.

Table 2-1: 2018 Test Year Rate Base

Rate Base	**2018 Test Year**
Fixed Assets Opening Balance	5,145,360
Fixed Assets Closing Balance	5,426,734
Average Fixed Asset Balance	**5,286,047**
Working Capital Allowance	697,898
Total Rate Base	**5,983,945**
Working Capital Allowance	
Eligible Distribution Expenses	**2018 Test Year**
Distribution Expenses - Operations	514,586
Distribution Expenses - Maintanance	226,447
Billing & Collecting	355,718
Administrative and General Expenses	475,341
Donations - LEAP	2,600
Property Taxes	5,394
Total Eligible Distribution Expenses	1,580,086
Power Supply Expenses	7,725,226
Total Expenses for Working Capital	**9,305,312**
Working Capital Factor	7.5%
Total Working Capital Allowance	**697,898**

SLHI has provided its rate base calculations for the years 2013 Board Approved, 2013 Actual, 2014 Actual, 2015 Actual, 2016 Actual, 2017 Bridge Year and 2018 Test Year in Table 2-2 below:

Table 2-2: Summary of Rate Base

Particulars	2013 Board Approved	2013 Actual	2014 Actual (CGAAP)	2014 Actual (MIFRS)	2015 Actual	2016 Actual	2017 Bridge	2018 Test
Gross Captital Assets in Service								
Opening Balance	8,391,353	8,377,574	8,632,144	8,632,144	8,815,789	9,040,878	9,291,835	9,696,925
Ending Balance	8,617,293	8,632,144	8,908,207	8,815,789	9,040,878	9,291,835	9,696,925	9,989,748
	8,504,323	8,504,859	8,770,176	8,723,967	8,928,334	9,166,357	9,494,380	9,843,337
Accumulated Depreciation								
Opening Balance	3,443,481	3,443,474	3,695,258	3,695,258	3,856,287	4,092,145	4,307,396	4,551,567
Ending Balance	3,695,577	3,695,258	3,913,273	3,856,287	4,092,145	4,307,396	4,551,567	4,563,017
	3,569,529	3,569,366	3,804,266	3,775,773	3,974,216	4,199,771	4,429,482	4,557,292
Net Capital Assets in Service:								
Opening Balance	4,947,872	4,934,100	4,936,886	4,936,886	4,959,502	4,948,733	4,984,438	5,145,358
Ending Balance	4,921,716	4,936,886	4,994,934	4,959,502	4,948,733	4,984,438	5,145,358	5,426,730
Average Balance	4,934,794	4,935,493	4,965,910	4,948,194	4,954,118	4,966,586	5,064,898	5,286,044
Working Capital Allowance	1,179,422	1,161,016	1,216,620	1,216,620	1,245,515	1,320,872	1,593,591	697,898
Total Rate Base	6,114,216	6,096,509	6,182,530	6,164,814	6,199,633	6,287,458	6,658,489	5,983,942

*small difference in Total Rate Base is due to rounding

The Rate Base for the 2018 Test Year has been forecasted to decrease 674,547 (10.1%) over the 2017 Bridge Year. However, the Rate Base for the 2018 Test Year has been forecasted to remain relatively neutral over the last Board Approved Rate Base, decreasing by $130,274 (2.13%). The reasons for the variance between the 2018 Test Year and 2013 last Board Approved is mainly attributed to:

- Annual changes in cost of power and increases in OM&A expenses. SLHI has forecast an increase in eligible distribution expenses since the last Board Approved Rate. However, with the implementation of the Ontario Fair Hydro Plan, the cost of power Expenses are forecasted to be lower than 2017 expenses and slightly lower than the 2013 Board Approved Cost of Power Expenses.
- The average net capital asset in service has also increased by $351,250 since the 2013 COS. The main drivers behind this is SLHI's capital investments over the last five years.
- The above is offset by the decrease in the working capital allowance rate has reduced the Rate Base from 2017 and 2013. The decrease is mainly attributed to the decrease in the working capital rate of 7.5% from 13% as approved during SLHI's 2013 COS and the decreased cost of power expenses

SLHI has provided a summary of its calculations of the cost of power and controllable expenses used in the calculations for determining working capital for the years 2013 Board Approved, 2013 Actual, 2014 Actual, 2015 Actual, 2016 Actual, 2017 Bridge Year and 2018 Test Year in Table 2-3 below. Further details of SLHI's calculation of its cost of power calculations are provided in Table 2-21 and Table 2-22.

Table 2-3: Summary of Working Capital Calculation

	2013 Board Approved	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Bridge	2018 Test
Distribution Expenses - Operations		535,159	581,576	526,730	574,153	540,346	514,586
Distribution Expenses - Maintenance		215,047	190,949	159,501	194,875	236,866	226,447
Billing and Collecting		296,239	310,022	329,917	351,771	350,791	355,718
Administrative & General Expenses		370,323	501,286	398,869	405,987	491,972	475,341
Donations - LEAP		2,130	2,340	2,340	2,340	2,340	2,600
Property Taxes		3,813	3,850	5,230	2,881	5,294	5,394
Total Eligible Distribution Expenses	**1,421,245**	**1,422,710**	**1,590,024**	**1,422,588**	**1,532,008**	**1,627,609**	**1,580,086**
Power Supply Expenses	7,651,230	7,508,181	7,768,594	8,158,299	8,628,548	10,630,783	7,725,226
Total Working Capital Expenses	**9,072,475**	**8,930,891**	**9,358,618**	**9,580,887**	**10,160,556**	**12,258,392**	**9,305,312**
Working Capital Allowance %	13%	13%	13%	13%	13%	13%	7.5%
Working Capital Allowance	**1,179,422**	**1,161,016**	**1,216,620**	**1,245,515**	**1,320,872**	**1,593,591**	**697,898**

Variance Analysis of Rate Base

The following Tables 2-4 through 2-9 sets out SLHI's rate base and working capital calculations for the 2018 Test Year, 2017 Bridge Year, 2016 Actual, 2015 Actual, 2014 Actual, 2013 Board Approved and Actual, and the following variances:

2018 Test Year against 2017 Bridge Year;

2017 Bridge Year against 2016 Actual;

2016 Actual against 2015Actual;

2015 Actual against 2014 Actual;

2014Actual against 2013 Actual; and

2013 Actual against 2013 Board Approved.

SLHI's materiality threshold is $50,000 impact on the revenue requirement.

Table 2-4: 2018 Test Year vs. 2017 Bridge Year

Particulars	2018 Test	2017 Bridge	Variance	%
Net Capital Assets in Service:				
Opening Balance	5,145,360	4,984,439	160,921	3%
Ending Balance	5,426,734	5,145,358	281,376	5%
Average Balance	5,286,047	5,064,899	221,149	4%
Working Capital Allowance	697,898	1,593,591	-895,693	-56%
Tota Rate Base	**5,983,945**	**6,658,490**	-674,545	-10%

The total projected Rate Base in 2018 of $5,983,945 is $675,545 or 10.1% lower than 2017.

The main reason for the difference is the working capital allowance saw a decrease in rate from 13.0% to 7.5%. The average net capital assets in service (including capital contributions) are approximately $221,149 higher than 2017. This increase demonstrates the utility's investment in its distribution system as required in order to keep the system running in a safe and reliable manner. These projects are discussed further in SLHI's Distribution System Plan found in Appendix 2A. SLHI is also planning significant monies toward the addition of a new fleet vehicle, that being an Altec digger derrick.

Table 2-5: 2017 Bridge Year vs. 2016 Actual

Particulars	2017 Bridge	2016 Actual	Variance	%
Net Capital Assets in Service:				
Opening Balance	4,984,439	4,948,733	35,706	1%
Ending Balance	5,145,358	4,984,439	160,919	3%
Average Balance	5,064,899	4,966,586	98,313	2%
Working Capital Allowance	1,593,591	1,320,872	272,719	17%
Tota Rate Base	**6,658,490**	**6,287,458**	371,032	6%

The total projected Rate Base in 2017 of $6,658,490 is $371,032 or 6.0% higher than 2016.

The main reason for the variance is the forecasted working capital for 2017. The cost of power forecast increased from $8,628,548 actual to a forecast of $10,630,783 in 2017, equating to an additional $260,290 in working capital. The balance of the increase can be attributed to regular maintenance of the distribution system.

Table 2-6: 2016 Actual vs. 2015 Actual

Particulars	2016 Actual	2015 Actual	Variance	%
Net Capital Assets in Service:				
Opening Balance	4,948,733	4,959,502	-10,769	0%
Ending Balance	4,984,439	4,948,733	35,706	1%
Average Balance	4,966,586	4,954,118	12,469	0%
Working Capital Allowance	1,320,872	1,245,515	75,357	6%
Tota Rate Base	**6,287,458**	**6,199,633**	87,826	1%

The total actual Rate Base in 2016 of $6,287,458 is $87,826 or 1% higher than 2015.

The main reason for the difference is the working capital allowance saw an increase due to increased OM&A costs as described in Appendix 4 and an increase Cost of Power expenses.

Table 2-7: 2015 Actual vs. 2014 Actual

Particulars	2015 Actual	2014 Actual	Variance	%
Net Capital Assets in Service:				
Opening Balance	4,959,502	4,936,886	22,616	0%
Ending Balance	4,948,733	4,959,502	-10,769	0%
Average Balance	4,954,118	4,948,194	5,924	0%
Working Capital Allowance	1,245,515	1,216,620	28,895	2%
Tota Rate Base	**6,199,633**	**6,164,814**	34,819	1%

The total actual Rate Base in 2015 of $6,199,633 is $34,819 or 1% higher than 2014 and not material.

Table 2-8: 2014 Actual vs. 2013 Actual

Particulars	2014 Actual	2013 Actual	Variance	%
Net Capital Assets in Service:				
Opening Balance	4,936,886	4,934,100	2,786	0%
Ending Balance	4,959,502	4,936,886	22,616	0%
Average Balance	4,948,194	4,935,493	12,701	0%
Working Capital Allowance	1,216,620	1,161,016	55,604	5%
Tota Rate Base	**6,164,814**	**6,096,509**	68,305	1%

The total actual Rate Base in 2014 of $6,164,814 is $68,305 or 1% higher than 2013 and not material.

Table 2-9: 2013 Actual vs. 2013 Board Approved

Particulars	2013 Actual	2013 Board Approved	Variance	%
Net Capital Assets in Service:				
Opening Balance	4,934,100	4,947,872	-13,772	0%
Ending Balance	4,936,886	4,921,716	15,170	0%
Average Balance	4,935,493	4,934,794	699	0%
Working Capital Allowance	1,161,016	1,179,422	-18,406	-2%
Tota Rate Base	**6,096,509**	**6,114,216**	-17,707	0%

The total actual Rate Base in 2013 of $6,096,509 is $17,707 or 0% lower than 2013 Board Approved.

Fixed Asset Continuity Schedules

Table 2-10 through Table 2-16 are Board Appendix 2-BA and provide the Fixed Asset Continuity Schedules, for each of 2013 Actual (CGAAP), 2014 Actual (CGAAP), 2014 Actual (MIFRS), 2015 Actual (MIFRS), 2016 Actual (MIFRS), 2017 Bridge Year (MIFRS), and 2018 Test Year.

These schedules present a continuity schedule of its investment in capital assets, the associated accumulated amortization and the net book value for each Capital USoA account.

Table 2-10: Fixed Asset Continuity Schedule as at December 31, 2013, CGAAP

Appendix 2-BA

Fixed Asset Continuity Schedule [1]

Accounting Standard	CGAAP
Year	2013

			Cost				Accumulated Depreciation				
CCA Class [2]	OEB Account [3]	Description [3]	Opening Balance	Additions [4]	Disposals [6]	Closing Balance	Opening Balance	Additions	Disposals [6]	Closing Balance	Net Book Value
12	1611	Computer Software (Formally known as Account 1925)	$ 79,785			$ 79,785	-$ 44,206	-$ 15,107		-$ 59,313	$ 20,472
CEC	1612	Land Rights (Formally known as Account 1906)				$ -				$ -	$ -
N/A	1805	Land				$ -				$ -	$ -
47	1808	Buildings	$ 91,864			$ 91,864	-$ 44,696	-$ 3,675		-$ 48,371	$ 43,493
13	1810	Leasehold Improvements				$ -				$ -	$ -
47	1815	Transformer Station Equipment >50 kV				$ -				$ -	$ -
47	1820	Distribution Station Equipment <50 kV				$ -				$ -	$ -
47	1825	Storage Battery Equipment				$ -				$ -	$ -
47	1830	Poles, Towers & Fixtures	$ 3,655,776	$ 127,423		$ 3,783,199	-$ 1,241,690	-$ 72,738		-$ 1,314,428	$ 2,468,771
47	1835	Overhead Conductors & Devices	$ 1,088,277	$ 6,124		$ 1,094,401	-$ 492,762	-$ 18,049		-$ 510,812	$ 583,589
47	1840	Underground Conduit	$ 178,424	$ 6,297		$ 184,721	-$ 70,500	-$ 2,863		-$ 73,364	$ 111,357
47	1845	Underground Conductors & Devices	$ 910,424	$ 28,049		$ 938,473	-$ 322,427	-$ 20,995		-$ 343,422	$ 595,051
47	1850	Line Transformers	$ 1,696,557	$ 50,706		$ 1,747,263	-$ 618,303	-$ 38,037		-$ 656,341	$ 1,090,922
47	1855	Services (Overhead & Underground)				$ -				$ -	$ -
47	1860	Meters	$ 167,759	$ 1,569		$ 169,328	-$ 25,457	-$ 12,237		-$ 37,694	$ 131,634
47	1860	Meters (Smart Meters)	$ 647,486	$ 2,963	-$ 536	$ 649,913	-$ 147,661	-$ 43,265	$ 161	-$ 190,764	$ 459,149
N/A	1905	Land				$ -				$ -	$ -
47	1908	Buildings & Fixtures				$ -				$ -	$ -
13	1910	Leasehold Improvements				$ -				$ -	$ -
8	1915	Office Furniture & Equipment (10 years)	$ 21,741			$ 21,741	-$ 8,176	-$ 1,851		-$ 10,026	$ 11,715
8	1915	Office Furniture & Equipment (5 years)				$ -				$ -	$ -
10	1920	Computer Equipment - Hardware	$ 68,885	$ 3,155	-$ 880	$ 71,161	-$ 41,287	-$ 9,570	$ 88	-$ 50,769	$ 20,392
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)				$ -				$ -	$ -
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)				$ -				$ -	$ -
10	1930	Transportation Equipment(8 years)	$ 382,971			$ 382,971	-$ 321,541	-$ 12,982		-$ 334,523	$ 48,448
10	1930	Transportation Equipment(5 years)	$ 90,317			$ 90,317	-$ 78,364	-$ 6,237		-$ 84,600	$ 5,717
8	1940	Tools, Shop & Garage Equipment	$ 84,768	$ 1,357		$ 86,124	-$ 58,692	-$ 7,854		-$ 66,547	$ 19,578
8	1945	Measurement & Testing Equipment	$ 12,693	$ 6,145		$ 18,838	-$ 10,561	-$ 1,251		-$ 11,812	$ 7,026
8	1950	Power Operated Equipment(8 years)	$ 37,613	$ 85,090		$ 122,703	-$ 20,307	-$ 13,561		-$ 33,868	$ 88,835
8	1950	Power Operated Equipment(5 years)	$ 98,908			$ 98,908	-$ 96,657	-$ 987		-$ 97,644	$ 1,264
8	1955	Communication Equipment	$ 38,569			$ 38,569	-$ 31,949	-$ 1,627		-$ 33,576	$ 4,992
8	1960	Miscellaneous Equipment				$ -				$ -	$ -
47	1970	Load Management Controls Customer Premises				$ -				$ -	$ -
47	1975	Load Management Controls Utility Premises				$ -				$ -	$ -
47	1980	System Supervisor Equipment				$ -				$ -	$ -
47	1985	Miscellaneous Fixed Assets	$ 29,441	$ 1,067		$ 30,508	-$ 22,198	-$ 1,420		-$ 23,618	$ 6,890
47	1990	Other Tangible Property				$ -				$ -	$ -
47	1995	Contributions & Grants	-$ 975,244	-$ 62,891		-$ 1,038,135	$ 231,762	$ 30,851		$ 262,614	-$ 775,521
47	2440	Deferred Revenue[5]									
						$ -				$ -	$ -
		Sub-Total	**$ 8,407,015**	**$ 257,053**	**-$ 1,416**	**$ 8,662,652**	**-$ 3,465,672**	**-$ 253,453**	**$ 249**	**-$ 3,718,876**	**$ 4,943,776**
		Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -
		Less Other Non Rate-Regulated Utility Assets (input as negative)	-29441.15	-$ 1,067		-$ 30,508	$ 22,198	$ 1,420		$ 23,618	-$ 6,890
		Total PP&E	**$ 8,377,574**	**$ 255,986**	**-$ 1,416**	**$ 8,632,144**	**-$ 3,443,474**	**-$ 252,033**	**$ 249**	**-$ 3,695,258**	**$ 4,936,886**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable[6]									
		Total						**-$ 252,033**			

	2013 COS Decision EB_2012-0165	
10		Transportation
8		Tools and Equipment

Less: *Fully Allocated Depreciation*	
OEB 1576	-$ 24,296
Transportation	-$ 19,218
Tools	-$ 25,281
Net Depreciation	-$ 183,238

Table 2-11: Fixed Asset Continuity Schedule as at December 31, 2014, CGAAP

Accounting Standard	CGAAP
Year	**2014**

			Cost				**Accumulated Depreciation**				
CCA Class [2]	**OEB Account** [3]	**Description** [3]	**Opening Balance**	**Additions** [4]	**Disposals** [6]	**Closing Balance**	**Opening Balance**	**Additions**	**Disposals** [6]	**Closing Balance**	**Net Book Value**
12	1611	Computer Software (Formally known as Account 1925)	$ 79,785	$ 40,850		$ 120,635	-$ 59,313	-$ 16,310		-$ 75,623	$ 45,012
CEC	1612	Land Rights (Formally known as Account 1906)	$ -			$ -	$ -			$ -	$ -
N/A	1805	Land	$ -			$ -	$ -			$ -	$ -
47	1808	Buildings	$ 91,864			$ 91,864	-$ 48,371	-$ 3,675		-$ 52,045	$ 39,819
13	1810	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
47	1815	Transformer Station Equipment >50 kV	$ -			$ -	$ -			$ -	$ -
47	1820	Distribution Station Equipment <50 kV	$ -			$ -	$ -			$ -	$ -
47	1825	Storage Battery Equipment	$ -			$ -	$ -			$ -	$ -
47	1830	Poles, Towers & Fixtures	$ 3,783,199	$ 174,467		$ 3,957,666	-$ 1,314,428	-$ 76,092		-$ 1,390,519	$ 2,567,146
47	1835	Overhead Conductors & Devices	$ 1,094,401	$ 5,330		$ 1,099,731	-$ 510,812	-$ 18,236		-$ 529,047	$ 570,684
47	1840	Underground Conduit	$ 184,721	$ 905		$ 185,626	-$ 73,364	-$ 2,935		-$ 76,299	$ 109,327
47	1845	Underground Conductors & Devices	$ 938,473	$ 13,197		$ 951,670	-$ 343,422	-$ 21,511		-$ 364,933	$ 586,738
47	1850	Line Transformers	$ 1,747,263	$ 54,576		$ 1,801,839	-$ 656,341	-$ 39,353		-$ 695,694	$ 1,106,145
47	1855	Services (Overhead & Underground)	$ -			$ -	$ -			$ -	$ -
47	1860	Meters	$ 169,328	$ 5,221		$ 174,549	-$ 37,694	-$ 12,372		-$ 50,066	$ 124,483
47	1860	Meters (Smart Meters)	$ 649,913	$ 12,125	-$ 15,905	$ 646,133	-$ 190,764	-$ 43,732	$ 5,212	-$ 229,284	$ 416,849
N/A	1905	Land	$ -			$ -	$ -			$ -	$ -
47	1908	Buildings & Fixtures	$ -			$ -	$ -			$ -	$ -
13	1910	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
8	1915	Office Furniture & Equipment (10 years)	$ 21,741	$ 278	-$ 475	$ 21,544	-$ 10,026	-$ 1,766	$ 321	-$ 11,472	$ 10,072
8	1915	Office Furniture & Equipment (5 years)	$ -			$ -	$ -			$ -	$ -
10	1920	Computer Equipment - Hardware	$ 71,161	$ 1,000		$ 72,161	-$ 50,769	-$ 4,789		-$ 55,558	$ 16,603
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$ -			$ -	$ -			$ -	$ -
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$ -			$ -	$ -			$ -	$ -
10	1930	Transportation Equipment(8 years)	$ 382,971			$ 382,971	-$ 334,523	-$ 12,982		-$ 347,504	$ 35,466
10	1930	Transportation Equipment(5 years)	$ 90,317	$ 54,539	-$ 34,497	$ 110,359	-$ 84,600	-$ 11,171	$ 34,497	-$ 61,274	$ 49,085
8	1940	Tools, Shop & Garage Equipment	$ 86,124	$ 3,504		$ 89,629	-$ 66,547	-$ 7,659		-$ 74,206	$ 15,423
8	1945	Measurement & Testing Equipment	$ 18,838			$ 18,838	-$ 11,812	-$ 1,354		-$ 13,166	$ 5,672
8	1950	Power Operated Equipment(8 years)	$ 122,703			$ 122,703	-$ 33,868	-$ 13,561		-$ 47,430	$ 75,274
8	1950	Power Operated Equipment(5 years)	$ 98,908			$ 98,908	-$ 97,644	-$ 917		-$ 98,561	$ 347
8	1955	Communication Equipment	$ 38,569	$ 4,441		$ 43,010	-$ 33,576	-$ 1,819		-$ 35,396	$ 7,615
8	1960	Miscellaneous Equipment	$ -			$ -	$ -			$ -	$ -
47	1970	Load Management Controls Customer Premises	$ -			$ -	$ -			$ -	$ -
47	1975	Load Management Controls Utility Premises	$ -			$ -	$ -			$ -	$ -
47	1980	System Supervisor Equipment	$ -			$ -	$ -			$ -	$ -
47	1985	Miscellaneous Fixed Assets	$ 30,508	$ 178		$ 30,687	-$ 23,618	-$ 1,314		-$ 24,932	$ 5,755
47	1990	Other Tangible Property	$ -			$ -	$ -			$ -	$ -
47	1995	Contributions & Grants	-$ 1,038,135	-$ 43,494		-$ 1,081,629	$ 262,614	$ 32,190		$ 294,804	-$ 786,825
47	2440	Deferred Revenue[5]	$ -			$ -	$ -			$ -	$ -
			$ -			$ -	$ -			$ -	$ -
		Sub-Total	**$ 8,662,652**	**$ 327,119**	**-$ 50,878**	**$ 8,938,894**	**-$ 3,718,876**	**-$ 259,358**	**$ 40,030**	**-$ 3,938,205**	**$ 5,000,689**
		Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -
		Less Other Non Rate-Regulated Utility Assets (input as negative)	-$ 30,508	-178.42		-$ 30,687	$ 23,618	1313.73		$ 24,932	-$ 5,755
		Total PP&E	**$ 8,632,144**	**$ 326,941**	**-$ 50,878**	**$ 8,908,207**	**-$ 3,695,258**	**-$ 258,045**	**$ 40,030**	**-$ 3,913,273**	**$ 4,994,934**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable[6]									
		Total						**-$ 258,045**			

	2013 COS Decision EB_2012-0165	
10		Transportation
8		Tools and Equipment

Less: *Fully Allocated Depreciation*	
OEB 1576	-$ 24,296
Transportation	-$ 24,153
Tools and Equipment	-$ 25,311
Net Depreciation	-$ 184,285

Table 2-12: Fixed Asset Continuity Schedule as at December 31, 2014, MIFRS

Accounting Standard	MIFRS
Year	**2014**

			Cost				Accumulated Depreciation				
CCA Class [2]	**OEB Account [3]**	**Description [3]**	**Opening Balance**	**Additions [4]**	**Disposals [6]**	**Closing Balance**	**Opening Balance**	**Additions**	**Disposals [6]**	**Closing Balance**	**Net Book Value**
12	1611	Computer Software (Formally known as Account 1925)	$ 79,785	$ 40,850		$ 120,635	-$ 59,313	-$ 16,310		-$ 75,623	$ 45,012
CEC	1612	Land Rights (Formally known as Account 1906)	$ -			$ -	$ -			$ -	$ -
N/A	1805	Land	$ -			$ -	$ -			$ -	$ -
47	1808	Buildings	$ 91,864			$ 91,864	-$ 48,371	-$ 3,675		-$ 52,045	$ 39,819
13	1810	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
47	1815	Transformer Station Equipment >50 kV	$ -			$ -	$ -			$ -	$ -
47	1820	Distribution Station Equipment <50 kV	$ -			$ -	$ -			$ -	$ -
47	1825	Storage Battery Equipment	$ -			$ -	$ -			$ -	$ -
47	1830	Poles, Towers & Fixtures	$ 3,783,199	$ 174,467	-$ 53,473	$ 3,904,193	-$ 1,314,428	-$ 75,122	$ 36,566	-$ 1,352,984	$ 2,551,209
47	1835	Overhead Conductors & Devices	$ 1,094,401	$ 5,330		$ 1,099,731	-$ 510,812	-$ 18,180		-$ 528,992	$ 570,739
47	1840	Underground Conduit	$ 184,721	$ 905		$ 185,626	-$ 73,364	-$ 2,938		-$ 76,302	$ 109,325
47	1845	Underground Conductors & Devices	$ 938,473	$ 13,197		$ 951,670	-$ 343,422	-$ 21,535		-$ 364,957	$ 586,713
47	1850	Line Transformers	$ 1,747,263	$ 54,576	-$ 38,945	$ 1,762,894	-$ 656,341	-$ 37,959	$ 18,027	-$ 676,273	$ 1,086,621
47	1855	Services (Overhead & Underground)	$ -			$ -	$ -			$ -	$ -
47	1860	Meters	$ 169,328	$ 5,221		$ 174,549	-$ 37,694	-$ 12,372		-$ 50,066	$ 124,483
47	1860	Meters (Smart Meters)	$ 649,913	$ 12,125	-$ 15,905	$ 646,133	-$ 190,764	-$ 43,732	$ 5,212	-$ 229,284	$ 416,849
N/A	1905	Land	$ -			$ -	$ -			$ -	$ -
47	1908	Buildings & Fixtures	$ -			$ -	$ -			$ -	$ -
13	1910	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
8	1915	Office Furniture & Equipment (10 years)	$ 21,741	$ 278	-$ 475	$ 21,544	-$ 10,026	-$ 1,766	$ 321	-$ 11,472	$ 10,072
8	1915	Office Furniture & Equipment (5 years)	$ -			$ -	$ -			$ -	$ -
10	1920	Computer Equipment - Hardware	$ 71,161	$ 1,000		$ 72,161	-$ 50,769	-$ 4,789		-$ 55,558	$ 16,603
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$ -			$ -	$ -			$ -	$ -
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$ -			$ -	$ -			$ -	$ -
10	1930	Transportation Equipment(8 years)	$ 382,971			$ 382,971	-$ 334,523	-$ 12,982		-$ 347,504	$ 35,466
10	1930	Transportation Equipment(5 years)	$ 90,317	$ 54,539	-$ 34,497	$ 110,359	-$ 84,600	-$ 11,171	$ 34,497	-$ 61,274	$ 49,085
8	1940	Tools, Shop & Garage Equipment	$ 86,124	$ 3,504		$ 89,629	-$ 66,547	-$ 7,659		-$ 74,206	$ 15,423
8	1945	Measurement & Testing Equipment	$ 18,838			$ 18,838	-$ 11,812	-$ 1,354		-$ 13,166	$ 5,672
8	1950	Power Operated Equipment(8 years)	$ 122,703			$ 122,703	-$ 33,868	-$ 13,561		-$ 47,430	$ 75,274
8	1950	Power Operated Equipment(5 years)	$ 98,908			$ 98,908	-$ 97,644	-$ 917		-$ 98,561	$ 347
8	1955	Communication Equipment	$ 38,569	$ 4,441		$ 43,010	-$ 33,576	-$ 1,819		-$ 35,396	$ 7,615
8	1960	Miscellaneous Equipment	$ -			$ -	$ -			$ -	$ -
47	1970	Load Management Controls Customer Premises	$ -			$ -	$ -			$ -	$ -
47	1975	Load Management Controls Utility Premises	$ -			$ -	$ -			$ -	$ -
47	1980	System Supervisor Equipment	$ -			$ -	$ -			$ -	$ -
47	1985	Miscellaneous Fixed Assets	$ 30,508	$ 178		$ 30,687	-$ 23,618	-$ 1,314		-$ 24,932	$ 5,755
47	1990	Other Tangible Property	$ -			$ -	$ -			$ -	$ -
47	1995	Contributions & Grants	-$ 1,038,135			-$ 1,038,135	$ 262,614	$ 30,897		$ 293,511	-$ 744,624
47	2440	Deferred Revenue[5]	$ -	-$ 43,494		-$ 43,494	$ -	$ 1,293		$ 1,293	-$ 42,201
						$ -	$ -			$ -	
		Sub-Total	**$ 8,662,652**	**$ 327,119**	**-$ 143,296**	**$ 8,846,476**	**-$ 3,718,876**	**-$ 256,966**	**$ 94,623**	**-$ 3,881,219**	**$ 4,965,256**
		Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -
		Less Other Non Rate-Regulated Utility Assets (input as negative)	-$ 30,508	-178.42		-$ 30,687	$ 23,618	1313.73		$ 24,932	-$ 5,755
		Total PP&E	**$ 8,632,144**	**$ 326,941**	**-$ 143,296**	**$ 8,815,789**	**-$ 3,695,258**	**-$ 255,652**	**$ 94,623**	**-$ 3,856,287**	**$ 4,959,502**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable[6]									
		Total						**-$ 255,652**			

		2013 COS Decision EB_2012-0165
10		Transportation
8		Tools and Equipment

Less: *Fully Allocated Depreciation*	
Deferred Revenue	$ 1,293
OEB 1576	-$ 24,296
Transportation	-$ 24,153
Tools and Equipment	-$ 25,311
Net Depreciation	-$ 183,185

Table 2-13: Fixed Asset Continuity Schedule as at December 31, 2015, MIFRS

Accounting Standard	MIFRS
Year	2015

			Cost				Accumulated Depreciation				
CCA Class [2]	OEB Account [3]	Description [3]	Opening Balance	Additions [4]	Disposals [6]	Closing Balance	Opening Balance	Additions	Disposals [6]	Closing Balance	Net Book Value
12	1611	Computer Software (Formally known as Account 1925)	$ 120,635	$ 1,163		$ 121,798	-$ 75,623	-$ 13,846		-$ 89,469	$ 32,328
CEC	1612	Land Rights (Formally known as Account 1906)	$ -			$ -	$ -			$ -	$ -
N/A	1805	Land	$ -			$ -	$ -			$ -	$ -
47	1808	Buildings	$ 91,864			$ 91,864	-$ 52,045	-$ 3,675		-$ 55,720	$ 36,144
13	1810	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
47	1815	Transformer Station Equipment >50 kV	$ -			$ -	$ -			$ -	$ -
47	1820	Distribution Station Equipment <50 kV	$ -			$ -	$ -			$ -	$ -
47	1825	Storage Battery Equipment	$ -			$ -	$ -			$ -	$ -
47	1830	Poles, Towers & Fixtures	$ 3,904,193	$ 170,006	-$ 15,438	$ 4,058,761	-$ 1,352,984	-$ 79,316	$ 8,740	-$ 1,423,559	$ 2,635,202
47	1835	Overhead Conductors & Devices	$ 1,099,731	$ 26,651	-$ 10,419	$ 1,115,963	-$ 528,992	-$ 18,509	$ 9,563	-$ 537,938	$ 578,025
47	1840	Underground Conduit	$ 185,626	$ 1,730		$ 187,356	-$ 76,302	-$ 2,964		-$ 79,266	$ 108,091
47	1845	Underground Conductors & Devices	$ 951,670	$ 24,993		$ 976,663	-$ 364,957	-$ 22,008		-$ 386,965	$ 589,698
47	1850	Line Transformers	$ 1,762,894	$ 40,013	-$ 4,174	$ 1,798,732	-$ 676,273	-$ 39,781	$ 2,394	-$ 713,660	$ 1,085,072
47	1855	Services (Overhead & Underground)	$ -			$ -	$ -			$ -	$ -
47	1860	Meters	$ 174,549	$ 4,025		$ 178,575	-$ 50,066	-$ 12,557		-$ 62,623	$ 115,951
47	1860	Meters (Smart Meters)	$ 646,133		-$ 3,457	$ 642,676	-$ 229,284	-$ 43,076	$ 1,416	-$ 270,944	$ 371,732
N/A	1905	Land	$ -			$ -	$ -			$ -	$ -
47	1908	Buildings & Fixtures	$ -			$ -	$ -			$ -	$ -
13	1910	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
8	1915	Office Furniture & Equipment (10 years)	$ 21,544	$ 2,318		$ 23,862	-$ 11,472	-$ 1,785		-$ 13,257	$ 10,605
8	1915	Office Furniture & Equipment (5 years)	$ -			$ -	$ -			$ -	$ -
10	1920	Computer Equipment - Hardware	$ 72,161	$ 1,830		$ 73,991	-$ 55,558	-$ 5,101		-$ 60,659	$ 13,332
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$ -			$ -	$ -			$ -	$ -
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$ -			$ -	$ -			$ -	$ -
10	1930	Transportation Equipment(8 years)	$ 382,971			$ 382,971	-$ 347,504	-$ 12,982		-$ 360,486	$ 22,484
10	1930	Transportation Equipment(5 years)	$ 110,359			$ 110,359	-$ 61,274	-$ 10,908		-$ 72,182	$ 38,177
8	1940	Tools, Shop & Garage Equipment	$ 89,629	$ 1,005		$ 90,634	-$ 74,206	-$ 7,396		-$ 81,602	$ 9,032
8	1945	Measurement & Testing Equipment	$ 18,838			$ 18,838	-$ 13,166	-$ 947		-$ 14,113	$ 4,725
8	1950	Power Operated Equipment(8 years)	$ 122,703			$ 122,703	-$ 47,430	-$ 13,561		-$ 60,991	$ 61,713
8	1950	Power Operated Equipment(5 years)	$ 98,908	$ 14,234		$ 113,142	-$ 98,561	-$ 381		-$ 98,942	$ 14,200
8	1955	Communication Equipment	$ 43,010	$ 11,122		$ 54,133	-$ 35,396	-$ 2,432		-$ 37,828	$ 16,305
8	1960	Miscellaneous Equipment	$ -			$ -	$ -			$ -	$ -
47	1970	Load Management Controls Customer Premises	$ -			$ -	$ -			$ -	$ -
47	1975	Load Management Controls Utility Premises	$ -			$ -	$ -			$ -	$ -
47	1980	System Supervisor Equipment	$ -			$ -	$ -			$ -	$ -
47	1985	Miscellaneous Fixed Assets	$ 30,687	$ 1,523		$ 32,210	-$ 24,932	-$ 1,263		-$ 26,195	$ 6,015
47	1990	Other Tangible Property	$ -			$ -	$ -			$ -	$ -
47	1995	Contributions & Grants	-$ 1,038,135			-$ 1,038,135	$ 293,511	$ 30,758		$ 324,269	-$ 713,866
47	2440	Deferred Revenue[5]	-$ 43,494	-$ 40,513		-$ 84,007	$ 1,293	$ 2,497		$ 3,789	-$ 80,218
			$ -			$ -				$ -	$ -
		Sub-Total	**$ 8,846,476**	**$ 260,101**	**-$ 33,489**	**$ 9,073,088**	**-$ 3,881,219**	**-$ 259,234**	**$ 22,112**	**-$ 4,118,340**	**$ 4,954,748**
		Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -
		Less Other Non Rate-Regulated Utility Assets (input as negative)	-$ 30,687	-1523.16		-$ 32,210	$ 24,932	1263.15		$ 26,195	-$ 6,015
		Total PP&E	**$ 8,815,789**	**$ 258,578**	**-$ 33,489**	**$ 9,040,878**	**-$ 3,856,287**	**-$ 257,970**	**$ 22,112**	**-$ 4,092,145**	**$ 4,948,733**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable[6]									
		Total						**-$ 257,970**			

	2013 COS Decision EB_2012-0165	
10		Transportation
8		Tools and Equipment

Less: *Fully Allocated Depreciation*	
Deferred Revenue	$ 2,497
OEB 1576	-$ 24,296
Transportation	-$ 23,890
Tools and Equipment	-$ 24,717
Net Depreciation	-$ 187,564

Table 2-14: Fixed Asset Continuity Schedule as at December 31, 2016, MIFRS

Accounting Standard	MIFRS
Year	2016

			Cost				Accumulated Depreciation				
CCA Class [2]	OEB Account [3]	Description [3]	Opening Balance	Additions [4]	Disposals [6]	Closing Balance	Opening Balance	Additions	Disposals [6]	Closing Balance	Net Book Value
12	1611	Computer Software (Formally known as Account 1925)	$ 121,798			$ 121,798	-$ 89,469	-$ 12,528		-$ 101,997	$ 19,801
CEC	1612	Land Rights (Formally known as Account 1906)	$ -			$ -	$ -			$ -	$ -
N/A	1805	Land	$ -			$ -	$ -			$ -	$ -
47	1808	Buildings	$ 91,864			$ 91,864	-$ 55,720	-$ 3,675		-$ 59,395	$ 32,470
13	1810	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
47	1815	Transformer Station Equipment >50 kV	$ -			$ -	$ -			$ -	$ -
47	1820	Distribution Station Equipment <50 kV	$ -			$ -	$ -			$ -	$ -
47	1825	Storage Battery Equipment	$ -			$ -	$ -			$ -	$ -
47	1830	Poles, Towers & Fixtures	$ 4,058,761	$ 204,059	-$ 18,058	$ 4,244,761	-$ 1,423,559	-$ 83,343	$ 12,896	-$ 1,494,006	$ 2,750,755
47	1835	Overhead Conductors & Devices	$ 1,115,963	$ 28,066	-$ 3,436	$ 1,140,593	-$ 537,938	-$ 19,109	$ 3,003	-$ 554,044	$ 586,549
47	1840	Underground Conduit	$ 187,356	$ 5,827		$ 193,184	-$ 79,266	-$ 3,040		-$ 82,306	$ 110,878
47	1845	Underground Conductors & Devices	$ 976,663	$ 46,335		$ 1,022,998	-$ 386,965	-$ 22,908		-$ 409,873	$ 613,124
47	1850	Line Transformers	$ 1,798,732	$ 20,392		$ 1,819,124	-$ 713,660	-$ 40,549		-$ 754,209	$ 1,064,915
47	1855	Services (Overhead & Underground)	$ -			$ -	$ -			$ -	$ -
47	1860	Meters	$ 178,575	$ 799		$ 179,374	-$ 62,623	-$ 12,654		-$ 75,277	$ 104,097
47	1860	Meters (Smart Meters)	$ 642,676	$ 4,330	-$ 3,383	$ 643,623	-$ 270,944	-$ 42,989	$ 1,603	-$ 312,331	$ 331,293
N/A	1905	Land	$ -			$ -	$ -			$ -	$ -
47	1908	Buildings & Fixtures	$ -			$ -	$ -			$ -	$ -
13	1910	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
8	1915	Office Furniture & Equipment (10 years)	$ 23,862	$ 299	-$ 653	$ 23,508	-$ 13,257	-$ 1,916	$ 653	-$ 14,520	$ 8,988
8	1915	Office Furniture & Equipment (5 years)	$ -			$ -	$ -			$ -	$ -
10	1920	Computer Equipment - Hardware	$ 73,991			$ 73,991	-$ 60,659	-$ 5,070		-$ 65,729	$ 8,262
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$ -			$ -	$ -			$ -	$ -
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$ -			$ -	$ -			$ -	$ -
10	1930	Transportation Equipment(8 years)	$ 382,971			$ 382,971	-$ 360,486	-$ 5,141		-$ 365,627	$ 17,344
10	1930	Transportation Equipment(5 years)	$ 110,359		-$ 24,637	$ 85,722	-$ 72,182	-$ 10,908	$ 24,637	-$ 58,452	$ 27,269
8	1940	Tools, Shop & Garage Equipment	$ 90,634	$ 3,945		$ 94,578	-$ 81,602	-$ 7,466		-$ 89,068	$ 5,510
8	1945	Measurement & Testing Equipment	$ 18,838	$ 15,389		$ 34,227	-$ 14,113	-$ 1,343		-$ 15,456	$ 18,771
8	1950	Power Operated Equipment(8 years)	$ 122,703			$ 122,703	-$ 60,991	-$ 13,561		-$ 74,552	$ 48,151
8	1950	Power Operated Equipment(5 years)	$ 113,142	$ 779		$ 113,921	-$ 98,942	-$ 3,108		-$ 102,050	$ 11,871
8	1955	Communication Equipment	$ 54,133	$ 599		$ 54,732	-$ 37,828	-$ 2,839		-$ 40,667	$ 14,065
8	1960	Miscellaneous Equipment	$ -			$ -	$ -			$ -	$ -
47	1970	Load Management Controls Customer Premises	$ -			$ -	$ -			$ -	$ -
47	1975	Load Management Controls Utility Premises	$ -			$ -	$ -			$ -	$ -
47	1980	System Supervisor Equipment	$ -			$ -	$ -			$ -	$ -
47	1985	Miscellaneous Fixed Assets	$ 32,210	$ -		$ 32,210	-$ 26,195	-$ 1,240		-$ 27,436	$ 4,774
47	1990	Other Tangible Property	$ -			$ -	$ -			$ -	$ -
47	1995	Contributions & Grants	-$ 1,038,135			-$ 1,038,135	$ 324,269	$ 31,626		$ 355,896	-$ 682,239
47	2440	Deferred Revenue[5]	-$ 84,007	-$ 29,696		-$ 113,703	$ 3,789	$ 2,477		$ 6,266	-$ 107,436
						$ -				$ -	$ -
		Sub-Total	**$ 9,073,088**	**$ 301,123**	**-$ 50,166**	**$ 9,324,045**	**-$ 4,118,340**	**-$ 259,283**	**$ 42,791**	**-$ 4,334,832**	**$ 4,989,213**
		Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -
		Less Other Non Rate-Regulated Utility Assets (input as negative)	-$ 32,210			-$ 32,210	$ 26,195	1240.45		$ 27,436	-$ 4,774
		Total PP&E	**$ 9,040,878**	**$ 301,123**	**-$ 50,166**	**$ 9,291,835**	**-$ 4,092,145**	**-$ 258,042**	**$ 42,791**	**-$ 4,307,396**	**$ 4,984,438**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable[6]									
		Total						**-$ 258,042**			

	2013 COS Decision EB_2012-0165	
10		Transportation
8		Tools and Equipment

Less: *Fully Allocated Depreciation*	
Deferred Revenue	$ 2,477
OEB 1576	-$ 24,296
Transportation	-$ 16,049
Tools and Equipment	-$ 28,317
Net Depreciation	-$ 191,858

Table 2-15: Fixed Asset Continuity Schedule as at December 31, 2017, MIFRS

Accounting Standard	MIFRS
Year	**2017**

			Cost				**Accumulated Depreciation**				
CCA Class [2]	**OEB Account [3]**	**Description [3]**	**Opening Balance**	**Additions [4]**	**Disposals [6]**	**Closing Balance**	**Opening Balance**	**Additions**	**Disposals [6]**	**Closing Balance**	**Net Book Value**
12	1611	Computer Software (Formally known as Account 1925)	$ 121,798	$ 45,000		$ 166,798	-$ 101,997	-$ 8,403		-$ 110,400	$ 56,398
CEC	1612	Land Rights (Formally known as Account 1906)	$ -			$ -	$ -			$ -	$ -
N/A	1805	Land	$ -			$ -	$ -			$ -	$ -
47	1808	Buildings	$ 91,864			$ 91,864	-$ 59,395	-$ 3,675		-$ 63,070	$ 28,795
13	1810	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
47	1815	Transformer Station Equipment >50 kV	$ -			$ -	$ -			$ -	$ -
47	1820	Distribution Station Equipment <50 kV	$ -			$ -	$ -			$ -	$ -
47	1825	Storage Battery Equipment	$ -			$ -	$ -			$ -	$ -
47	1830	Poles, Towers & Fixtures	$ 4,244,761	$ 177,309	-$ 17,079	$ 4,404,991	-$ 1,494,006	-$ 87,458	$ 12,048	-$ 1,569,416	$ 2,835,575
47	1835	Overhead Conductors & Devices	$ 1,140,593	$ 116,126	-$ 3,185	$ 1,253,534	-$ 554,044	-$ 20,705	$ 2,778	-$ 571,971	$ 681,563
47	1840	Underground Conduit	$ 193,184	$ 2,800		$ 195,984	-$ 82,306	-$ 3,187		-$ 85,493	$ 110,491
47	1845	Underground Conductors & Devices	$ 1,022,998	$ 49,012		$ 1,072,010	-$ 409,873	-$ 24,115		-$ 433,988	$ 638,021
47	1850	Line Transformers	$ 1,819,124	$ 143,477		$ 1,962,601	-$ 754,209	-$ 42,604		-$ 796,813	$ 1,165,788
47	1855	Services (Overhead & Underground)	$ -			$ -	$ -			$ -	$ -
47	1860	Meters	$ 179,374	$ 918		$ 180,292	-$ 75,277	-$ 12,688		-$ 87,965	$ 92,327
47	1860	Meters (Smart Meters)	$ 643,623	$ 16,712		$ 660,335	-$ 312,331	-$ 43,465		-$ 355,796	$ 304,540
N/A	1905	Land	$ -			$ -	$ -			$ -	$ -
47	1908	Buildings & Fixtures	$ -			$ -	$ -			$ -	$ -
13	1910	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
8	1915	Office Furniture & Equipment (10 years)	$ 23,508	$ 2,000		$ 25,508	-$ 14,520	-$ 1,921		-$ 16,441	$ 9,067
8	1915	Office Furniture & Equipment (5 years)	$ -			$ -	$ -			$ -	$ -
10	1920	Computer Equipment - Hardware	$ 73,991	$ 2,000		$ 75,991	-$ 65,729	-$ 4,958		-$ 70,687	$ 5,304
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$ -			$ -	$ -			$ -	$ -
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$ -			$ -	$ -			$ -	$ -
10	1930	Transportation Equipment(8 years)	$ 382,971			$ 382,971	-$ 365,627	-$ 4,428		-$ 370,055	$ 12,916
10	1930	Transportation Equipment(5 years)	$ 85,722	$ 35,000		$ 120,722	-$ 58,452	-$ 14,408		-$ 72,860	$ 47,861
8	1940	Tools, Shop & Garage Equipment	$ 94,578	$ 5,000		$ 99,578	-$ 89,068	-$ 2,704		-$ 91,772	$ 7,806
8	1945	Measurement & Testing Equipment	$ 34,227			$ 34,227	-$ 15,456	-$ 2,153		-$ 17,609	$ 16,618
8	1950	Power Operated Equipment(8 years)	$ 122,703			$ 122,703	-$ 74,552	-$ 13,561		-$ 88,113	$ 34,590
8	1950	Power Operated Equipment(5 years)	$ 113,921			$ 113,921	-$ 102,050	-$ 3,063		-$ 105,112	$ 8,809
8	1955	Communication Equipment	$ 54,732			$ 54,732	-$ 40,667	-$ 2,082		-$ 42,749	$ 11,983
8	1960	Miscellaneous Equipment	$ -			$ -	$ -			$ -	$ -
47	1970	Load Management Controls Customer Premises	$ -			$ -	$ -			$ -	$ -
47	1975	Load Management Controls Utility Premises	$ -			$ -	$ -			$ -	$ -
47	1980	System Supervisor Equipment	$ -			$ -	$ -			$ -	$ -
47	1985	Miscellaneous Fixed Assets	$ 32,210	$ 300		$ 32,510	-$ 27,436	-$ 1,033		-$ 28,469	$ 4,041
47	1990	Other Tangible Property	$ -			$ -	$ -			$ -	$ -
47	1995	Contributions & Grants	-$ 1,038,135			-$ 1,038,135	$ 355,896	$ 31,626		$ 387,522	-$ 650,613
47	2440	Deferred Revenue[5]	-$ 113,703	-$ 170,000		-$ 283,703	$ 6,266	$ 4,955		$ 11,221	-$ 272,481
			$ -			$ -				$ -	$ -
		Sub-Total	**$ 9,324,045**	**$ 425,654**	**-$ 20,264**	**$ 9,729,435**	**-$ 4,334,832**	**-$ 260,030**	**$ 14,826**	**-$ 4,580,036**	**$ 5,149,399**
		Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -
		Less Other Non Rate-Regulated Utility Assets (input as negative)	-$ 32,210	-300		-$ 32,510	$ 27,436	1033		$ 28,469	-$ 4,041
		Total PP&E	**$ 9,291,835**	**$ 425,354**	**-$ 20,264**	**$ 9,696,925**	**-$ 4,307,396**	**-$ 258,997**	**$ 14,826**	**-$ 4,551,567**	**$ 5,145,358**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable[6]									
		Total						**-$ 258,997**			

10		Transportation
8		Tools and Equipment

Less: *Fully Allocated Depreciation*	
Deferred Revenue	$ 4,955
Transportation	-$ 18,836
Tools and Equipment	-$ 23,563
Net Depreciation	-$ 221,553

Table 2-16: Fixed Asset Continuity Schedule as at December 31, 2018, MIFRS

Accounting Standard	MIFRS
Year	**2018**

			Cost				Accumulated Depreciation				
CCA Class [2]	**OEB Account [3]**	**Description [3]**	**Opening Balance**	**Additions [4]**	**Disposals [6]**	**Closing Balance**	**Opening Balance**	**Additions**	**Disposals [6]**	**Closing Balance**	**Net Book Value**
12	1611	Computer Software (Formally known as Account 1925)	$ 166,798			$ 166,798	-$ 110,400	-$ 12,903		-$ 123,303	$ 43,495
CEC	1612	Land Rights (Formally known as Account 1906)	$ -			$ -	$ -			$ -	$ -
N/A	1805	Land	$ -			$ -	$ -			$ -	$ -
47	1808	Buildings	$ 91,864			$ 91,864	-$ 63,070	-$ 3,675		-$ 66,745	$ 25,120
13	1810	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
47	1815	Transformer Station Equipment >50 kV	$ -			$ -	$ -			$ -	$ -
47	1820	Distribution Station Equipment <50 kV	$ -			$ -	$ -			$ -	$ -
47	1825	Storage Battery Equipment	$ -			$ -	$ -			$ -	$ -
47	1830	Poles, Towers & Fixtures	$ 4,404,991	$ 173,504	-$ 16,256	$ 4,562,239	-$ 1,569,416	-$ 91,299	$ 13,400	-$ 1,647,315	$ 2,914,924
47	1835	Overhead Conductors & Devices	$ 1,253,534	$ 3,200	-$ 3,185	$ 1,253,549	-$ 571,971	-$ 22,046	$ 2,792	-$ 591,225	$ 662,324
47	1840	Underground Conduit	$ 195,984	$ 1,200		$ 197,184	-$ 85,493	-$ 3,168		-$ 88,661	$ 108,523
47	1845	Underground Conductors & Devices	$ 1,072,010	$ 35,000		$ 1,107,010	-$ 433,988	-$ 25,181		-$ 459,169	$ 647,840
47	1850	Line Transformers	$ 1,962,601	$ 41,425		$ 2,004,026	-$ 796,813	-$ 44,961		-$ 841,774	$ 1,162,252
47	1855	Services (Overhead & Underground)	$ -			$ -	$ -			$ -	$ -
47	1860	Meters	$ 180,292			$ 180,292	-$ 87,965	-$ 12,707		-$ 100,672	$ 79,620
47	1860	Meters (Smart Meters)	$ 660,335			$ 660,335	-$ 355,796	-$ 43,797		-$ 399,593	$ 260,743
N/A	1905	Land	$ -			$ -	$ -			$ -	$ -
47	1908	Buildings & Fixtures	$ -			$ -	$ -			$ -	$ -
13	1910	Leasehold Improvements	$ -			$ -	$ -			$ -	$ -
8	1915	Office Furniture & Equipment (10 years)	$ 25,508	$ 2,000		$ 27,508	-$ 16,441	-$ 2,031		-$ 18,472	$ 9,036
8	1915	Office Furniture & Equipment (5 years)	$ -			$ -	$ -			$ -	$ -
10	1920	Computer Equipment - Hardware	$ 75,991	$ 2,000		$ 77,991	-$ 70,687	-$ 4,700		-$ 75,387	$ 2,604
45	1920	Computer Equip.-Hardware(Post Mar. 22/04)	$ -			$ -	$ -			$ -	$ -
45.1	1920	Computer Equip.-Hardware(Post Mar. 19/07)	$ -			$ -	$ -			$ -	$ -
10	1930	Transportation Equipment(8 years)	$ 382,971	$ 355,000	-$ 276,065	$ 461,906	-$ 370,055	-$ 22,188	$ 263,150	-$ 129,093	$ 332,813
10	1930	Transportation Equipment(5 years)	$ 120,722			$ 120,722	-$ 72,860	-$ 17,908		-$ 90,768	$ 29,953
8	1940	Tools, Shop & Garage Equipment	$ 99,578	$ 5,000		$ 104,578	-$ 91,772	-$ 2,895		-$ 94,667	$ 9,912
8	1945	Measurement & Testing Equipment	$ 34,227			$ 34,227	-$ 17,609	-$ 2,153		-$ 19,762	$ 14,465
8	1950	Power Operated Equipment(8 years)	$ 122,703			$ 122,703	-$ 88,113	-$ 13,318		-$ 101,431	$ 21,273
8	1950	Power Operated Equipment(5 years)	$ 113,921			$ 113,921	-$ 105,112	-$ 3,003		-$ 108,115	$ 5,806
8	1955	Communication Equipment	$ 54,732			$ 54,732	-$ 42,749	-$ 1,955		-$ 44,704	$ 10,028
8	1960	Miscellaneous Equipment	$ -			$ -	$ -			$ -	$ -
47	1970	Load Management Controls Customer Premises	$ -			$ -	$ -			$ -	$ -
47	1975	Load Management Controls Utility Premises	$ -			$ -	$ -			$ -	$ -
47	1980	System Supervisor Equipment	$ -			$ -	$ -			$ -	$ -
47	1985	Miscellaneous Fixed Assets	$ 32,510			$ 32,510	-$ 28,469	-$ 893		-$ 29,362	$ 3,148
47	1990	Other Tangible Property	$ -			$ -	$ -			$ -	$ -
47	1995	Contributions & Grants	-$ 1,038,135			-$ 1,038,135	$ 387,522	$ 31,626		$ 419,148	-$ 618,987
47	2440	Deferred Revenue[5]	-$ 283,703	-$ 30,000		-$ 313,703	$ 11,221	$ 7,468		$ 18,689	-$ 295,013
			$ -			$ -	$ -			$ -	$ -
		Sub-Total	**$ 9,729,435**	**$ 588,329**	**-$ 295,506**	**$ 10,022,258**	**-$ 4,580,036**	**-$ 291,686**	**$ 279,342**	**-$ 4,592,379**	**$ 5,429,879**
		Less Socialized Renewable Energy Generation Investments (input as negative)				$ -				$ -	$ -
		Less Other Non Rate-Regulated Utility Assets (input as negative)	-$ 32,510			-$ 32,510	$ 28,469	893		$ 29,362	-$ 3,148
		Total PP&E	**$ 9,696,925**	**$ 588,329**	**-$ 295,506**	**$ 9,989,748**	**-$ 4,551,567**	**-$ 290,793**	**$ 279,342**	**-$ 4,563,017**	**$ 5,426,730**
		Depreciation Expense adj. from gain or loss on the retirement of assets (pool of like assets), if applicable[6]									
		Total						**-$ 290,793**			

10		Transportation
8		Tools and Equipment

Less: *Fully Allocated Depreciation*	
Deferred Revenue	$ 7,468
Transportation	-$ 40,096
Tools and Equipment	-$ 23,323
Net Depreciation	-$ 234,842

2.1.2 Gross Assets – Property Plant and Equipment and Accumulated Depreciation

Breakdown by Function

Table 2-17 below categorizes SLHI's assets into three Functions; distribution plant, general plant, contributions and grants. In accordance with the Uniform System of Accounts ("USoA"), SLHI has included gross assets as follows:

Distribution plant asset accounts include USoA 1805 to 1860 - this account includes assets such as substation equipment, poles, wires, transformers and meters;

General plant asset accounts include USoA 1905 to 1990 and USoA 1611 - this account includes assets such as buildings, computer software and hardware, transportation equipment, and tools;

Contributions and grants includes USoA account 1995 (pre-IFRS) and 2440 (post-IFRS) – this account includes all contributions in aid of capital that SLHI has received or forecasted to be received as per the Distribution System Code ("DSC") and;

WIP(Work in Progress)– this account includes all costs related to assets that are not considered in-service as of December 31st of the applicable fiscal year. Costs are transferred out of WIP and into the appropriate category above once designated in-service.

Table 2-17 categorizes SLHI's assets into the four functions according to USoA.

Table 2-17: Gross Asset Breakdown by Function

Description Reporting Basis	2013 Board Approved	2013 MCGAAP	2014 MCGAAP	2014 MIFRS	2015 MIFRS	2016 MIFRS	2017 Bridge MIFRS	2018 Test MIFRS
Distribution System Plant	8,653,507	8,659,162	8,909,078	8,816,661	9,050,591	9,335,522	9,821,612	10,056,500
General Plant	1,017,251	1,011,118	1,080,758	1,080,758	1,112,430	1,108,152	1,197,152	1,285,087
Contributions and Grants/Deferred Revenue	-1,067,244	-1,038,135	-1,081,629	-1,081,629	-1,122,142	-1,151,838	-1,321,838	-1,351,838
Total	**8,603,514**	**8,632,145**	**8,908,208**	**8,815,790**	**9,040,879**	**9,291,836**	**9,696,926**	**9,989,749**

*small differences from continuity schedules due to rounding

Detailed Breakdown by Major Plant Account

Table 2-18 below provides a detailed breakdown by major plant account for each functionalized plant item. Each plant item is accompanied by a description in accordance with the Board's USoA, including the 2018 Test Year. SLHI has also included a breakdown of accumulated amortization in the same format in Table 2-19.

Table 2-18: Gross Assets - Detailed Breakdown by Major Plant Function

Function	Description	2013 Board Approved (MCGAAP)	2013 Actual (MCGAAP)	Variance from 2013 Board Approved	2014 Actual (MCGAAP)	Variance -from 2013 Actual	2014 Actual (MIFRS)	Variance from 2014 (MCGAAP) Actual	2015 Actual (MIFRS)	Variance from 2014 (MIFRS) Actual	2016 Actual (MIFRS)	Variance from 2015 Actual	2017 Bridge (MIFRS)	Variance from 2016 Actual	2018 Test (MIFRS)	Variance from 2017 Bridge
	Land & Buildings (Distribution Plant)															
	1808 Buildings and Fixtures	91,864	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0
	SUBTOTAL LAND & BUILDINGS	91,864	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0
	Poles & Wires															
	1830 Poles, Towers and Fixtures	3,704,849	3,783,199	78,350	3,957,666	174,467	3,904,193	-53,473	4,058,761	154,568	4,244,761	186,000	4,404,991	160,230	4,562,239	157,248
	1835 Overhead Conductors and Devices	1,100,545	1,094,401	-6,144	1,099,731	5,330	1,099,731	0	1,115,963	16,232	1,140,593	24,630	1,253,534	112,941	1,253,549	15
	1840 Underground Conduit	183,423	184,721	1,298	185,626	905	185,626	0	187,356	1,730	193,184	5,828	195,984	2,800	197,184	1,200
	1845 Underground Conductors and Devices	999,577	938,473	-61,104	951,670	13,197	951,670	0	976,663	24,993	1,022,998	46,335	1,072,010	49,012	1,107,010	35,000
Distribution Plant	**SUBTOTAL POLES & WIRES**	5,988,394	6,000,794	12,400	6,194,693	193,899	6,141,220	-53,473	6,338,743	197,523	6,601,536	262,793	6,926,519	**324,983**	7,119,982	193,463
	Line Transformers															
	1850 Line Transformers	1,756,324	1,747,263	-9,061	1,801,839	54,576	1,762,894	-38,945	1,798,732	35,838	1,819,124	20,392	1,962,601	143,477	2,004,026	41,425
	SUBTOTAL LINE TRANSFORMERS	1,756,324	1,747,263	-9,061	1,801,839	54,576	1,762,894	-38,945	1,798,732	35,838	1,819,124	20,392	1,962,601	143,477	2,004,026	41,425
	Meters															
	1860 Meters	167,758	169,328	1,570	174,549	5,221	174,549	0	178,575	4,026	179,374	799	180,292	918	180,292	0
	1860 Smart Meters	649,166	649,913	747	646,133	-3,780	646,133	0	642,676	-3,457	643,623	947	660,335	16,712	660,335	0
	SUBTOTAL METERS	816,924	819,241	2,317	820,682	1,441	820,682	0	821,251	569	822,997	1,746	840,627	17,630	840,627	0
	IT Assets															
	1920 Computer Equipement- Hardware	70,885	71,161	276	72,161	1,000	72,161	0	73,991	1,830	73,991	0	75,991	2,000	77,991	2,000
	1611 Computer Equipment - Software	80,785	79,785	-1,000	120,635	40,850	120,635	0	121,798	1,163	121,798	0	166,798	45,000	166,798	0
	SUBTOTAL IT ASSETS	151,670	150,946	-724	192,796	41,850	192,796	0	195,789	2,993	195,789	0	242,789	47,000	244,789	2,000
	Equipment															
	1915 Office Furniture and Equipment	21,741	21,741	0	21,544	-197	21,544	0	23,862	2,318	23,508	-354	25,508	2,000	27,508	2,000
General Plant	1930 Transportation Equipment	473,288	473,288	0	493,330	20,042	493,330	0	493,330	0	468,693	-24,637	503,693	35,000	582,628	78,935
	1940 Tools, Shop and Garage Equipment	89,767	86,124	-3,643	89,629	3,505	89,629	0	90,634	1,005	94,578	3,944	99,578	5,000	104,578	5,000
	1945 Measurement and Testing Equipment	19,694	18,838	-856	18,838	0	18,838	0	18,838	0	34,227	15,389	34,227	0	34,227	0
	1950 Power Operated Equipment	222,522	221,611	-911	221,611	0	221,611	0	235,845	14,234	236,624	779	236,624	0	236,624	0
	1955 Communication Equipment	38,569	38,569	0	43,010	4,441	43,010	0	54,133	11,123	54,732	599	54,732	0	54,732	0
	SUBTOTAL EQUIPMENT	865,581	860,171	-5,410	887,962	27,791	887,962	0	916,642	28,680	912,362	-4,280	954,362	42,000	1,040,297	85,935
Contributions and Grants	1995 Contributions and Grants	-1,067,244	-1,038,135	29,109	-1,081,629	-43,494	-1,038,135	43,494	-1,038,135	0	-1,038,135	0	-1,038,135	0	-1,038,135	0
	2440 Deferred Revenue						-43,494	-43,494	-84,007	-40,513	-113,703	-29,696	-283,703	-170,000	-313,703	-30,000
	SUBTOTAL OTHER DISTRIBUTION ASSETS	-1,067,244	-1,038,135	29,109	-1,081,629	-43,494	-1,081,629	0	-1,122,142	-40,513	-1,151,838	-29,696	-1,321,838	-170,000	-1,351,838	-30,000
	TOTAL GROSS FIXED ASSETS	**8,603,513**	**8,632,144**	**28,631**	**8,908,207**	**276,063**	**8,815,789**	**-92,418**	**9,040,879**	**225,090**	**9,291,834**	**250,955**	**9,696,924**	**405,090**	**9,989,747**	**292,823**

Table 2-19: Accumulated Amortization - Detailed Breakdown by Major Plant Function

Function	Description	2013 Board Approved (MCGAAP)	2013 Actual (MCGAAP)	Variance from 2013 Board Approved	2014 Actual (MCGAAP)	Variance -from 2013 Actual	2014 Actual (MIFRS)	Variance from 2014 (MCGAAP) Actual	2015 Actual (MIFRS)	Variance from 2014 (MIFRS) Actual	2016 Actual (MIFRS)	Variance from 2015 Actual	2017 Bridge (MIFRS)	Variance from 2016 Actual	2018 Test (MIFRS)	Variance from 2017 Bridge
	Land & Buildings (Distribution Plant)															
	1808 Buildings and Fixtures	48,374	48,371	-3	52,045	3,674	52,045	0	55,720	3,675	59,395	3,675	63,070	3,675	66,745	3,675
	SUBTOTAL LAND & BUILDINGS	48,374	48,371	-3	52,045	3,674	52,045	0	55,720	3,675	59,395	3,675	63,070	7,350	66,745	3,675
	Poles & Wires															
	1830 Poles, Towers and Fixtures	1,313,557	1,314,428	871	1,390,519	76,091	1,352,984	-37,535	1,423,559	70,575	1,494,006	70,447	1,569,416	75,410	1,647,315	77,899
	1835 Overhead Conductors and Devices	510,879	510,812	-67	529,047	18,235	528,992	-55	537,938	8,946	554,044	16,106	571,971	17,927	591,225	19,254
	1840 Underground Conduit	73,351	73,364	13	76,299	2,935	76,302	3	79,266	2,964	82,306	3,040	85,493	3,187	88,661	3,168
	1845 Underground Conductors and Devices	344,186	343,422	-764	364,933	21,511	364,957	24	386,965	22,008	409,873	22,908	433,988	24,115	459,169	25,181
Distribution Plant	**SUBTOTAL POLES & WIRES**	2,241,973	2,242,026	53	2,360,798	118,772	2,323,235	-37,563	2,427,728	104,493	2,540,229	112,501	2,660,868	**120,639**	2,786,370	125,502
	Line Transformers															
	1850 Line Transformers	656,454	656,341	-113	695,694	39,353	676,273	-19,421	713,660	37,387	754,209	40,549	796,813	42,604	841,774	44,961
	SUBTOTAL LINE TRANSFORMERS	656,454	656,341	-113	695,694	39,353	676,273	-19,421	713,660	37,387	754,209	40,549	796,813	42,604	841,774	44,961
	Meters															
	1860 Meters	37,664	37,694	30	50,066	12,372	50,066	0	62,623	12,557	75,277	12,654	87,965	12,688	100,672	12,707
	1860 Smart Meters	190,883	190,764	-119	229,284	38,520	229,284	0	270,944	41,660	312,331	41,387	355,796	43,465	399,593	43,797
	SUBTOTAL METERS	228,547	228,458	-89	279,350	50,892	279,350	0	333,567	54,217	387,608	54,041	443,761	56,153	500,265	56,504
	IT Assets															
	1920 Computer Equipement- Hardware	50,917	50,769	-148	55,558	4,789	55,558	0	60,659	5,101	65,729	5,070	70,687	4,958	75,387	4,700
	1611 Computer Equipment - Software	59,413	59,313	-100	75,623	16,310	75,623	0	89,469	13,846	101,997	12,528	110,400	8,403	123,303	12,903
	SUBTOTAL IT ASSETS	110,330	110,082	-248	131,181	21,099	131,181	0	150,128	18,947	167,726	17,598	181,087	13,361	198,690	17,603
	Equipment															
General Plant	1915 Office Furniture and Equipment	10,027	10,026	-1	11,472	1,446	11,472	0	13,257	1,785	14,520	1,263	16,441	1,921	18,472	2,031
	1930 Transportation Equipment	419,125	419,123	-2	408,778	-10,345	408,778	0	432,668	23,890	424,079	-8,589	442,915	18,836	219,861	-223,054
	1940 Tools, Shop and Garage Equipment	66,728	66,547	-181	74,206	7,659	74,206	0	81,602	7,396	89,068	7,466	91,772	2,704	94,667	2,895
	1945 Measurement and Testing Equipment	11,854	11,812	-42	13,166	1,354	13,166	0	14,113	947	15,456	1,343	17,609	2,153	19,762	2,153
	1950 Power Operated Equipment	131,627	131,512	-115	145,991	14,479	145,991	0	159,933	13,942	176,602	16,669	193,225	16,623	209,546	16,321
	1955 Communication Equipment	33,577	33,576	-1	35,396	1,820	35,396	0	37,828	2,432	40,667	2,839	42,749	2,082	44,704	1,955
	SUBTOTAL EQUIPMENT	672,938	672,596	-342	689,009	16,413	689,009	0	739,401	50,392	760,392	20,991	804,711	44,319	607,012	-197,699
	Other Distribution Assets															
Contributions and Grants	1995 Contributions and Grants	-263,040	-262,614	426	-294,804	-32,190	-293,511	1,293	-324,269	-30,758	-355,896	-31,627	-387,522	-31,626	-419,148	-31,626
	2440 Deferred Revenue						-1,293	-1,293	-3,789	-2,496	-6,266	-2,477	-11,221	-4,955	-18,689	-7,468
	SUBTOTAL OTHER DISTRIBUTION ASSETS	-263,040	-262,614	426	-294,804	-32,190	-294,804	0	-328,058	-33,254	-362,162	-34,104	-398,743	-36,581	-437,837	-39,094
	TOTAL ACCUMULATED DEPRECIATION	**3,695,576**	**3,695,260**	**-316**	**3,913,273**	**218,013**	**3,856,289**	**-56,984**	**4,092,146**	**235,857**	**4,307,397**	**215,251**	**4,551,567**	**247,845**	**4,563,019**	**11,452**

Variance Analysis on Gross Assets

Table 2-20 below provides the same level of detail as Table 2-18 however, for the purposes of the variance analysis assets are categorized as Distribution Assets and General Plant and explanations on variances over SLHI's materiality threshold are explained following the table. Variances for Contribution and Grants are below the materiality threshold, therefore not explanations are given.

Table 2-20: Variance on Gross Assets

Description	2013 Board Approved (MCGAAP)	2013 Actual (MCGAAP)	Variance from 2013 Board Approved	2014 Actual (MCGAAP)	Variance - from 2013 Actual	2014 Actual (MIFRS)	Variance from 2014 (MCGAAP) Actual	2015 Actual (MIFRS)	Variance from 2014 (MIFRS) Actual	2016 Actual (MIFRS)	Variance from 2015 Actual	2017 Bridge (MIFRS)	Variance from 2016 Actual	2018 Test (MIFRS)	Variance from 2017 Bridge
DISTRIBUTION SYSTEM PLANT															
Land & Buildings (Distribution Plant)															
1808 Buildings and Fixtures	91,864	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0	91,864	0
Poles & Wires															
1830 Poles, Towers and Fixtures	3,704,849	3,783,199	78,350	3,957,666	174,467	3,904,193	-53,473	4,058,761	154,568	4,244,761	186,000	4,404,991	160,230	4,562,239	157,248
1835 Overhead Conductors and Devices	1,100,545	1,094,401	-6,144	1,099,731	5,330	1,099,731	0	1,115,963	16,232	1,140,593	24,630	1,253,534	112,941	1,253,549	15
1840 Underground Conduit	183,423	184,721	1,298	185,626	905	185,626	0	187,356	1,730	193,184	5,828	195,984	2,800	197,184	1,200
1845 Underground Conductors and Devices	999,577	938,473	-61,104	951,670	13,197	951,670	0	976,663	24,993	1,022,998	46,335	1,072,010	49,012	1,107,010	35,000
Line Transformers															
1850 Line Transformers	1,756,324	1,747,263	-9,061	1,801,839	54,576	1,762,894	-38,945	1,798,732	35,838	1,819,124	20,392	1,962,601	143,477	2,004,026	41,425
Meters															
1860 Meters	167,758	169,328	1,570	174,549	5,221	174,549	0	178,575	4,026	179,374	799	180,292	918	180,292	0
1860 Smart Meters	649,166	649,913	747	646,133	-3,780	646,133	0	642,676	-3,457	643,623	947	660,335	16,712	660,335	0
SUBTOTAL DISTRIBUTION SYSTEM PLANT	8,653,506	8,659,162	**5,656**	8,909,078	**249,916**	8,816,660	**-92,418**	9,050,590	**233,930**	9,335,521	**284,931**	9,821,611	**486,090**	10,056,499	**234,888**
GENERAL PLANT															
IT Assets															
1920 Computer Equipement- Hardware	70,885	71,161	276	72,161	1,000	72,161	0	73,991	1,830	73,991	0	75,991	2,000	77,991	2,000
1611 Computer Equipment - Software	80,785	79,785	-1,000	120,635	40,850	120,635	0	121,798	1,163	121,798	0	166,798	45,000	166,798	0
Equipment															
1915 Office Furniture and Equipment	21,741	21,741	0	21,544	-197	21,544	0	23,862	2,318	23,508	-354	25,508	2,000	27,508	2,000
1930 Transportation Equipment	473,288	473,288	0	493,330	20,042	493,330	0	493,330	0	468,693	-24,637	503,693	35,000	582,628	78,935
1940 Tools, Shop and Garage Equipment	89,767	86,124	-3,643	89,629	3,505	89,629	0	90,634	1,005	94,578	3,944	99,578	5,000	104,578	5,000
1945 Measurement and Testing Equipment	19,694	18,838	-856	18,838	0	18,838	0	18,838	0	34,227	15,389	34,227	0	34,227	0
1950 Power Operated Equipment	222,522	221,611	-911	221,611	0	221,611	0	235,845	14,234	236,624	779	236,624	0	236,624	0
1955 Communication Equipment	38,569	38,569	0	43,010	4,441	43,010	0	54,133	11,123	54,732	599	54,732	0	54,732	0
SUBTOTAL GENERAL PLANT	1,017,251	1,011,117	**-6,134**	1,080,758	**69,641**	1,080,758	**0**	1,112,431	**31,673**	1,108,151	**-4,280**	1,197,151	**89,000**	1,285,086	**87,935**

2013 Actual (CGAAP) compared to 2014 Actual (CGAAP)

Distribution Assets Variance: $249,916

2014 Actual Distribution Assets were higher than the 2013 Actual amounts by $249,916. The items related to this variance are the investment in SLHI's capital programs including pole replacements, Winoga Submarine cable replacement, new connections and upgrades.

General Assets Variance: $69,941

2014 Actual General Assets increased over 2013 Actual amounts due to the purchase of a new vehicle and mapping software.

2014 Actual (CGAAP) compared to 2014 Actual (MIFRS)

Distribution Assets Variance: -$92,418

2014 MIFRS Actual Distribution Assets were lower than the 2014 CGAAP actual amounts by $92,418. The reason for the variance is due to recording the retirements of poles, towers and fixtures and line transformers, not previously required under CGAAP. These amounts are recorded in OEB Account 1575 and included in section 9.2 for disposition.

2015 Actual compared to 2014 Actual (MIFRS)

<u>Distribution Assets Variance: $233,930</u>

2015 Actual Distribution Assets were higher than the 2014 actual amounts by $233,930. The items related to this variance are the investment in SLHI's capital programs including pole replacements, new connections and upgrades.

2016 Actual compared to 2015 Actual

<u>Distribution Assets Variance: $284,931</u>

2016_ Actual Distribution Assets were higher than the 2015 actual amounts by $284,931. The items related to this variance are the investment in SLHI's capital programs including pole replacements, new connections and upgrades.

2017 Bridge compared to 2016 Actual

<u>Distribution Assets Variance: $486,090</u>

2017 Bridge Distribution Assets are higher than the 2016 actual amounts by $486,090. The items related to this variance are the investment in SLHI's capital programs including pole replacements, new connections and upgrades. Also, the Long Term Load Transfer Elimination assets equated to $147,842.

<u>General Assets Variance: $89,000</u>

2017 Bridge General Assets are higher than the 2016 Actual by $89,000. This is made up of $35,000 for the purchase of a new vehicle and the mapping conversion for $45,000.

2018 Test compared to 2017 Bridge

<u>Distribution Assets Variance: $234,888</u>

2018 Test Distribution Assets are higher than the 2017 Bridge amounts by $234,888. The items related to this variance are the investment in SLHI's capital programs including pole replacements.

<u>General Assets Variance: $87,935</u>

The variance from 2018 Test General Assets is mainly due to the purchase of the new Altec Digger Derrick.

Summary of Incremental Capital Module Adjustment

SLHI confirms that it has not applied for nor received any ICM adjustments as part of a previous IRM application.

Reconciliation of Continuity Statements to Calculated Depreciation Expenses

SLHI confirms that the depreciation expenses in the fixed asset continuity statements reconcile to the calculated depreciation expenses under Exhibit 4 – Operating Costs and are presented by account. As such there are no reconciling items between the fixed asset continuity statements in this Exhibit and the calculated depreciation expense in Exhibit 4.

2.1.3 Allowance for Working Capital

Overview

The Filing Requirements permit applicants to take one of two approaches for the calculation of the allowance for working capital; the 7.5% Allowance Approach or the filing of a lead/lag study. Using the 7.5% Allowance Approach, the working capital allowance is calculated to be 7.5% of the sum of Cost of Power ("**COP**") and controllable expenses (Operations, Maintenance, Billing and Collecting, Community Relations, Administration and General). SLHI considered and decided to forego its own lead lag study, and is using the 7.5% Allowance Approach in accordance with the Filing Requirements.

The working capital allowance for the 2018 Test Year is based upon 7.5% of the COP and controllable expenses. In calculating the working capital allowance for 2013 to 2016 actual and for the 2017 Bridge Year, SLHI used the Board's historical 13% Allowance Approach. Table 2-21 provides a summary of SLHI's COP and controllable expenses used to calculate working capital allowance for 2013 Board Approved, 2013 Actual, 2014 Actual, 2015 Actual, 2016 Actual, 2017 Bridge Year and the 2018 Test Year.

Table 2-21: Summary of Working Capital Allowance

	2013 Board Approved	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Bridge	2018 Test
Distribution Expenses - Operations		535,159	581,576	526,730	574,153	540,346	514,586
Distribution Expenses - Maintenance		215,047	190,949	159,501	194,875	236,866	226,447
Billing and Collecting		296,239	310,022	329,917	351,771	350,791	355,718
Administrative & General Expenses		370,323	501,286	398,869	405,987	491,972	475,341
Donations - LEAP		2,130	2,340	2,340	2,340	2,340	2,600
Property Taxes		3,813	3,850	5,230	2,881	5,294	5,394
Total Eligible Distribution Expenses	**1,421,245**	**1,422,710**	**1,590,024**	**1,422,588**	**1,532,008**	**1,627,609**	**1,580,086**
Power Supply Expenses	7,651,230	7,508,181	7,768,594	8,158,299	8,628,548	10,630,783	7,725,226
Total Working Capital Expenses	**9,072,475**	**8,930,891**	**9,358,618**	**9,580,887**	**10,160,556**	**12,258,392**	**9,305,312**
Working Capital Allowance %	13%	13%	13%	13%	13%	13%	7.5%
Working Capital Allowance	**1,179,422**	**1,161,016**	**1,216,620**	**1,245,515**	**1,320,872**	**1,593,591**	**697,898**

Cost of Power Calculations

SLHI has calculated cost of power for the 2018 Test Year based on the results of the load forecast which is discussed in detail in Exhibit 3. The electricity prices used in the calculation were the published prices in the OEB's Regulated Price Plan Report – July 1, 2017 to April 30, 2018, issued June 22, 2017.

The cost of power calculations for the 2018 Test Year and a cost of power summary are provided in the following Table 2-22 and Table 2-23.

Table 2-22: 2018 Test Year Cost of Power Forecast Calculation

2018 Load Forecast	**kWh**	**kW**	**2016 % RPP**	RPP kWh	
Residential	32,918,746		98%	32,260,371	TOU
General Service < 50 kW	11,931,508		91%	10,857,672	43,118,043
General Service 50 to 4,999 kW	27,063,250	72183	12%	3,247,590	
Street Lighting	150,597	420	7%	10,542	2 Tier RPP
Unmetered Scattered Load	0		100%		3,258,132
Total	**72,064,101**	**72,603**		46,376,175	46,376,175

Electricity - Commodity RPP	**2018**	**2018 Loss**			
Class per Load Forecast RPP	**Forecasted**	**Factor**	**2018**		
TOU Pricing					
On Peak (18%)	7,761,248	1.0892	8,453,551	0.132	$1,115,869
Mid Peak (18%)	7,761,248	1.0892	8,453,551	0.095	$803,087
Off Peak (64%)	27,595,548	1.0892	30,057,071	0.065	$1,953,710
2 Tier RPP Pricing					
1st Tier	153,000	1.0892	166,648	0.077	$12,832
2nd Tier	3,105,132	1.0892	3,382,110	0.09	$304,390
Total	**46,376,175**		**50,512,930**		**$4,189,887**

Electricity - Commodity Non-RPP	**2018**	**2018 Loss**			
Class per Load Forecast Non-RPP	**Forecasted**	**Factor**	**2018**		
Residential	658,375	1.0892	717,102	0.082	$58,802
General Service < 50 kW	1,073,836	1.0892	1,169,622	0.082	$95,909
General Service 50 to 4,999 kW	23,815,660	1.0892	25,940,017	0.082	$2,127,081
Street Lighting	140,055	1.0892	152,548	0.082	$12,509
Unmetered Scattered Load	0	1.0892	0	0.082	$0
Total	**25,687,926**		**27,979,289**		**$2,294,302**

Transmission - Network		**Volume**				
Class per Load Forecast RPP		**Metric**		**2017**	**2018**	
Residential		kWh	35,855,098	0.0064	0.0064	$229,473
General Service < 50 kW		kWh	12,995,799	0.0057	0.0057	$74,076
General Service 50 to 4,999 kW		kW	72,183	2.3127	2.318	$167,194
Street Lighting		kW	420	1.7442	1.7482	$734
Unmetered Scattered Load		kWh	0	0.0061		$0
Total						**$471,476**

Transmission - Connection		**Volume**				
Class per Load Forecast RPP		**Metric**		**2017**	**2018**	
Residential		kWh	35,855,098	0.0017	0.0017	$60,954
General Service < 50 kW		kWh	12,995,799	0.0012	0.0012	$15,595
General Service 50 to 4,999 kW		kW	72,183	0.5429	0.5462	$39,348
Street Lighting		kW	420	0.4198	0.4224	$177
Unmetered Scattered Load		kWh	0	0.0012	0	$0
Total						**$116,073**

Wholesale Market Service		Volume			
Class per Load Forecast RPP		**Metric**	**2018**		
Residential		kWh	35,855,098	0.0036	$129,078
General Service < 50 kW		kWh	12,995,799	0.0036	$46,785
General Service 50 to 4,999 kW		kWh	29,477,292	0.0036	$106,118
Street Lighting		kWh	164,030	0.0036	$591
Unmetered Scattered Load		kWh	0	0.0036	$0
Total					**$282,572**

Rural Rate Assistance		Volume			
Class per Load Forecast RPP		**Metric**	**2018**		
Residential		kWh	35,855,098	0.0003	$10,757
General Service < 50 kW		kWh	12,995,799	0.0003	$3,899
General Service 50 to 4,999 kW		kWh	29,477,292	0.0003	$8,843
Street Lighting		kWh	164,030	0.0003	$49
Unmetered Scattered Load		kWh	0	0.0003	$0
Total					**$23,548**

Data used to calculate forecasted LV Charges					
Number of Monthly Service Charges	2				
Number of Meter Points	2				
Forecasted kW based on historical 3 year average	161,234				
Hydro One Sub Transmission Charges based on			**Units**	**Months**	
Service Charge	$492.55	per month	2	12	$11,821
Meter Charge	$764.01	per meter	2	12	$18,336
Facility charge for connection to high-voltage (> 13.8 kV secondary)	$1.809	per kW	161,234		$291,640
Total Forecasted 2017 Bridge and 2018 Test Year LV Costs					**$321,797**
Source of Rates - Hydro One Approved Rate Order December 21, 2016, EB-2016-0081, Tariff of Rates and Charges - Sub Transmission - ST					

Table 2-23: SLHI Test Year Cost of Power Summary

	2018
4705-Power Purchased	$6,484,189
4708-Charges-WMS	$282,572
4714-Charges-NW	$471,476
4716-Charges-CN	$116,073
4730-Rural Rate Assistance	$23,548
4750-LV Charges	$321,797
Sub-Total	**$7,699,656**
Smart Meter Entity Charge	$25,570
Total Cost of Power	**$7,725,226**

2.2 Capital Expenditures

2.2.1 Planning

The Board's RRFE is designed to support the cost-effective planning and operation of the distribution network and that of LDC distribution systems. The RRFE takes an integrated approach to planning in order to facilitate priorities and pacing of capital expenditures. SLHI developed a Distribution System Plan ("DSP") with the aid of Costello Associates to ensure that the plan meets all of the Chapter 5 requirements. The DSP was reviewed by AESI and SLHI received a Letter of Compliance which is attached as Appendix 2B. In accordance with the filing requirements, SLHI is filing its consolidated DSP as a stand-alone document DSP as Appendix 2A of this Exhibit.

SLHI has organized the information contained in the DSP using the headings indicated in Chapter Five of the Board's Filing Requirements for Electricity Distribution and Transmission Applications, Consolidated Distribution System Plan Filing Requirements dated March 28, 2017. The DSP incorporates matters pertaining to asset management, regional planning, and renewable energy generation.

The intention underlying DS Planning at SLHI encourages a process of "continuous improvement." The following steps that have been adapted through the planning process:

Establish the objectives and processes necessary to deliver results in accordance with the expected outcomes. Start, on a small scale, to test possible effects and financial feasibility. Develop a DS Plan, prioritizing budgets, resources, and timelines.

Implement the Plan and collect data for analysis. Develop projects' design and execution, preparing status reports, and implementing planned activities.

Study the actual results and compare against the expected results to ascertain any differences. Evaluate any deviations in implementation from the Plan, and evaluate the appropriateness and completeness of the Plan to enable the execution. This Plan elaborates on SLHI's Performance Outcomes.

Recommend improvements and adjustments to the initial plan; determine the course of corrections and modifications to the plan.

In this DS Plan, SLHI also describes the areas where it has been determined that the asset management process, systems and data need to be improved. SLHI's DS network provides an essential service to the community and needs to be reliable and sustainable. The electricity distribution infrastructure assets are capital-intensive and have a long life. SLHI will continue to monitor and optimize the network performance, further refine effective investment strategies and refocus activities, as needed, to meet established targets.

To facilitate better planning, prioritization and pacing of capital expenditures, SLHI is using an integrated approach to planning. This means SLHI's capital expenditure plan consolidates all categories of system investments, including investments to renew and expand the distribution system. Going forward the DSP will be amended, as required, with information about investments that will be identified during the regional planning process, and will include investments to accommodate the connection of renewable generation, if necessary, or to implement a smart grid.

This is the first effort of SLHI to use an integrated framework approach. SLHI first developed an Asset Management Plan (AMP) in 2012. The current plan, however, consolidates information that includes data about renewable generation (REG), smart grid and other components compliant with the requirements of Chapter 5.

Planning Horizon

This DSP encompasses projections and forecasts for the 2018 - 2022 timeframe. It is intended that the DSP will be reviewed on a periodic basis, and amended with new information as it becomes available.

The planning horizon extends to a five (5) year period, (in terms of rate setting 2017 is a bridge year, 2018 is a test year, and 2019 - 2022 represent forecasted years, based on Chapter 5 requirements for Consolidated Distribution System Planning. Under the renewed regulatory framework, a planning horizon of five (5) years is required to support integrated planning and better alignment of SLHI's planning cycles with rate-setting cycles. A longer-term approach enhances the predictability necessary to facilitate planning and decision-making by customers and distributors. This also facilitates the cost-effective and efficient implementation of the DSP and meeting of OEB expectations in the areas of performance outcomes. The asset assessments are also based on a five (5) year planning period. It is very likely that new developments, not currently identified here, will arise at any given time, and will be amended into the plan.

Regional Planning

Regional planning is conducted through the Integrated Regional Resource Planning (IRRP) process, where local stakeholders collaborate in the development of integrated solutions for maintaining a reliable supply of electricity to Ontario communities.

The objective of the IRRP process is to develop long-term electricity plans that thoughtfully integrate all relevant resource options, such as conservation and demand management, distributed generation, large-scale generation, transmission and distribution.

Chapter 5 implements the Board's policy direction on 'an integrated approach to distribution network planning'. Regional planning is conducted through the Integrated Regional Resource Planning (IRRP) process, whereby local stakeholders collaborate in the development of integrated solutions for maintaining a reliable supply of electricity to Ontario communities. The regional planning process begins with a needs assessment performed by the transmitter, which determines whether a regional plan is required or not. If a regional plan is required, the IESO then conducts a scoping assessment to determine whether a more comprehensive Integrated Regional Resource Plan is required (led by the IESO), or a more transmission - and distribution - focused Regional Infrastructure Plan is required (led by the transmitter).

The objective of the IRRP process is to develop long-term electricity plans that thoughtfully integrate all relevant resource options, such as conservation and demand management, distributed generation, large-scale generation, transmission and distribution.

SLHI is part of the West of Thunder Bay Region planning zone in Northwestern Ontario. The LDCs providing service to customers in the Northwestern Region include:

Atikokan Hydro Inc.

Fort Frances Power Corporation

Kenora Hydro Electric Corporation Ltd.

Thunder Bay Hydro

Hydro One Networks Inc.

A Regional Infrastructure Plan (RIP) and an Integrated Regional Resource Plan (IRRP) have been completed for SLHI's service territory. The IRRP is included in SLHI's Distribution System Plan in Appendix 2A. The RIP was finalized June 9, 2017 and is included in Exhibit 1 as Appendix 1C.

Infrastructure planning on a regional basis is required to ensure that regional issues and requirements are effectively integrated into SLHI's planning processes, which will, in turn, help promote the cost-effective development of electricity infrastructure in the Province. The effective use of regional infrastructure planning and the inclusion of regional considerations in SLHI's DSP is the key to ensure coordinated development and implementation of smart grid provincial strategy. It is important that the necessary investments are made in distribution and transmission systems that will best serve the interests and the future of the region.

SLHI's intention is to follow the Board's directions and work to address regional planning issues as they arise. SLHI will assess and amend actions where appropriate. SLHI makes decisions based upon the most cost-effective solutions, and is considering conservation as one of the options to defer the need for infrastructure investments.

2.2.2 Required Information

SLHI has provided a copy of the Distribution System Plan (DSP) as Appendix 2A to this Exhibit.

SLHI has completed Appendix 2-AB Capital Expenditure Summary presenting four historical years, the 2017 Bridge Year and five planned years of capital expenditures. This is the first year for which SLHI has filed a DSP, and as such SLHI has entered the planned total capital budget in the "Plan" column for each historical year and for the bridge year including the OEB approved amount for the last rebasing year.

Appendix 2-AB Capital Expenditure Summary is presented in Table 2-24 below.

Table 2-24: Capital Expenditure Summary

First year of Forecast Period: *2018*

CATEGORY	Historical Period (previous plan[1] & actual)															Forecast Period (planned)				
	2013			2014			2015			2016			2017			2018	2019	2020	2021	2022
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual[2]	Var					
	$ '000		%	$ '000		%	$ '000		%	$ '000		%	$ '000		%	$ '000				
System Access	97,818	143,384	46.6%	113,000	130,459	15.5%	102,700	132,809	29.3%	102,700	110,154	7.3%	312,842		-100.0%	100,000	101,800	103,632	105,498	107,397
System Renewal	119,122	69,491	-41.7%	105,325	133,306	26.6%	80,000	73,400	-8.3%	50,000	112,481	125.0%	145,812		-100.0%	154,329	220,456	138,836	141,335	143,879
System Service		10,254	--	37,000	-	-100.0%	116,140	95,645	-17.6%	48,126	52,039	8.1%	48,000		-100.0%					
General Plant	103,000	96,814	-6.0%	108,500	106,668	-1.7%	39,000	30,554	-21.7%	36,900	21,011	-43.1%	89,000		-100.0%	364,000	79,000	315,000	44,000	9,000
TOTAL EXPENDITURE	319,940	319,943	0.0%	363,825	370,433	1.8%	337,840	332,408	-1.6%	237,726	295,685	24.4%	595,654	-	-100.0%	618,329	401,256	557,468	290,833	260,276
System O&M		$750,206	--		$772,525	--		$686,231	--		$769,028	--		$777,712	--	$742,406	$767,525	$746,462	$752,364	$768,225

Notes to the Table:

1. Historical "previous plan" data is not required unless a plan has previously been filed. However, use the last Board-approved, at least on a Total (Capital) Expenditure basis for the last cost of service rebasing year, and the applicant should include their planned budget in each subsequent historical year up to and including the Bridge Year.
2. Indicate the number of months of 'actual' data included in the last year of the Historical Period (normally a 'bridge' year):

Explanatory Notes on Variances (complete only if applicable)

Notes on shifts in forecast vs. historical budgets by category

System Access is largely new connections. The 2017 planned includes $147,000 for the Long Term Load Transfer Assets acquired. System Renewal - pole replacements are majority of this budget. In 2015 SLHI underwent an asset condition assessment which was not completed until April 2016. The budgeted figure does not represent the findings of the study since the budget is developed in Q4 of 2015 for 2016, therefore much more was spent on pole replacements than was budgeted for after the ACA was completed. System Service - see notes on year over year explanations.

Notes on year over year Plan vs. Actual variances for Total Expenditures

The 2016 planned vs. actual variance is mainly due to the increased number of pole replacements mentioned above.

Notes on Plan vs. Actual variance trends for individual expenditure categories

Capital spending by category is designed to meet both defined customer preferences and distribution system requirements.

During the five-year period, SLHI is strategically planning to make leveled investments in distribution infrastructure required for system sustainment, and in the short–term, intends to concentrate on investing in general assets that support service reliability and customer preferences. Therefore, the main investment drivers are in the areas of end of useful life of the assets, business operational efficiently, reliability and customer preferences. Capital spending by category is designed to meet both defined customer preferences and distribution system requirements.

System Access investments are planned on historical actual levels required to meet regulatory obligations for connections, upgrades and plant relocation driven by customers and third parties. SLHI expects that its system will continue to be able to accommodate the vast majority of requests for new load connections and for service upgrades.

System Renewal investments are based on the requirements of asset replacement programs, mainly driven by pole replacement. Plans for replacements are based on consideration of age and condition of assets. The proactive replacement of system components prior to failure will reduce costs associated with outage response and reactive replacement. Adjustments to the programs will be completed with gathering more detailed asset condition information and records. The annual investments are leveled to ensure consistency throughout the planning process.

System Service spending is focused on system reliability improvement projects, which are based on outage considerations, system impact, smart grid upgrade scenarios and customer preferences. SLHI has not experienced any new connections of microFIT projects in two years with no small FIT projects on its system to date, with no anticipated projects in the current five-year plan, therefore there is no spending allocated to System Service. Furthermore, based on our last customer survey, when asked if there is anything particular customers would like us to do to improve our service to them, they have not indicated an appetite for increased spending on smart grid upgrades.

General Plant category is focused on ensuring that adequate tools as well as vehicle fleet requirements are maintained in order to meet the day-to-day operations. Investments include the equipment and physical plant assets that keep the distribution system in service. The largest line items in this category include the purchases of new trucks, such as freightliners and bucket trucks. Items like computer hardware and software, office equipment, and small tools also fall under this category.

Drivers by Investment Category

System Access

The primary driver of this activity is customer service requests and mandated obligations under the Distribution System Code (DSC). This allows SLHI to satisfy its asset management objective of providing for the needs of customers, as well as meeting regulatory requirements. This program is justified because of customer service requests that are relatively consistent year over year, in terms of both the number of requests, and the investments required to complete the connections.

System Renewal

This capital expenditure includes all “like for like” replacement costs related to renewal of major assets (poles, reclosers, switches, etc.) because of failure, serious damage or end of useful life. Major drivers in this category are risk of failure, substandard performance and functional obsolescence.

System Services

These projects will improve system reliability, automation and/or contingency performance. Examples of projects in this category are smart grid development, installation of electronic reclosers and outage management systems. SLHI does not have any planned investment in system service for the DSP planning period.

General Plant

The vehicle replacements in this category are driven by SLHI's evolving requirements for capital to support day-to- day business and operations activities. The timing of project-related expenditures has been determined based on adjustments related to asset condition and to end of useful life of the asset. Other investments in this category relate to IT enhancements to meet customer preferences.

For more detail, please refer to SLHI's DSP in Appendix 2A of this Exhibit.

Summary of Capital Projects

Table 2-25 (Chapter 2 Appendix 2-AA) below presents a summary of all gross capital expenditures by project for the historical period 2013-2016, the 2017 Bridge Year and 2018 Test Year.

Table 2-25: Capital Projects Table

Appendix 2-AA
Capital Projects Table

Projects	2013	2014	2015	2016	2017 Bridge Year	2018 Test Year
Reporting Basis	CGAAP	CGAAP	MIFRS	MIFRS	MIFRS	MIFRS
System Renewal						
Pole Replacements	66,424	111,358	34,940	76,244	105,500	130,304
Winoga Submarine Cable			33,317			
Smart Meter Modem Upgrade		12,125				
Sam Lake Modems			1,118			
Cross Arm Replacements				31,907		
Transformer Replacements					23,600	24,025
Meter Reverification Program				4,330	16,712	
Spare Transformers		9,823	4,025			
Sub-Total	66,424	133,306	73,400	112,481	145,812	154,329
System Access						
New Connections	85,799	69,175	68,629	68,561	140,000	60,000
General Upgrades	57,585	61,284	64,180	41,593	25,000	40,000
LTLT Elimination					147,842	
Sub-Total	143,384	130,459	132,809	110,154	312,842	100,000
System Service						
South Shore Drive Conversion	10,254					
Rear Front Street			25,353			
F2 Blue Phase Reconductoring			45,184	52,039	48,000	
Hudson Upgrade			25,108			
Sub-Total	10,254	0	95,645	52,039	48,000	0
General Plant						
Backhoe	85,090					
Amcorder Recording Meter	6,145					
Tools - General	1,357	3,504	1,005	5,323	5,000	5,000
Computers	3,155	1,000	1,830		2,000	2,000
Vehicle Replacements		54,539	14,234		35,000	355,000
Mapping Upgrade		33,600				
Web Presentment		7,250				
Shop internet upgrade		4,441				
Office Equipment		278	2,318	299	2,000	2,000
Pole testing equipment				15,389		
Mapping Software Conversion					45,000	
Phone System Upgrade			11,167			
Sub-Total	95,747	104,612	30,554	21,011	89,000	364,000
Miscellaneous	4,134	2,056	1,523			
Total	**319,943**	**370,433**	**333,931**	**295,685**	**595,654**	**618,329**
Less Renewable Generation Facility Assets and Other Non-Rate-Regulated Utility Assets *(input as negative)*	-1,067		-1,523			
Total	**318,876**	**370,433**	**332,408**	**295,685**	**595,654**	**618,329**

Capital Expenditure variances on a project-specific basis from 2013 Board Approved versus 2013 Actual are illustrated in Table 2-26 below.

Table 2-26 - Capital Expenditure by Project: 2013 OEB Approved vs 2013 Actual

Capital Expenditures by Project - 2013 OEB Approved vs 2013 Actual			
Project Description	**2013 OEB Approved**	**2013 Actual**	Variance
General Upgrades	39,380	57,585	18,205
New Connections	58,438	85,799	27,361
Pole Replacements	46,922	66,424	19,502
Winoga Submarine Cable	72,200	0	-72,200
Backhoe	86,000	85,090	-910
Miscellaneous	17,000	13,724	-3,276
South Shore Drive Conversion		10,254	10,254
Total	**$319,940**	**$318,876**	**-$1,064**

2013 Board Approved Capital Expenditures was $319,940 and the 2013 Actual $318,876. While the total variance of $(1,064) is immaterial, below is the explanation for the variance of $(72,200) for the Winoga Submarine Cable Project.

In 2013 $72,200 was allocated for the replacement of the Winoga Lodge submarine cable and approved in our last Cost of Service application (EB-2012-0165). This amount was also included as capital contributions as an offset to the expenditure. However, there was uncertainty about whether or not the customer could be charged customer contributions since Sioux Lookout Hydro acquired this customer in 1998 when the Municipality amalgamated and took over all Hydro One customers in the new expanded service territory. SLHI deferred the project until it could be determined who would be responsible for the cost of the replacement. SLHI performed an investigation through contact with Hydro One and the customer and determined late in 2014 that SLHI would not be able to charge the customer to replace the cable since they had paid Hydro One when the cable was first installed. Therefore, the project was put back on the budget for 2015 and completed at a cost of $33,317. The reduced cost was largely due to the fact that the customer possessed a barge which allowed us to save a significant amount of money on outside contractor costs to provide us with the equipment to run the cable across the lake.

Once it was determined that the Winoga project would be deferred, more capital was expensed on pole replacements, and a project to convert the voltage from 7.2 kV to 14.4 kV on South Shore Drive was initiated in order to reduce line loss.

Projects With a Life Cycle Greater Than One Year

SLHI's accounting policy is to include projects in Fixed Assets when they are completed and put into service. Capital projects which are not yet completed are included in Work in Progress ("WIP"). Capital projects with a life cycle greater than one year will be carried over from one year to the next in WIP. Once completed expenditures are removed from WIP and capitalized to fixed assets at which point they begin depreciating.

Treatment of Cost of Funds

Borrowing costs on qualifying assets are capitalized as part of the cost of the asset based upon the weighted average cost of debt incurred on the Corporation's borrowings. Qualifying assets are considered to be those that take in excess of nine months to construct.

Non-Distribution Activities

SLHI confirms that there are no non-distribution activities in the budget.

Efficiencies Realized Due to Deployment of Smart Meters and Related Technologies

SLHI has made use of the Operational Data Storage (Savage Data) to investigate meter issues as well as work and analyze the MDM/R reports on a daily basis. These two tools also allow SLHI's customer service representatives to check customer's power on demand. This has resolved some customer inquiries immediately instead of requiring a field visit to verify power conditions.

Rate-Funded Activities to Defer Distribution Infrastructure

Although SLHI has had some growth in its customer base or service territory, it has not experienced a tremendous material growth, thus, SLHI has not had the need to consider incremental conservation initiatives to defer or otherwise avoid future infrastructure projects. This will likely remain true over the life of this Application. SLHI is not applying for funding through distribution rates to pursue any custom type energy efficiency programs.

2.2.3 Capitalization Policy

Capitalization Policy Overview

Items of property, plant and equipment ("PP&E") used in rate-regulated activities and acquired prior to January 1, 2012 are measured at deemed cost established on the adoption of the new useful lives, less accumulated depreciation. All other items of PP&E are measured at cost, or, where the item is contributed by customers, its fair value, less accumulated depreciation.

Cost includes expenditures that are directly attributable to the acquisition of the asset. The cost of self-constructed assets includes contracted services, materials and transportation costs, direct labour, overhead costs, borrowing costs and any other costs directly attributable to bringing the asset to a working condition for its intended use.

IFRS requires that borrowing costs related to the construction of the qualifying assets be capitalized. No qualifying assets were identified and therefore no borrowing costs were capitalized for the year ended December 31, 2016. If identified, the corporation will apply IAS 23 to all qualifying assets. When parts of an item of PP&E have different useful lives, they are accounted for as separate items (major components) of PP&E.

When items of PP&E are retired or otherwise disposed of, a gain or loss on disposal is determined by comparing the proceeds from disposal, if any, with the carrying amount of the item and is included in profit or loss.

Major spare parts and standby equipment are recognized as items of PP&E.

The cost of replacing a part of an item of PP&E is recognized in the net book value of the item if it is probable that the future economic benefits embodied within the part will flow to the Corporation and its cost can be measured reliably. In this event, the replaced part of PP&E is written off, and the related gain or loss is included in profit or loss. The costs of the day-to-day servicing of PP&E are recognized in profit or loss as incurred.

The need to estimate the decommissioning costs at the end of the useful lives of certain assets is reviewed periodically. The Corporation has concluded it does not have any legal or constructive obligation to remove PP&E.

SLHI's Capitalization Policy can be found in this exhibit as Appendix 2B. This policy has not changed since SLHI last rebased in 2013.

2.2.4 Capitalization of Overhead

Overview

OEB Appendix 2-D below provides a summary of OM&A before capitalization and a breakdown of capitalized OM&A.

Table 2-27: Overhead Expense & Capitalization

Appendix 2-D
Overhead Expense

Applicants are to provide a breakdown of OM&A before capitalization in the below table. OM&A before capitalization may be broken down by cost center, program, drivers or another format best suited to focus on capitalized vs. uncapitalized OM&A.

OM&A Before Capitalization	2014 Historical Year	2015 Historical Year	2016 Historical Year	2017 Bridge Year	2018 Test Year
Total OM&A Before Capitalization	$ 1,499,301	$ 1,493,964	$ 1,622,607	$ 1,694,090	$ 1,639,469
Total OM&A Before Capitalization (B)	$ 1,499,301	$ 1,493,964	$ 1,622,607	$ 1,694,090	$ 1,639,469

Applicants are to provide a breakdown of capitalized OM&A in the below table. Capitalized OM&A may be broken down using the categories listed in the table below if possible. Otherwise, applicants are to provide its own break down of capitalized OM&A.

Capitalized OM&A	2014 Historical Year	2015 Historical Year	2016 Historical Year	2017 Bridge Year	2018 Test Year	Directly Attributable? (Yes/No)	Explanation for Change in Overhead Capitalized
employee benefits	$ 32,617	$ 39,766	$ 54,827	$ 35,307	$ 28,652	Yes	No Changes made to Overhead Capitalized
Trucking/Fleet Costs	$ 11,908	$ 17,026	$ 17,874	$ 17,223	$ 17,431	Yes	No Changes made to Overhead Capitalized
Material	$ 5,268	$ 5,395	$ 6,895	$ 4,898	$ 4,986	Yes	No Changes made to Overhead Capitalized
Downtime (Sick time/Vacation etc.)	$ 9,608	$ 11,531	$ 11,566	$ 8,553	$ 6,941	Yes	No Changes made to Overhead Capitalized
Insert description of additional item(s) and new rows if needed							
Total Capitalized OM&A (A)	$ 59,400	$ 73,718	$ 91,162	$ 65,981	$ 58,010		
% of Capitalized OM&A (=A/B)	4%	5%	6%	4%	4%		

SLHI capitalizes direct costs attributable to bringing the asset to the location and necessary condition. These directly attributable costs include the purchase price, material costs, labour including overhead burdens (benefits, employer portion of employee payroll) and trucks and equipment used in the construction of assets.

Burden Rates

Canadian GAAP allowed for capitalization of general and administrative overhead, training costs, etc. while IFRS does not.

The Ontario Energy Board (OEB) requires electricity distributors to be in full compliance with IFRS requirements as applicable to non-regulated enterprises and only where the Board authorizes specific alternative treatment for regulatory purposes is alternative treatment acceptable.

SLHI performed a complete review of its costs included in overheads in 2012 for its 2013 rebasing application. Since then, SLHI has not changed its policy with respect to capitalizing overhead and confirms that is in compliance with IAS 16 – Property Plant and Equipment.

Payroll burden

Payroll burden consists of the following benefits paid to employees: health benefits, prescription drugs, dental vision, long-term disability, bereavement time, OMERS, Workplace Safety and Insurance Board, Employment insurance, CPP and EHT.IAS 16 specifically allows for benefits as defined in IAS 19 to be included as a directly attributable cost. The payroll allocation is allocated to capital based upon labour dollars charged to capital through time sheets. Benefits are accumulated in the general ledger for all employees and allocated based upon where the employees charge their time (capital jobs/maintenance).

Truck burden

Truck burden consists of fuel, vehicle maintenance, repairs and license renewals. Trucks and company vehicles are used on the job site and are directly related to the construction of an asset as they are required to construct the asset.

Fuel, amortization related to the truck, truck insurance and license renewals can be capitalized because they are costs required to keep the trucks in running order and are directly attributable to constructing the asset and bringing it to its intended use.

SLHI is taking the position that repairs and maintenance costs are operating costs of the trucks and therefore can be capitalized since they are directly attributable costs meeting IFRS criteria.

The truck burden is charged to capital based on the percentage of total labour costs associated with capital projects for the year from timesheets, consistent with the last rebasing application in 2013.

Stores costs

Included in this burden are purchasing expenses, building and property charges. The purchasing activities are directly attributable to the materials used in capital projects and therefore will continue to be capitalized as part of the Stores burden. The cost of the building and property expenses are allocated to capital based on the percentage of labour costs associated with capital projects for the year from timesheets. This is consistent with SLHI's last rebasing application.

SLHI will continue to capitalize all costs, including the above overheads, when the cost is directly attributable to bringing the item of PP&E to the location and condition necessary for it to be capable of operating in the manner intended by management.

General and administrative costs will not be capitalized.

2.2.5 Costs of Eligible Investments for the Connection of Qualifying Generation Facilities

SLHI does not have nor is seeking permission for recovery of investments and costs to connect Qualifying Generation Facilities in its capital costs or in its Distribution System Plan.

2.2.6 New Policy Options for the Funding of Capital

SLHI is not seeking or proposing to utilize the funding of capital under the new policy options – The Advanced Capital Module.

2.2.7 Addition of Previously Approved ACM and ICM Project Assets to Rate Base

SLHI confirms it has not previously applied for nor received any Incremental Capital Module ("ICM") adjustments as part of previous OEB application. Therefore, there are no sub-accounts or variances to disclose.

2.2.8 Service Quality and Reliability Performance

SLHI 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

These indices provide SLHI 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 below in accordance with Section 7.3.2 of the OEB's Electricity Distribution Rate Handbook.

SLHI follows the Board's Reporting and Record Keeping Requirements Guideline to report its service quality indicators annually. In accordance with the Filing Requirements, Table 2-28 is provided below and is consistent with Board Appendix 2-G, Service Quality Indicators. The table provides the performance measurements for the last five (5) historical years – 2012 through 2016.

SLHI's performance results over the 2012 to 2016 period meet or exceed the Board's approved standards. SLHI's performance is within the range of acceptable performance over the previous five years and no corrective action is required. Table 2-28 – Service Quality and Reliability Performance

Appendix 2-G
Service Reliability and Quality Indicators
2012 - 2016

Service Reliability

Index	Including outages caused by loss of supply					Excluding outages caused by loss of supply					Excluding Major Event Days				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
SAIDI	0.530	4.730	6.180	11.220	25.280	0.470	0.230	1.280	0.680	1.740	0.470	0.230	1.280	0.680	0.670
SAIFI	1.180	1.280	3.690	2.360	5.180	0.170	0.280	0.740	0.360	1.180	0.170	0.280	0.740	0.360	0.570

5 Year Historical Average

SAIDI		9.588		0.880		0.666
SAIFI		2.738		0.546		0.424

SAIDI = System Average Interruption Duration Index
SAIFI = System Average Interruption Frequency Index

Service Quality

Indicator	OEB Minimum Standard	2012	2013	2014	2015	2016
Low Voltage Connections	90.0%	96.4%	95.0%	100.0%	100.0%	100.0%
High Voltage Connections	90.0%	n/a	n/a	n/a	n/a	n/a
Telephone Accessibility	65.0%	98.1%	99.0%	100.0%	96.0%	94.0%
Appointments Met	90.0%	92.9%	98.5%	98.2%	96.2%	91.7%
Written Response to Enquires	80.0%	100.0%	97.0%	100.0%	98.0%	100.0%
Emergency Urban Response	80.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Emergency Rural Response	80.0%	100.0%	100.0%	100.0%	100.0%	n/a
Telephone Call Abandon Rate	10.0%	0.6%	0.0%	0.0%	2.0%	2.8%
Appointment Scheduling	90.0%	100.0%	100.0%	98.0%	100.0%	93.3%
Rescheduling a Missed Appointment	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Reconnection Performance Standard	85.0%	100.0%	100.0%	100.0%	100.0%	100.0%

SLHI has exceeded the OEB Minimum Standard in all categories of Service Quality, therefore no actions are necessary.

Summary of Major Events

In 2016 SLHI experienced two major events. The first occurred in July, 2016 and was a result of loss of supply from Hydro One due to Hydro One equipment failure. The outage affected 100% of SLHI customers and was 5.34 hours in duration. The second outage occurred in December 2016. This outage was a result of high winds and heavy snow which caused a tree to fall on a primary line connected to the F3 feeder which supplies the urban population of Sioux Lookout affecting 61% of SLHI customers. The duration of the outage was 1.75 hours.

Underperformance vs Five Year Average

When looking at the performance under events excluding Major Events and Loss of Supply, there were two years that SLHI's metrics are below the five year average.

In 2014 the SAIDI was 1.28 compared to the five year average of 0.666 and the SAIFI was 0.740 compared to the five year average of 0.424. The reason for this was due to increased storm activity occurring at the end of June and beginning of July that year increasing the number of outages caused by tree contact.

In 2016 the SAIDI was 0.670 and the SAIFI was 0.570. The reason is similar to 2014 as there were also more storms which increased the number of outages caused by tree contact.

SLHI has a robust tree trimming program and endeavors to minimize the number of outages caused by tree contact through regular line patrols and proactive tree trimming. However due to the characteristics of our service territory and the unpredictability of the weather, these measures continue to fluctuate with these events as a principal cause.

Interruptions by Cause

Below Table 2.29 illustrates SLHI Interruptions for the last five historical years by Cause. Please note that prior to 2013, tree contact and lightning were included in the Adverse Weather category.

Table 2-29: Interruptions by Cause (2012-2016)

Name of Cause of Interruption		2012	2013	2014	2015	2016
	# of Interruptions	6	5	5	14	16
Unknown/Other	# of Customer Interruptions	73	134	14	230	530
	# of customer Hours of Interruptions	94.94	114.50	11.23	311.87	423.31
	# of Interruptions	9	21	12	13	14
Scheduled Outage	# of Customer Interruptions	85	124	62	392	190
	# of customer Hours of Interruptions	565.22	298.87	104.34	783.33	469.72
	# of Interruptions	1	1	5	2	5
Loss of Supply	# of Customer Interruptions	2,777	2,769	8,203	5,581	11,176
	# of customer Hours of Interruptions	185.53	12,460.50	13,624.44	29,356.05	65,798.35
	# of Interruptions	-	6	17	6	15
Tree Contacts	# of Customer Interruptions	-	208	1,490	52	2,098
	# of customer Hours of Interruptions	-	156.93	2,526.95	65.72	3,513.30
	# of Interruptions	-	1	2	8	3
Lightning	# of Customer Interruptions	-	80	73	58	81
	# of customer Hours of Interruptions	-	46.67	94.75	112.30	50.70
	# of Interruptions	8	9	12	7	10
Defective Equipment	# of Customer Interruptions	44	28	314	49	32
	# of customer Hours of Interruptions	95.55	128.77	577.82	54.74	92.46
	# of Interruptions	15	3	3	6	1
Adverse Weather	# of Customer Interruptions	176	13	32	56	6
	# of customer Hours of Interruptions	427.58	63.73	106.28	451.35	14.88
	# of Interruptions	-	-	1	3	-
Adverse Environment	# of Customer Interruptions	-	-	1	9	-
	# of customer Hours of Interruptions	-	-	20.75	7.28	-
	# of Interruptions	-	-	-	-	-
Human Element	# of Customer Interruptions	-	-	-	-	-
	# of customer Hours of Interruptions	-	-	-	-	-
	# of Interruptions	28	15	16	31	23
Foreign Interference	# of Customer Interruptions	96	176	69	159	361
	# of customer Hours of Interruptions	99.08	245.17	103.46	111.61	285.54

Appendix 2A - Distribution System Plan

Sioux Lookout Hydro Inc. Distribution System Plan for Plan Period 2018-2022

Issued June 21, 2017

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5.2 Distribution System Plan

5.2.1 Distribution System Plan Overview

Sioux Lookout Hydro Inc. has contracted the services of Costello Utility Consultants to assist with writing this Distribution System Plan (DSP). Costello Utility Consultants was also contracted to conduct the Asset Condition Assessment and the Asset Management Plan that feed directly into this DSP. The DSP has a specific set of requirements, as laid out by the Ontario Energy Board (OEB), as part of the Cost of Service filing applications. These requirements are detailed in the "Chapter 5 Consolidated Distribution System Plan Filing Requirements Guide", published by the OEB in March, 2013. This DSP fulfills the Chapter 5 filing requirements. Sioux Lookout Hydro last filed an incentive regulation mechanism (IRM) in 2016. This is the first DSP filed by Sioux Lookout Hydro. An Asset Management Plan was filed as part of the 2013 Cost of Service Rate Application (EB-2012-0165), which has been updated for this Application.

5.2.1.1 Our Community and History

The Town of Sioux Lookout is located in Northwestern Ontario, halfway between Thunder Bay, Ontario and Winnipeg, Manitoba. It was incorporated in 1912. The municipal boundaries were expanded in 1998 to include many of the surrounding townships, including the community of Hudson, Ontario.

Sioux Lookout's name comes from the local First Nations people, as there remains a large Aboriginal population. Sioux Lookout has a population of roughly 5,000 people, which remains fairly stable year to year. There was a 2.9% decrease in population between 2001 and 2006, and yet another decline between 2006 and 2011. However, Sioux Lookout Hydro's customer base and load has remained relatively stable with only a slight increase. Any noticeable fluctuations in system load are due to the intermittent operations of the saw mill.

Over the years, Sioux Lookout has served as a hub for transportation: when the town was incorporated in 1912, it served as the end point for the National Transcontinental Railway; later, during the 1920s and '30s, it was an aviation centre for the gold mining industry; then, during the Cold War, there was a radar base that monitored Russian activity. Today, forestry remains one of the largest industries in Sioux Lookout, which is consistent with the town's history. The service sector, largely including health care, represents the most significant source of employment within the community. Another noteworthy industry in Sioux Lookout is tourism.

Sioux Lookout endures long, cold winters and short, warm summers. Winter temperatures are regularly as low as -18°C, with an extreme low of -40°C. Alternatively, summer can regularly be as warm as 20°C. The highest summer temperature on record was 37.8°C.

5.2.1.2 Sioux Lookout Hydro Inc.

Sioux Lookout Hydro was established in 1940 as a Hydro Electric Commission. In January, 2000, it incorporated as Sioux Lookout Hydro Inc. (henceforth known as SLHI). The Municipality of Sioux Lookout owns SLHI, and is its sole shareholder. SLHI is governed by a Board of Directors and is regulated by the OEB. The utility's corporate structure is as below:

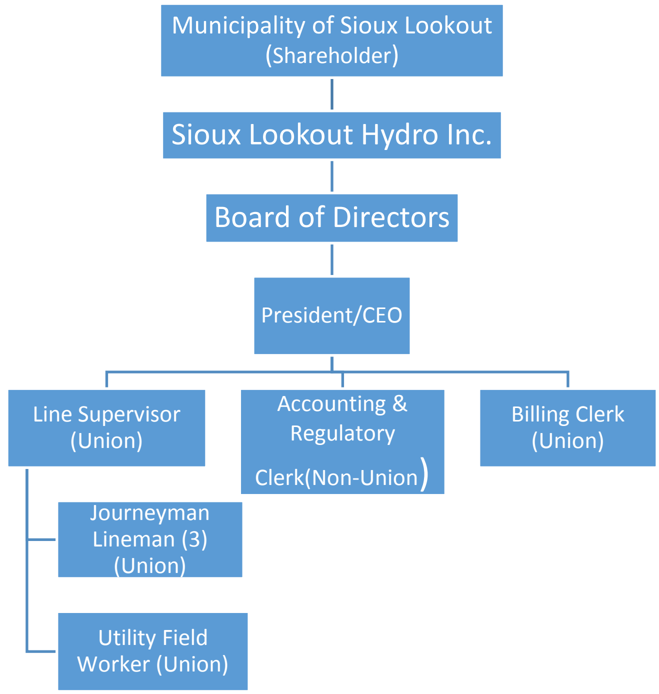


Figure #1 - Sioux Lookout Hydro Inc.'s Corporate Organization Chart

SLHI provides electricity delivery and services to the Municipality of Sioux Lookout. The total municipal population served is 5,080 with a total service area of 536 square kilometres. The municipality includes the communities of Sioux Lookout and Hudson. Outside of these two communities are large rural areas which comprise 530 square kilometres, or most of the municipality. The system consists of over 282 kilometres of primary conductor, both overhead and underground, and 887 distribution transformers, supported by 2,427 poles.

SLHI operates from the Municipality of Sioux Lookout. SLHI does not host any utilities and does not have any embedded utilities within its service area. SLHI itself is embedded within Hydro One Networks Inc. (HONI). The Sam Lake distribution station (DS), owned by HONI, supplies SLHI; SLHI does not own any stations.

The OEB has mandated that all long-term load transfer (LTLT) customers, which are HONI customers supplied from the SLHI distribution system, be made SLHI customers by June 2017. These connection arrangements have existed for many years and have been dealt with through billing arrangements and customers have been left confused when trying to enquire about outage durations and other issues to a utility where they are not recognized as customers. HONI and SLHI have come to an agreement to resolve these LTLT connections and these costs are reflected in the capital expenditures for the plan period. According to EB-2015-0006, SLHI has 34 LTLT customers (see letter from Hydro One in Appendix A of the Asset Management Plan, found in DSP Appendix A).

SLHI has allocated capital to buy out the LTLT assets, which include some meters and at least one collector. The utility will be acquiring 56 poles, only three of which are at their end of life, and 26 transformers, none of which are at their end of life. There is no repair work associated with the process of converting the LTLT customers. This buyout is scheduled to happen in 2017.

The current SLHI system was primarily rebuilt in the 1980s and 1990s. This rebuild upgraded the voltage of the system from 4.16 kV to 14.4 kV. Although some pockets of single-phase 7.2 kV remain, this system will not be expanded.

SLHI's service is unique in that its territory is spread out, yet it has a relatively low customer base given is geographic size. The figures below show SLHI's service territory.

Figure #2 - Sioux Lookout, Ontario, Canada

Figure #3 - Sioux Lookout Hydro Inc. Service Area

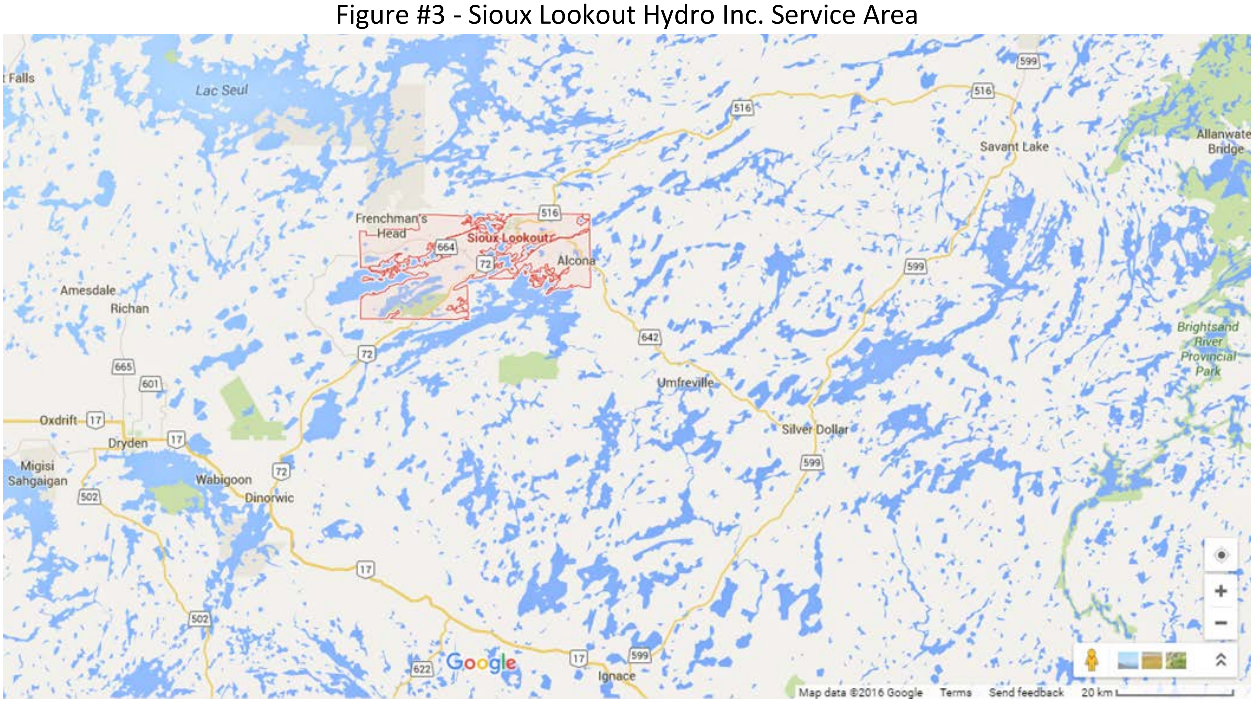


Figure #4 - Sioux Lookout

Derived from the Sioux Lookout Hydro Green Energy Act Plan, September 2012.

SLHI's Mission and Vision statements are below:

Sioux Lookout Hydro Inc. Mission Statement:

Sioux Lookout Hydro Inc. is committed to:

- Ensure that health and safety to employees and the public is a priority;
- Supply safe and reliable electricity to residents and businesses in the Municipality of Sioux Lookout;
- Provide superior customer service; and
- Provide value to our shareholder, the Municipality of Sioux Lookout.

Sioux Lookout Hydro Inc. Vision Statement:

To provide the community of Sioux Lookout with superior customer service and local presence while providing safe reliable electricity to all residents and businesses.

5.2.1.3 Distribution System Plan Objectives

SLHI's objectives in creating this DSP are multifaceted. The primary concerns in distribution system planning are safety, reliability, and cost. Through this process, and culminating in this document, SLHI aims to provide the framework to ensure that:

- The safety of employees and customers is paramount;
- As a utility, its knowledge of its asset base (age, location, capacity, attributes, and condition) is continuously being strengthened;
- Whenever possible, SLHI will collaborate with other LDCs, suppliers, and agencies to develop best practices, minimize costs, and find more efficient ways to deliver value to customers while meeting regulatory obligations.
- Reliability of service is provided to customers, and meets community and regulatory expectations;
- The need for future capacity, security, and reliability are adequately planned for, aided by an understanding of what drives these needs;
- Asset management, from installation to replacement, is properly programmed and executed;
- Risks are minimized and mitigated through asset knowledge and sound planning;
- The cost of maintaining assets at their desired performance level is minimized, considering options such as repairing and/or refurbishing to extend the asset life, so long as the long term total cost is in the best interest of our customers;
- The impact of planned spending on the customers' bill is considered and significant expenditures are paced to reduce overall impact to rates.
- Decisions regarding capital planning are made strategically, based on current and comprehensive data; and
- Renewable energy generation is carefully considered, and allocations are made within the distribution system for renewable energy generation capacity.

5.2.1.4 Distribution System Plan Key Elements

The major components within this DSP come out of the Asset Condition Assessment (ACA) and the Asset Management Plan (AMP); these two documents inform SLHI's priorities with respect to capital planning and maintaining the health of the distribution system. By determining the capital expenditure forecast for the life of the plan (2018-2022), the utility is able to delineate asset replacement and refurbishment programs, plan for growth, continue to provide quality service to its customer base, and ensure the safety of its employees and customers. Throughout the processes of creating these documents, SLHI has gathered and analysed data on its asset base, its service quality indicators, and its capacity for renewable energy generation; combined with the coordinated planning with the appropriate third parties, this information has provided the basis for this plan.

In an effort to gather more thorough and comprehensive data on its distribution system assets, SLHI is planning on purchasing and implementing a geographic information system (GIS) in 2017. Some data from the ACA and AMP are outdated or incomplete; a GIS would ensure there are no gaps in future assessments and plans. At this time, asset knowledge is based on testing programs, data extracted from the now obsolete RAMSYS[1] system, and staff and consultant knowledge. Future capital expenditure

[1] RAMSYS was a rudimentary database that stored some asset data. The system is not supported by the vendor and is no longer used.

projections are based on standard typical useful lifespans (TUL), the results of testing programs (such as pole and cable testing), and informed estimates from staff and consultants, all with the intent to maintain the distribution system in a healthy and efficient manner.

There are some key assumptions that have factored into this plan. They function as the foundation for the capital expenditure forecast and all of its programs and activities to replace, maintain, or expand aspects of the distribution system. These assumptions are:

- There are several regulatory standards that the utility must satisfy, specifically regarding health and safety, environmental protections, rates, and filing requirements;
- Infrastructure for Distributed Generation and Smart Grid allocations continue to be driven by customer requests and expectations;
- The residential and commercial customer base in SLHI's service territory relies heavily on the reliable supply of electricity;
- Current distribution service must be maintained and improved upon while demand for new connections must also be satisfied;
- Analysis of customer preferences, system performance (reliability), loading, and potential load growth do not indicate any present or future modifications to the distribution system are necessary to meet operational objectives and customer requirements – therefore, there are no plans for any System Service investments during the period covered by this DSP.
- Shareholder requirements must be met;
- Data has been collected analysed through the Asset Condition Assessment (ACA) process, and the Asset Management Plan (AMP) provides a clear strategy for how the distribution system will be maintained in the forecast period (2018-2022);
- The first two years of the forecast period (2018-2019) are fairly certain, while the final three years (2020-2022) are less certain, and are based on trending;
- SLHI's capital expenditure projections are categorized into the four investment categories (system access, system renewal, system service, and general plant), as mandated by the OEB, and the plans for these categories reflect SLHI's priorities;
- Equipment lifespans will be maximized through comprehensive asset condition assessment, and proactive strategic planning will be executed to prevent unplanned outages;
- SLHI's service territory experiences very little economic growth, and customer base and system load are expected to remain stable in the area;
- The impacts of Conservation and Demand Management (CDM) programs have lowered the usage and demand for electricity; and
- SLHI will treat this DSP as a living document, making continuous revisions, taking into account any changes that occur throughout the life of the plan.

The DSP includes the following aspects:

- Customer experience and third-party consultation;
- System reliability measures;
- Financial allocations; and
- Environmental concerns.

The capital expenditure projections over the forecast period are outlined in the table below.

Table #1 – Capital Expenditures over the Forecast Period

			Forecast Years			
Investment Category	Project	2018	2019	2020	2021	2022
System Access	New Connections	60,000	61,080	62,179	63,299	64,438
	General Upgrades	40,000	40,720	41,453	42,199	42,959
Total:		100,000	101,800	103,632	105,498	107,397
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398
	Planned Secondary Pole Replacements	20,360				
	Unplanned Pole Replacements	18,324	18,654	18,990	19,331	19,679
	Polemount Transformer Replacements	24,025	24,457	24,897	25,346	25,802
	Planned U/G Cable Replacement		62,560			
	Meter Reverifications - New Meters		21,515			
Total:		154,329	220,456	138,836	141,335	143,879
System Service						
Total:		-	-	-	-	-
General Plant	Vehicle Replacement	355,000	60,000	300,000	35,000	
	Office Computer hardware	2,000	2,000	2,000	2,000	2,000
	Office Equipment	2,000	2,000	8,000	2,000	2,000
	General Small Tools	5,000	5,000	5,000	5,000	5,000
	Warehouse - foundation repair		10,000			
Total:		364,000	79,000	315,000	44,000	9,000
Total:		618,329	401,256	557,468	290,833	260,276

The ACA and the AMP help SLHI create a clear picture of the asset base, both in terms of distribution assets and general plant assets, and an understanding of the costs associated with maintaining this asset base, to continue to provide safe and reliable service to its customers. Informed, strategic planning saves money, as it ensures that the utility takes full advantage of each asset's maximum useful life, rather than replacing assets that are still in good working condition. This, in turn, means that capital is spent wisely, and, ultimately, customers save money. The implementation of a new GIS will allow SLHI to make even better use of its assets, as the utility will be equipped with even more complete asset condition analysis. This way, SLHI can proactively target assets that pose concerns before they materialize into safety and reliability problems. Maintenance, refurbishment, and testing programs are all critical pieces in maximizing asset lifespans. These are important facets of this DSP.

The System Renewal investment category, which includes the refurbishment and maintenance of distribution assets, averages 38 percent of the capital expenditure projections over the forecast period of this plan. In the years of 2018-2022, that equals $798,835 of the entire plan's $2,128,162.

As noted above, analysis of customer preferences, system performance (reliability), loading, and potential load growth do not indicate any present or future modifications to the distribution system are necessary to meet operational objectives and customer requirements – therefore, there are no plans for any System Service investments during the period covered by this DSP.

Table #2 – Investment Categories by Year (forecast)

	Forecast Years				
Investment Category	**2018**	**2019**	**2020**	**2021**	**2022**
System Access	100,000	101,800	103,632	105,498	107,397
System Renewal	154,329	220,456	138,836	141,335	143,879
System Service	-	-	-	-	-
General Plant	364,000	79,000	315,000	44,000	9,000
Total:	618,329	401,256	557,468	290,833	260,276

Table #3 – Investment Categories by Percentage by Year (forecast)

	Forecast Years				
Investment Category	**2018**	**2019**	**2020**	**2021**	**2022**
System Access	16.17%	25.37%	18.59%	36.27%	41.26%
System Renewal	24.96%	54.94%	24.90%	48.60%	55.28%
System Service	0.00%	0.00%	0.00%	0.00%	0.00%
General Plant	58.87%	19.69%	56.51%	15.13%	3.46%
Total:	100%	100%	100%	100%	100%

The major components, or key elements, in this DSP are:

- The creation of the Asset Management Plan, based on the Asset Condition Assessment Report to which SLHI will adhere;
- The third-party coordination efforts that SLHI has undertaken, including customer surveys, the Integrated Regional Resource Planning (IRRP) process, and consultation with Hydro One Networks Inc. (HONI) and the Independent Electricity System Operator (IESO);
- SLHI's service quality indicators, and financial and non-financial performance measures; and
- Justification of the previous five years' capital expenditures (2013-2017), and the forecasted expenditures of the forecasted years of the plan (2018-2022), including explanations of the major capital projects that meet the OEB-designated materiality threshold of $50,000 in any year of the plan going forward.

5.2.1.5 Expected Cost Savings

There are significant cost saving benefits to following informed asset management and DSPs. Without sound planning, the utility could spend far more capital on replacing and refurbishing its distribution assets than is necessary. Part of the Asset Management Plan is making optimal use of testing programs, like pole testing and transformer testing, to have better knowledge of the working assets. While these programs cost money up front, they save money in the long run. By basing all of its capital programs on current asset condition knowledge and a strategic plan for investment and reinvestment, SLHI can save money, which ultimately affects the rate payers. By replacing and refurbishing assets in a proactive, strategic, and as-needed manner, the utility is preventing unplanned outages, and providing more reliable, cost-effective service, which is evident in customer rates.

In 2015, SLHI conducted an asset condition assessment (ACA), which identified the utility's distribution assets, and assigned them quantitative values based on a health index. These values helped the utility determine the remaining useful lifespans of each of the assets. (The ACA can be found in Appendix B of the Asset Management Plan, found in DSP Appendix A). Through the Asset Management Plan (AMP), SLHI was able to create a sound strategy for maintaining each of the asset classes, based on the asset knowledge provided by the ACA. These plans are tied to the capital expenditure forecasts for the next five years (2018-2022); the capital projections reflect the utility's priorities according to the Asset Management Plan. (The AMP can be found in DSP Appendix A.)

One facet of asset management that SLHI has plans on improving is asset knowledge, which will occur through the purchase and implementation of a new geographic information system (GIS). This project will constitute a substantial capital expenditure over the life of this plan; the benefits of the improved asset knowledge will be clear in the next asset condition assessment, Asset Management Plan, and DSP. The GIS will provide comprehensive mapping of SLHI's very wide-spread service territory, which will allow for strategic asset replacement and refurbishment programs, where assets can be grouped and replaced more efficiently, saving the utility money. SLHI will be implementing an ESRI GIS solution in 2017 at an estimated cost of $45,000.

Another of SLHI's priorities is the pole testing program that was conducted in the fall of 2016. The ACA found that SLHI needed more data on its distribution poles, so a pole testing program was mandated. A pole testing program provides specific information about which poles need replacing, and how soon. The TUL value for distribution poles is largely based on age, but there can be several other factors in the health of a pole – factors that can affect the pole either positively or negatively. By replacing poles based on age alone, the utility might be spending money prematurely, replacing an asset that may in fact still have some remaining useful life. Alternatively, when weather and wildlife, for example, contribute to the degradation of a pole prior to its industry-established end-of-life, the pole might pose safety and reliability concerns if left in service. Pole testing can help identify which poles need attention, and in what timeframe, which saves in replacement costs, and emergency replacement costs. The utility saves capital, customers save money through stable rates, and the utility consistently provides reliable service, with fewer unplanned outages. SLHI's asset management strategy is to optimize each asset's lifespan through informed replacement and refurbishment planning, which ultimately helps to balance risks and investments.

SLHI also anticipates cost savings in the following endeavors, in addition to the ACA and the AMP:

- Installation and implementation of the GIS for improved asset knowledge and capital project planning;
- Reduced unplanned outages, and fewer/shorter planned outages, resulting from proactive and strategic asset maintenance

The asset management process concludes that the cost of replacing SLHI's total asset base, including all asset types and their populations, would amount to $20M based on estimated per unit replacement costs multiplied by total number of assets listed[2]. When comparing the industry-established minimum useful life values and maximum useful life values, a clear difference in replacement costs can be seen. In order to maintain the SLHI distribution system based on the minimum useful life values (assets at end of

[2] Asset Condition Assessment, Table 1-1, page 3, Section 3.3 page 18, 19

life to 10 years) of each asset, the total cost would be $8M, meaning the annual cost over the five-year plan would be $1.5M. The total cost of maintaining the distribution system according to maximum useful life values (assets at end of life to less than 5 years) would be $5M, and the annual cost for each of the five years would be $1M. This leaves an annual difference of around $0.5M.

The actual useful life values of the assets generally fall somewhere in between the minimum and maximum. The industry standard is the typical useful life (TUL), and each asset has a respective TUL value. If SLHI maintained its distribution system according to the industry benchmark TUL, the annual cost would be around $1.2M. The aim of the Asset Management Plan and DSP is to monitor asset health more closely, and have clearer asset knowledge, so that the utility is not merely replacing assets according to industry standards, but doing so according to the actual needs of the distribution system. This should reduce the annual costs of maintaining the distribution system, as some assets' lifespans can be prolonged based on health indices. The capital expenditure projections for the life of this plan indicate that the average annual cost of sustaining the SLHI distribution system is $425,630 over the five-year plan. Over the five-year life of the plan, this adds up to about $4M in savings versus the TUL strategy costs, or $0.8M annually.

5.2.1.6 Distribution System Plan Period

The period covered by this DSP includes a five-year historical period (2013-2017), with the filing year included, serving as the bridging year, and a five-year forecasted period (2018-2022). The filing year (2017) is included in the historical period because its budget has already been approved, and partial spending of that plan will be complete at the time this Cost of Service application is filed. Years prior to the beginning of this plan period (up to and including 2012) were included in previous asset management documents and Cost of Service filings. The forecasted period begins with the first complete year after filing, and extends out five years. Capital expenditures for these forecasted years are included in this plan, as the asset management strategy is applied.

As with any plan for the future, there is a level of uncertainty. The first two years of the forecast period are planned with a higher degree of certainty than the latter three years. While there is always potential for unpredicted circumstances, like storms for example, that may significantly alter SLHI's asset management activities and capital planning, this document outlines the utility's intentions. The maintenance philosophy will remain the same, and the goal of prudent spending will endure. Other factors that may modify SLHI's capital planning include regulatory developments, growth or decline in the customer base, adjustments made by neighbouring utilities taking part in the same Integrated Regional Resource Planning (IRRP) group, environmental issues, and other unforeseen circumstances.

5.2.1.7 Vintage of Information

This DSP is based upon information coming from several different sources. They are current as of January 2017. The information driving this plan includes:

- The Sioux Lookout Hydro Inc. Asset Management Plan (January 2017) (Appendix A)
- The Sioux Lookout Hydro Inc. Asset Condition Assessment (April 2016) (Appendix B of the AMP)
- Integrated Regional Resource Planning (IRRP) West of Thunder Bay Sub-region planning document (2016) (Appendix B)
- Independent Electricity System Operators (IESO) Letter of Comment (Appendix C)

- Sioux Lookout Hydro 2014 Customer Satisfaction Survey (Appendix D)
- Sioux Lookout Hydro 2016 Customer Satisfaction Survey (Appendix E)

5.2.1.8 Asset Management Process Changes

The asset management philosophy that SLHI follows has remained consistent over previous planning periods. While activities and plans themselves vary, they are based on the same strategies that aim to provide safe and reliable service to the customer base, while saving money through proactive, sound planning.

SLHI's asset management process is discussed in more detail in section 5.3 of this plan. The stages of this process have consistently been to: collect and maintain asset data; analyse the strategies' impacts on the plan; update the Asset Management Plan (AMP); determine the capital expenditure forecasts for the upcoming five years; and execute the Asset Management Plan.

Any improvements to these stages, making this process more efficient, are welcome additions to the plan. SLHI completed an Asset Condition Assessment performed by a third party for the first time in 2015, and included it in its updated Asset Management Plan. This will be updated and included in the AMP going forward. Also, the intended investment in a GIS will allow SLHI to more efficiently gather and analyse asset data. An improved first stage of the process will have consequent benefits to each subsequent stage, thereby enhancing the process as a whole.

5.2.1.9 Distribution System Plan Contingencies and Risks

There are some aspects of the DSP that are contingent on aspects beyond the control of SLHI. SLHI puts forth its best plans for the next five years (2018-2022) within this document, taking into account its historical capital investment trends, the health of each of its asset classes, the information provided within the IRRP process, its customer feedback, and several other factors. Yet, there are always risks that an unforeseeable event might affect the life of this plan. Some reasonable risks that can be expected include:

- Growth and Decline of Customer Base

The economy is an external factor to SLHI's customer count, and it is beyond SLHI's control. While the customer base has remained very stable over the past five years, there is always the potential that the utility will need to provide for higher numbers of new customers, or that the customer base may decrease.

- Weather

Severe weather can be hazardous to an electrical distribution system. SLHI is prepared to deal with possible severe weather conditions by maintaining back-up equipment and keeping mutual assistance agreements in place with neighbouring distributors, to mitigate the effects of the damage as quickly and efficiently as possible, so as to limit the duration of the unplanned outage. The forecast spending for capital and O&M related to weather damage is based on the average of the past five years. There are no projects specifically aimed at "hardening" the distribution system so it can withstand more frequent severe weather conditions often associated with climate change. SLHI will monitor the performance of the distribution system as well as steps taken by other LDCs to upgrade standards to have a more robust system, and will consider adopting these changes if deemed applicable to SLHI.

- Renewable Energy Generation Connections

As renewable energy is gaining popularity, it is possible that SLHI will see an increase in renewable energy generation (REG) connection applications. Past applications do not necessarily set a precedent of what to expect in the future. This DSP does not include any investments in the distribution system to accommodate REG projects.

5.2.2 Coordinated Planning with Third Parties

As part of the distribution system planning process, SLHI has consulted with key stakeholders. These consultations consist of meetings and communications that ensure that stakeholder interests are taken into consideration as the utility proceeds in its forecasted planning. Input has been gathered from the following stakeholders:

- Hydro One Networks Inc. (HONI – both local transmission and distribution);
- West of Thunder Bay Sub-Region Working Group;
- Independent Electricity System Operator (IESO, and the former OPA);
- Towns, Municipalities, and Developers; and
- Customers.

The following sections discuss the information collected from each of these groups, and what bearing it has on the SLHI DSP.

5.2.2.1 Regional Planning Consultations

5.2.2.1.1 Hydro One Consultation

SLHI is supplied by Hydro One transmission and distribution. Along with the other local distribution companies (LDCs) in the Northwest Region's West of Thunder Bay Sub-region, SLHI participated in an Integrated Regional Resource Planning (IRRP) process that assessed the needs of the region and consulted on matters of generation, transmission, conservation, and distribution. The following members were a part of the West of Thunder Bay planning group:

- Independent Electricity System Operator (IESO);
- Hydro One Networks Inc. (Distribution);
- Hydro One Networks Inc. (Transmission);
- Atikokan Hydro Inc.;
- Fort Frances Power Corporation;
- Kenora Hydro Electric Corporation Ltd.; and
- Sioux Lookout Hydro Inc.

The IRRP is further discussed in sections 5.2.2.1.4 and 5.2.2.2.

SLHI meets with Hydro One representatives as needed to discuss operational issues and to update each other on any proposed work that may impact the other distributor.

- Impact on DSP

The consultations with Hydro One did not impact SLHI's DSP.

5.2.2.1.2 Independent Electricity System Operator Consultation

SLHI met with the Independent Electricity System Operator (IESO) as part of the Integrated Regional Resource Planning (IRRP) process and with regards to Conservation and Demand Management (CDM). The IRRP determined that the forecasted growth in the sub-region is uncertain, and therefore the demand is also hard to predict. The major components to future planning for load growth include a combination of generation, transmission, distribution, and conservation.

- Conservation and Demand Management

Conservation of energy happens in two ways: through customer behavioural changes, and improved standards in equipment, such as household appliances, and building codes, as mandated across the province by the IESO.

The West of Thunder Bay IRRP report concluded that since the larger portion of forecasted load growth will be industrial, the required higher-efficiency equipment will be inherent in the process of the growth, as these improvements save businesses money in other ways aside from CDM efforts.

- Impact on DSP

Since CDM efforts have been implemented for some time now, and the anticipated growth in the sub-region is predicted to be of an industrial nature, CDM opportunities will have no impact to SLHI's DSP.

5.2.2.1.3 Town & Developer Meetings

SLHI has regular meetings with the town and meets with potential developers when required to discuss future developments.

- Impact on DSP

As a result of these meetings, SLHI is not aware of any potential developments that would affect the DSP.

5.2.2.1.4 West of Thunder Bay Regional Planning Process

In addition to the groups presented above in section 5.2.2.1.1, the IRRP working group represented the City of Kenora on the west, and the Municipality of Sioux Lookout and the City of Dryden on the northern boundary, as well as 16 municipal and 25 First Nations communities. This sub-region is bordered by Manitoba to the west and Minnesota to the south, and stretches east toward (but not including) the City of Thunder Bay. The final deliverables of this process are discussed further in section 5.2.2.2.

SLHI was invited to participate in this planning process. The purpose of this process was to create a "flexible, comprehensive, integrated plan that considers opportunities for coordination in anticipation of potential demand growth scenarios and varying supply conditions in the West of Thunder Bay Sub-region" (Integrated Regional Resource Plan, West of Thunder Bay, Appendix B). This process concluded in early 2016 and the final report was issued in July 2016.

- Impact on DSP

The West of Thunder Bay sub-region's IRRP process does not impact the asset management and capital planning for SLHI's forecasted five years. The report itself mentions SLHI very little, as it is primarily concerned with activities happening with the other members' service areas. SLHI will continue to manage its assets and plan its capital according to the steady growth it has observed over the previous five years, and in accordance with its asset management strategy.

5.2.2.2 Final Deliverables of the Regional Planning Process

SLHI was an invited participant in the Integrated Regional Resource Planning (IRRP) process. The final deliverable of the West of Thunder Bay regional planning process is the report entitled, "Integrated Regional Resource Plan, West of Thunder Bay". The final version of this report was made available in July 2016. (Appendix B)

5.2.2.3 Customer Consultations

In addition to the informal, day-to-day interactions with customers, SLHI has initiated contact with customers through the use of surveys which have been developed and administered by SLHI. The survey questions were based on ones issued by other LDCs.

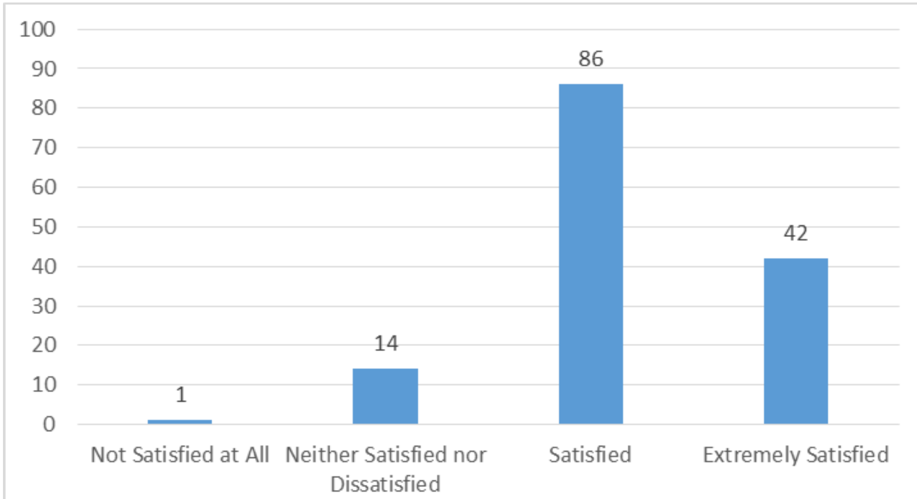
5.2.2.3.1 2014 Customer Satisfaction Survey

SLHI conducted its first customer satisfaction survey in October of 2014. The survey was distributed as a bill insert throughout the month of October; for customers who receive e-bills, a downloadable version of the survey was made available online. SLHI was pleased with the engagement level that the survey elicited: 5.17% of the LDC's customer base completed the survey. This amount totaled 144 individuals out of October 2014's customer count of 2,785. The major highlights of this survey are provided in the subsequent sections below. For the complete customer survey report, see Appendix D. (Note that in some categories, not all 144 customers responded.)

5.2.2.3.1.1 2014 Overall Customer Satisfaction

The majority of SLHI customers are either satisfied or extremely satisfied with the utility. When asked, "Overall, how satisfied are you with the services provided by SLH?" 60 percent were satisfied and 29 percent were extremely satisfied.

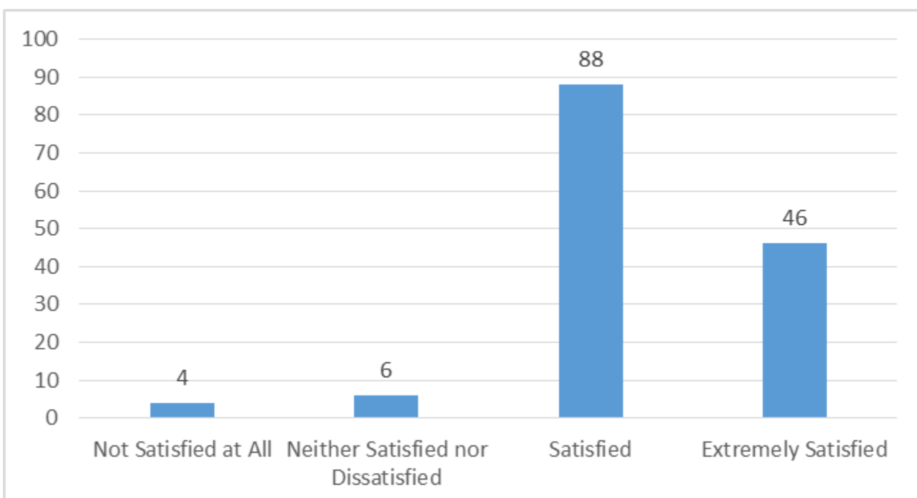
Figure #5 – 2014 Overall Customer Satisfaction (Number of Customer Responses)



5.2.2.3.1.2 2014 Reliability of Electricity Supplied

Sixty-one percent of respondents were satisfied, and nearly 32 percent were extremely satisfied, with the reliability of the electricity supplied.

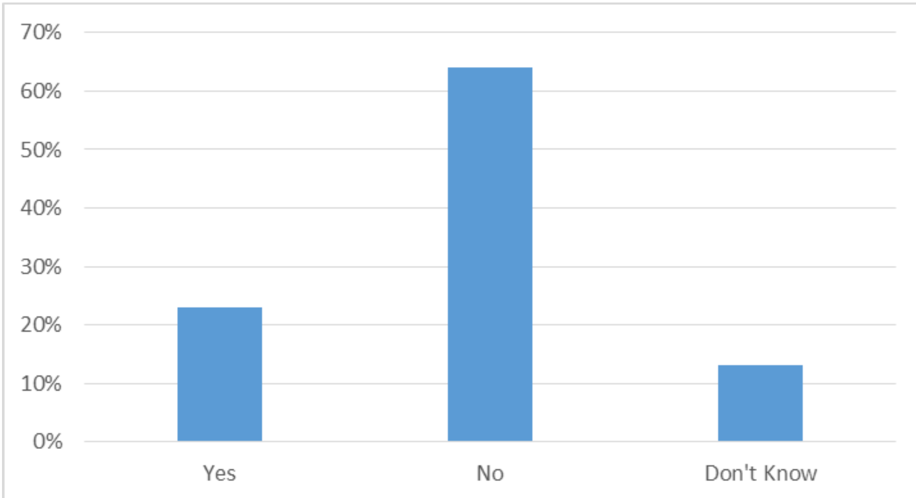
Figure #6 – 2014 Reliability of Electricity Supplied (Number of Customer Responses)



5.2.2.3.1.3 2014 Automated Communication Technology Expense

Consistent with most customer survey results, this survey demonstrated that individual customers are not interested in paying higher premiums for additional communication services. The survey posed this question: "SLH is contemplating investing in technology that will give us the ability to contact you automatically by telephone or email, to alert you of important events such as power outages. Is this an expense that would be of value to your needs?" The majority of respondents answered that it would not be a valuable expense.

Figure #7 – 2014 Support for Additional Technology Expense



The lack of interest in such a service might be related to the fact that SLHI already communicates so well with its customer base that the customers do not feel the need to pay for additional communications services. SLHI continues to research how it can improve its outage management system and customer service.

5.2.2.3.1.4 2014 Customer Suggestions for Improvements

The customer satisfaction survey gave customers the opportunity to suggest ways the utility could improve its service. The response from 35 of the 88 customers surveyed indicated there was nothing that needed improvement; 22 customers did not answer the question, meaning that essentially 65% of respondents did not suggest a way for SLHI to improve its service.

Table #4 – Customer Suggestions for Improvements 2014

Are there any specific things that SLH could improve on to serve you better?	**# of respondents**	**% of respondents**
Nothing / Can't think of anything	35	40
Lower Costs	20	23
Check or improve street lights	5	6
Explain costs to customers	2	2
Twin E1C/backup powerline	2	2
Planned outages should be shorter	2	2
Did not answer the question	22	25
Total Respondents	**88**	**100**

5.2.2.3.1.5 2014 General Comments Received

The survey elicited general comments from 56 respondents: 32 were positive comments; 12 were suggestions; and 12 were negative. Some of the positive comments were:

> *"Very satisfied considering extreme weather"*
>
> *"By and large service is excellent"*
>
> *"SLH always provides quick and courteous service"*

Some of the negative comments were:

> *"Delivery charges and HST are too high"*
>
> *"Don't waste money on technology, focus on lowering costs"*

5.2.2.3.1.6 2014 Summary

In general, SLHI is very pleased with the feedback it received from the 2014 customer survey. The survey prompted plans to continue to work on improving its online tools, to lower costs and increase communication with customers. Negative comments and feedback are taken as starting points for improvement, and the utility is content to learn about the ways it can improve.

SLHI completed another customer satisfaction survey in late 2016 in order to keep up-to-date on customer satisfaction and preferences, to be used in the development of this DSP.

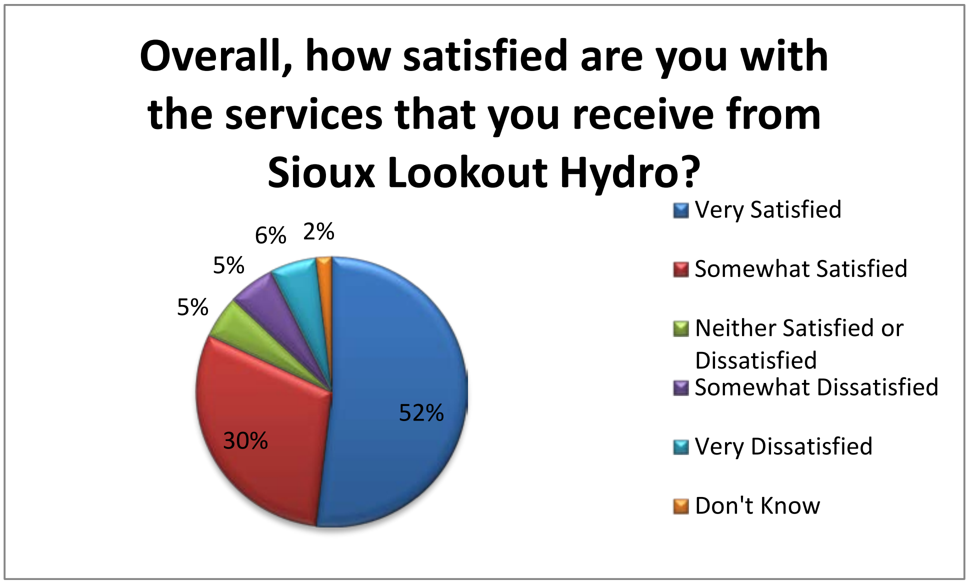
5.2.2.3.2 2016 Customer Satisfaction Survey

SLHI conducted a second customer satisfaction survey in July 2016. All residential and small business customers were given the opportunity to comment on SLH's performance, voice concerns and present their opinion on present and future services. SLH performed the survey via telephone calls and customers were also given the option to complete the survey online through a link on the SLH website until September 30, 2016. SLHI was pleased with the engagement level that the survey elicited: 8% of the low volume customer base completed the survey. This amount totaled 216 individuals out of a possible 2, 740 low volume customers. The major highlights of this survey are provided in the subsequent sections below. For the complete customer survey report, see Appendix E. (Note that in some categories, not all 216 customers responded.)

5.2.2.3.2.1 2016 Overall Customer Satisfaction

The majority of SLHI customers are either somewhat satisfied or very satisfied with the utility. The total Low Volume Customer Satisfaction Index Score was 82.99%. This consisted of 194 responses from Residential customers with a Customer Satisfaction Score of 82.54%, and 22 responses from Small Business customers with a Customer Satisfaction Score of 86.96%. While this is slightly lower than the response from the 2014 Survey, SLHI still considers this to be a positive result considering that reliability was much worse in 2015 (due to Loss of Supply issues).

Figure #8 – 2016 Overall Customer Satisfaction by Percentage



5.2.2.3.2.2 2016 Power Quality and Reliability

Eighty four percent of low volume customers were satisfied with SLHI's power quality and reliability. This result is less than the 93% rating received in 2014, but not unexpected as the reliability in 2015 was worse than previous years due to Loss of Supply issues.

Figure #9 – 2016 Reliability Satisfaction by Percentage

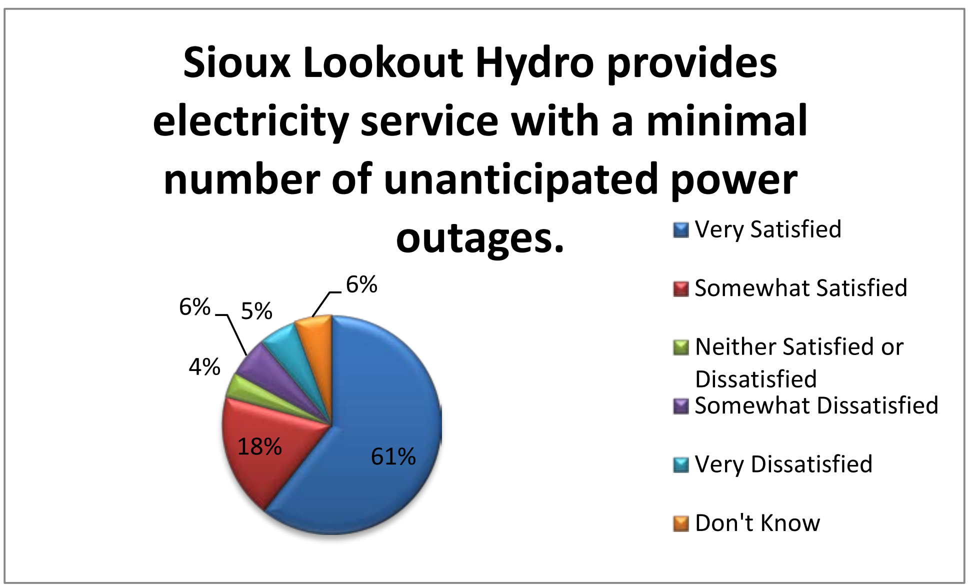
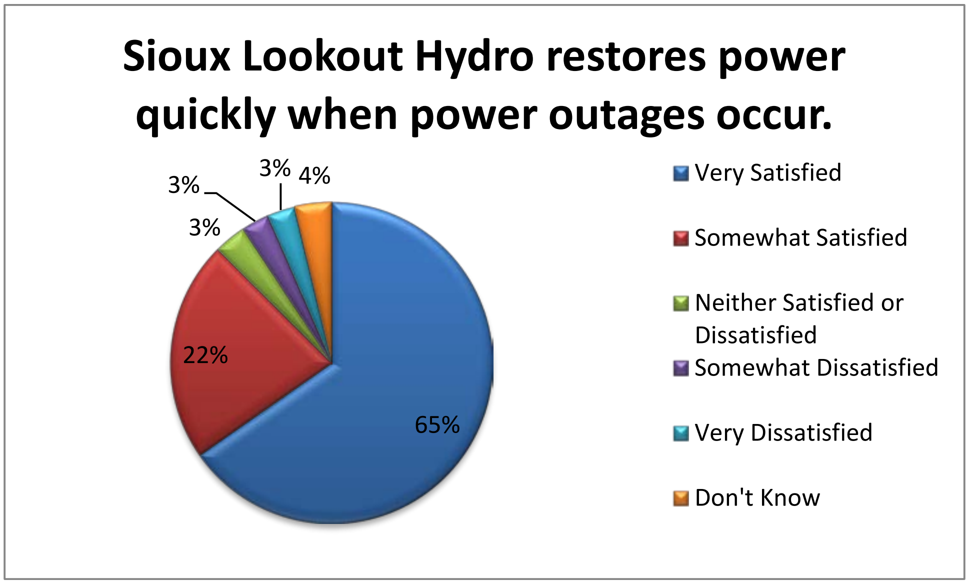


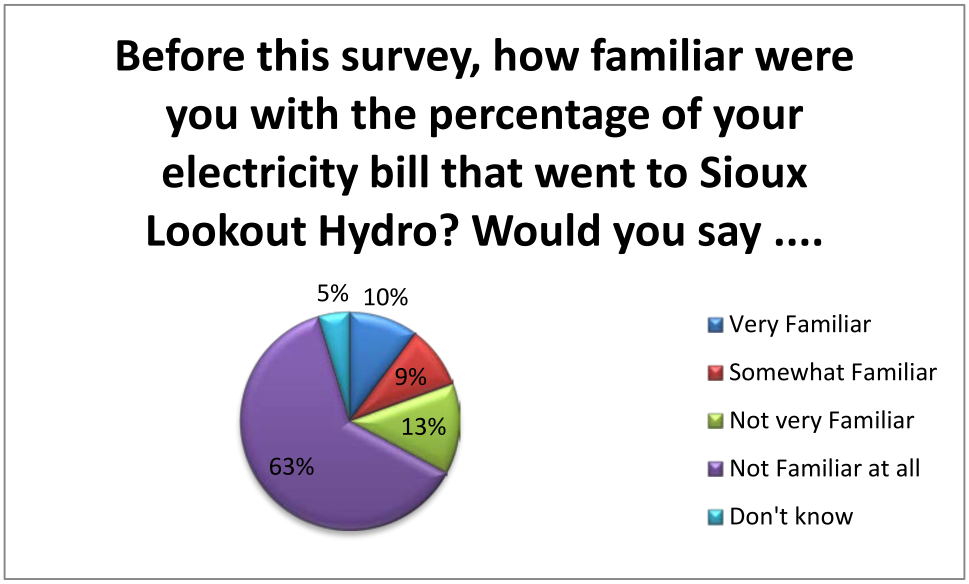
Figure #10 – 2016 Power Restoration Satisfaction by Percentage



5.2.2.3.2.3 2016 Price

A new series of questions relating to the breakdown of the electricity bill and overall cost were introduced in the 2016 survey. Consistent with other areas of the province, most customers were not aware that SLHI's portion of the monthly bill is less than one third.

Figure #11 – 2016 Familiarity of Bill Breakdown by Percentage



Customer satisfaction with price was the lowest with a score of 59.7%. It was discovered during the survey that there was some confusion as to the intent of the answers. Some customers indicated an answer of "Very unreasonable" when asked whether or not the portion of the bill that went to SLH was reasonable or unreasonable. Then stated that they felt it was not enough. Therefore, it can be concluded that this question is somewhat misleading as there are two interpretations, one favourable and one unfavourable, of the meaning. The question will be revised for future surveys to ensure the context of the meaning is clear.

5.2.2.3.2.4 2016 Billing and Payment

The overall satisfaction score for Billing and Payment was 91.4%. Customers were mostly very satisfied with the accuracy and convenient options to pay and receive their bills.

Figure #12 – 2016 Satisfaction with Billing Accuracy by Percentage

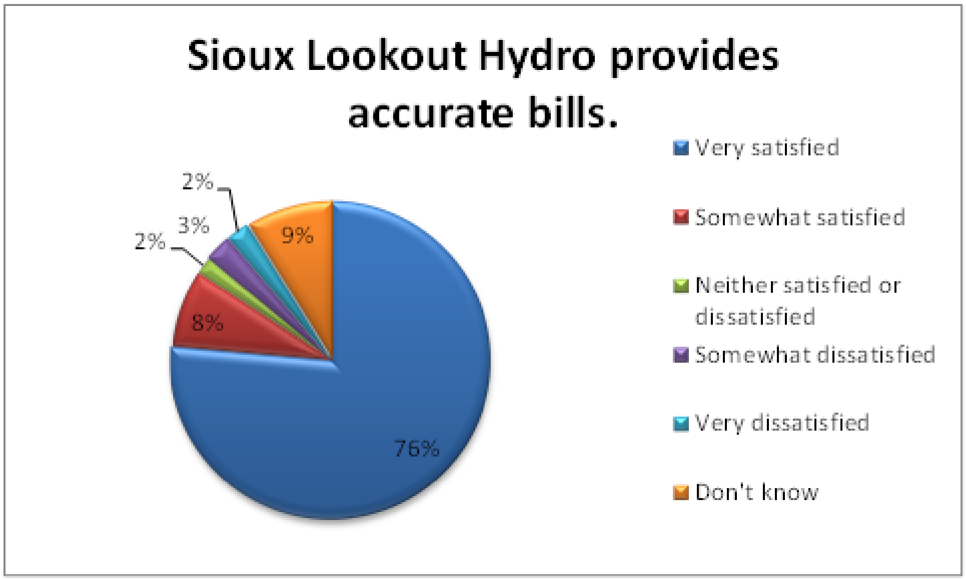


Figure #13 – 2016 Satisfaction with Bill Payment Options by Percentage

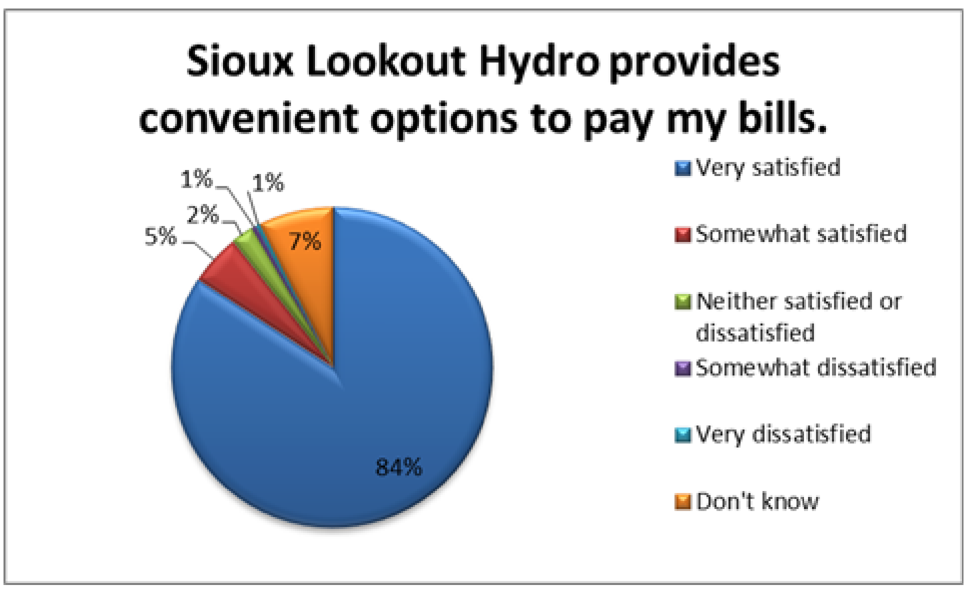
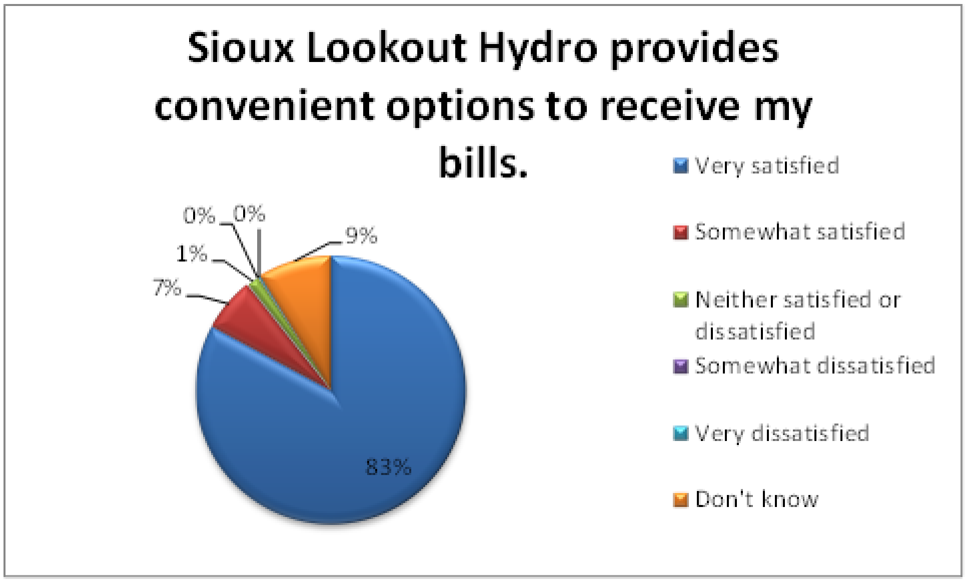


Figure #14 – 2016 Satisfaction with Bill Receipt Options by Percentage



5.2.2.3.2.5 2016 Customer Service Experience

SLHI scored exceptionally high in this area. The overall score was 93.8%. SLHI feels that our ability to connect with our customers due to our small size is a great advantage over other large LDCs.

Figure #15 – 2016 Frequency of Customer Contact by Percentage

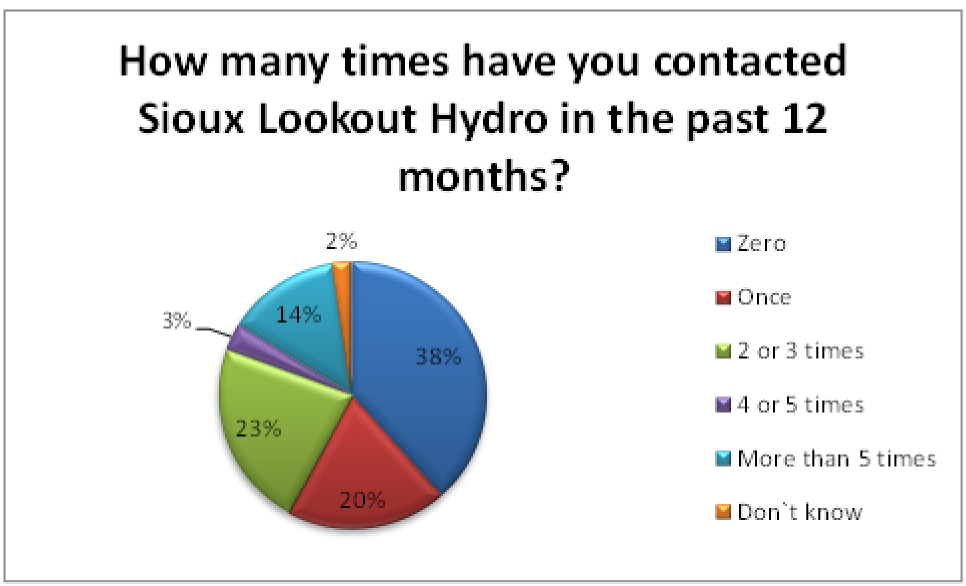
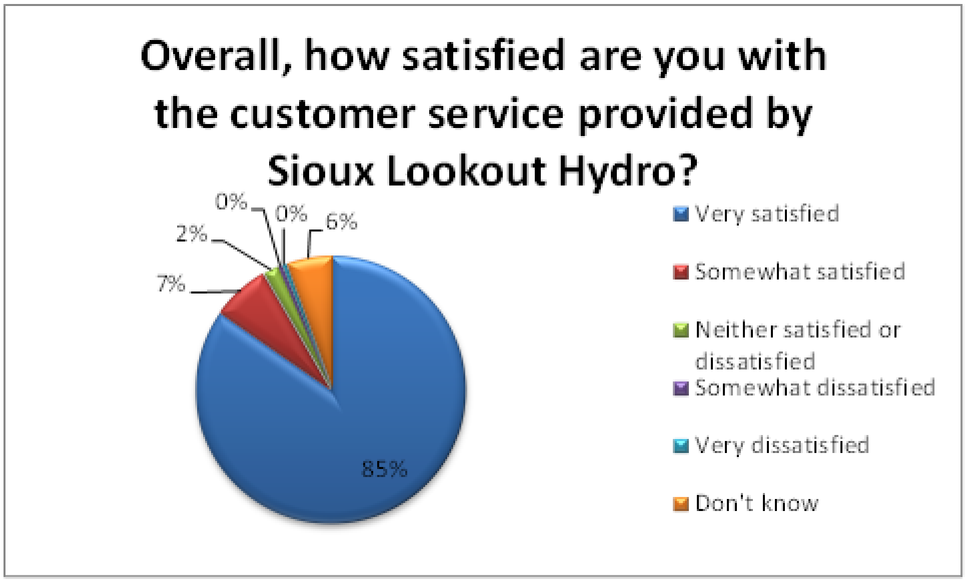


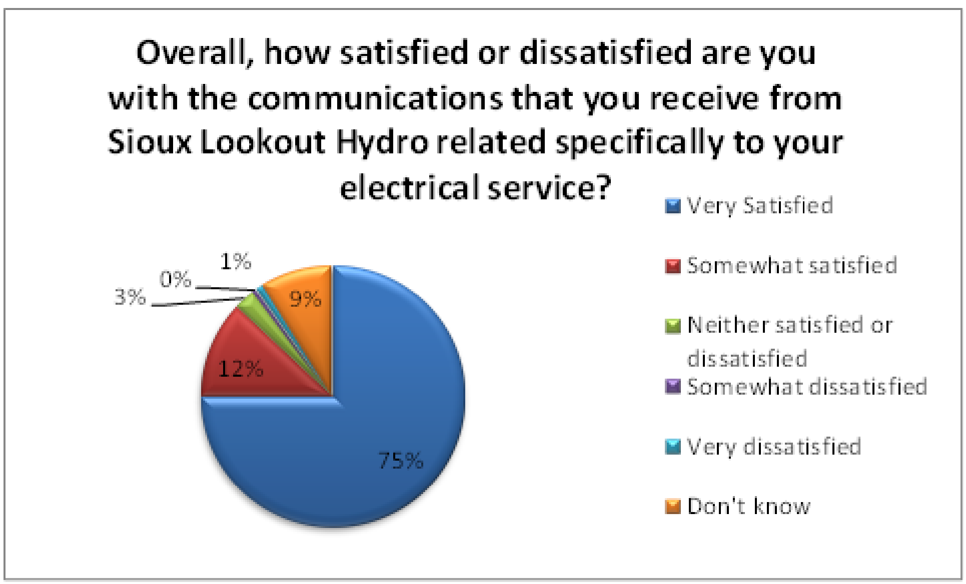
Figure #16 – 2016 Satisfaction with Customer Service by Percentage



5.2.2.3.2.6 2016 Communications

Overall SLHI's customers were very satisfied with the communications they receive with a score of 89.9%.

Figure #17 – 2016 Satisfaction with Communications by Percentage



5.2.2.3.2.7 2016 Customer Suggestions for Improvement

When asked about specific things that SLHI could improve on to serve them better, the top answer was costs/prices/lower rates. This is similar to the 2014 results. Below is a table outlining comments received more than once.

Table #5 – Customer Suggestions for Improvements 2016

Is there anything in particular you would like Sioux Lookout Hydro to do to improve its service to you?	% (#) of responses
Lower Costs/prices/lower rates/Delivery too high	(77)
Reduce outages	(20)
Disagreed with paying charges when no hydro is used	(2)
Timing of Scheduled Outages (i.e. not on weekends, shorter, less frequent)	(5)

5.2.2.3.2.8 2016 Summary

SLH is very pleased with the customer feedback received. We take pride in our customer service. As a small community, we are able to connect with people much better than in large communities with larger customer bases. Price and reliability continue to be our customers' highest concern.

- Impact on DSP

The results of the Customer Consultations in 2014 and 2016 have made an impact on the DSP. The main concerns expressed by customers were price and reliability. Therefore, SLH will continue to strive to increase operational efficiencies in its control in order to minimize distribution rate increases. One of the top challenges SLH faces due to its size and remote location is attracting businesses and contractors to the area in order to provide specialized services. However, SLH is committed to further pursue smart grid options which will improve reliability while at the same time provide our customers added benefits at little or no additional cost to them. Customers were also clear they would not support an increase in rates to have improved communication options during outages, so SLHI will not be pursuing these options within this DSP period. Future customer consultations may indicate a change in this preference so SLHI will continue to monitor the options available to LDCs for outage notification and outage maps so they could be implemented when customers' expectations change.

5.2.2.4 IESO Comment Letter

SLHI's involvement in the IRRP, and its commitment to facilitating FIT and microFIT projects has been confirmed by the IESO. SLHI received a letter of comment from the IESO on February 22, 2017 indicating that SLHI participated in the West of Thunder Bay sub-region IRRP. This letter can be found in Appendix C. SLHI was not requested to provide a response and is in agreement with the contents of the IESO letter.

5.2.3 Performance Measurement for Continuous Improvement

SLHI is looking to improve its service to stakeholders and customers alike on an on-going basis. In order to do so, it measures various performance aspects, such as service reliability, financial ratios, and customer satisfaction.

5.2.3.1 Performance Metrics

SLHI tracks its service quality indicators (SQIs), in accordance with the OEB, the Reporting and Record Keeping Requirements (RRR), and the scorecard process. The main indicators that SLHI monitors for continuous improvement are:

- Service Quality Performance (customer oriented);
- Reliability Indices (asset and system operations performance);
- Financial Performance (cost efficiency); and
- Customer Satisfaction.

5.2.3.2 Service Quality Performance

The following tables show how SLHI performs in non-financial categories. These metrics are the service quality indicators (SQI's) filed with the OEB. The focus of these metrics is to ensure the level of service provided to customers is consistently at or better than the minimum benchmarks.

Table #6 – Non-financial Service Quality Indicators (2013-2016)

Service Quality Indicators	2013	2014	2015	2016	Min Standard
Connection of New Services					
Number of LV Services connected within five days (annually)	19	24	25		
Number of LV services requested (annually)	20	24	25		
Percentage of LV services connected within five days (annually)	95%	100%	100%		90%
number of HV services connected within ten days (annually)					
number of HV services requested (annually)					
Precentage of HV services connected within ten days (annually)	n/a	n/a	n/a		90%
Appointment Scheduling					
annual number of appointment requests Rec'd	132	112	130		
annual number of appointments scheduled and completed	132	110	130		
precentage of appointments scheduled and completed	100%	98%	100%		90%
Appointments Met					
annual number of appointments scheduled with customer Rep.	132	111	130		
annual number of appointments scheduled and completed	130	109	125		
precentage of appointments met	98.5%	98.2%	96.2%		90%
Telephone Accessability					
annual number of qualifying calls	6,042	4,779	4,543		
annual number of calls answered	6,023	4,777	4,465		
annual number of calls answered within 30 sec	59,557	4,779	4,372		
precentage of qualifying calls answered	100%	100%	98%		
precentage of qualifying calls answered within 30 sec	99%	100%	96%		65%
Rescheduling of Appointments Missed					
annual number of appointments missed	2	2	5		
annual number of appointments rescheduled and complete	2	2	5		
precentage of appointments rescheduled	100%	100%	100%		100%
Telephone Abandon Rate					
annual number of qualifying calls	6,042	4,779	4,543		
annual number of calls abandoned after 30 sec (rate)	19	2	78		
precentage of qualifying calls abandoned after 30 sec	0%	0%	2%		10% or less
Written Response To Enquiries					
annual number of qualifying enquiries	36	35	57		
annual number of written responses provided within 10 days	35	35	56		
precentage of written responses provided within 10 days	97%	100%	98%		90%
Emergency Response (Urban)					
annual number of emergency calls	2	1	29		
annual number of emergency calls responded to within 60 min	2	1	29		
precentage of emergency calls responded to within 60 min	100%	100%	100%		90%
Emergency Response (Rural)					
annual number of emergency calls	3	2	45		
annual number of emergency calls responded to within 120 min	3	2	45		
precentage of emergency calls responded to within 120 min	100%	100	100		90%
Reconnection Performance Standard					
annual number of reconnections for customers disconnected for non-payment	20	17	15		
annual number of reconnections completed within 2 business days	20	17	15		
precentage of reconnections completed within 2 business days	100%	100%	100%		85%
Micro Embedded Generation facilities					
annual number of micro generation facilities	0	1	1		
annual number of micro generation facilities for which service reliability was met	0	1	1		
precentage of micro generation facilities for which service reliability was met	100%	100%	100%		90%

- Impact on DSP

The data in this table demonstrate that SLHI meets and exceeds all of the benchmarks for these required customer service indices. As a result, there was no impact to the DSP. SLHI determined it would not be practical to reduce staff levels (and cost) and still meet the minimum benchmarks due to the already small staff size and the expectations from customers that SLHI offer customer service during typical business hours.

5.2.3.3 Reliability Indices

The asset and system performance is monitored primarily through the reliability indices. The performance of the system under normal and extreme conditions will generally be revealed through outages that result from asset failures.

The following table summarizes the interruptions to service.

Table #7 – Service Interruption Indices (2013-2016)

Service Interruption Indices	2013	2014	2015	2016
Including Loss of Supply				
System Average Interruption Duration Index (SAIDI) (hours annually)	4.73	6.18	11.22	25.28
System Average Interruption Frequency Index (SAIFI) (# per year)	1.28	3.69	2.36	5.18
Customer Average Interruption Duration (CAIDI) (hours)	3.70	-	-	
Excluding Loss of Supply				
Adjusted System Average Interruption Duration Index (SAIDI)	0.23	1.28	0.68	1.74
Adjusted System Average Interruption Frequency Index (SAIFI)	0.28	0.74	0.36	1.18
Adjusted Customer Average Interruption Duration Index (CAIDI)	0.81	-	-	

This data identifies that Loss of Supply from HONI is responsible for a significant amount of the service interruptions. Note that the CAIDI category was discontinued in by the OEB Yearbook in 2014, so those values are no longer tracked.

SLHI endured two summer storms in 2014 – one at the end of June, one in mid-July – that included high winds, causing a great deal of damage, including downed trees. These inclement weather episodes negatively affected SLHI's reliability statistics for the year, which can be seen in the SAIDI and SAIFI categories under "Excluding Loss of Supply" section. The spikes in these categories are direct results of the long unplanned outages caused by those storms.

For 2016 there was one major event outage that occurred in December as a result of tree contact due to high winds and heavy snow. Excluding the major event the SAIDI and SAIFI for 2016 are 0.67 and 0.57 respectively.

The subsequent tables demonstrate SLHI's system reliability performance in SAIDI, SAIFI, and CAIDI, as compared to the industry averages and comparable LDCs based on the OEB Yearbook of Electricity Distributors (2012, 2013, 2014, and 2015 Editions). While other tables in this DSP compare figures within the years specific to the historical period of the plan (2013-2016, excluding 2017, the bridge year), the figures for the comparable LDCs will not be made available by the time of filing this DSP, nor will the industry average figures, as these data all become available upon the release of the OEB Electricity Distributors Yearbook. For this reason, figures for 2012-2015 are presented in order to give a breadth of comparable figures in the absence of the 2016 data. Note that the CAIDI category was discontinued in by the OEB Yearbook in 2014, so those values are not present here. For each category, tables are present for the values both including and excluding loss of supply from HONI. (For details of comparator averages, see Appendix F.)

The aforementioned comparable LDCs include Atikokan Hydro, Fort Frances Power, Kenora Hydro, Chapleau Public Utilities, and Espanola Regional Hydro. They were selected as comparators based on customer base, geographic area location, and size of annual budgets. The pertinent data from the OEB Yearbooks was used to develop the values presented in this category in the tables below.

Table #8 – SLHI SAIDI vs. Industry Average (Including Loss of Supply)

	2012	2013	2014	2015
SLHI SAIDI	0.53	4.73	6.18	11.22
Industry Average	4.00	13.2	3.73	4.64
Comparable LDC Average	1.38	3.92	1.69	6.25

Table #9 – SLHI SAIFI vs. Industry Average (Including Loss of Supply)

	2012	2013	2014	2015
SLHI SAIFI	1.18	1.28	3.69	2.36
Industry Average	2.27	2.99	2.13	2.15
Comparable LDC Average	0.71	1.73	1.21	2.44

Table #10 – SLHI SAIDI vs. Industry Average (Excluding Loss of Supply)

	2012	2013	2014	2015
SLHI SAIDI	0.47	0.23	1.28	0.68
Industry Average	1.56	8.42	1.60	1.77
Comparable LDC Average	0.53	1.42	0.53	1.36

Table #11 – SLHI SAIFI vs. Industry Average (Excluding Loss of Supply)

	2012	2013	2014	2015
SLHI SAIFI	0.17	0.28	0.74	0.36
Industry Average	1.80	2.44	1.64	1.65
Comparable LDC Average	0.40	0.87	0.42	0.54

The numbers and causes of services outages to customers in the SLHI distribution system are demonstrated in Figures #18-21 below.

Figure #18 – SLHI Frequency by OEB Cause Code, 2014

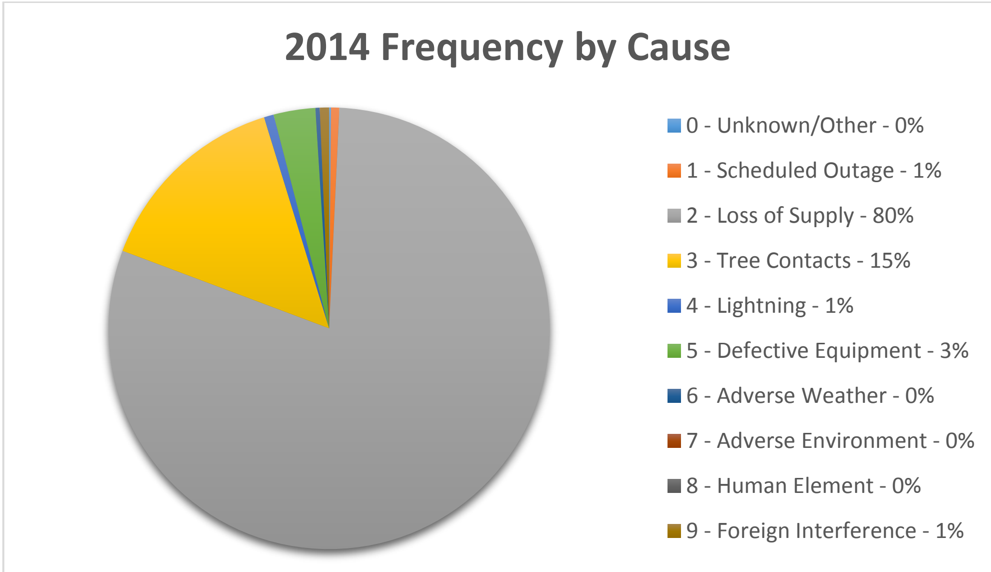
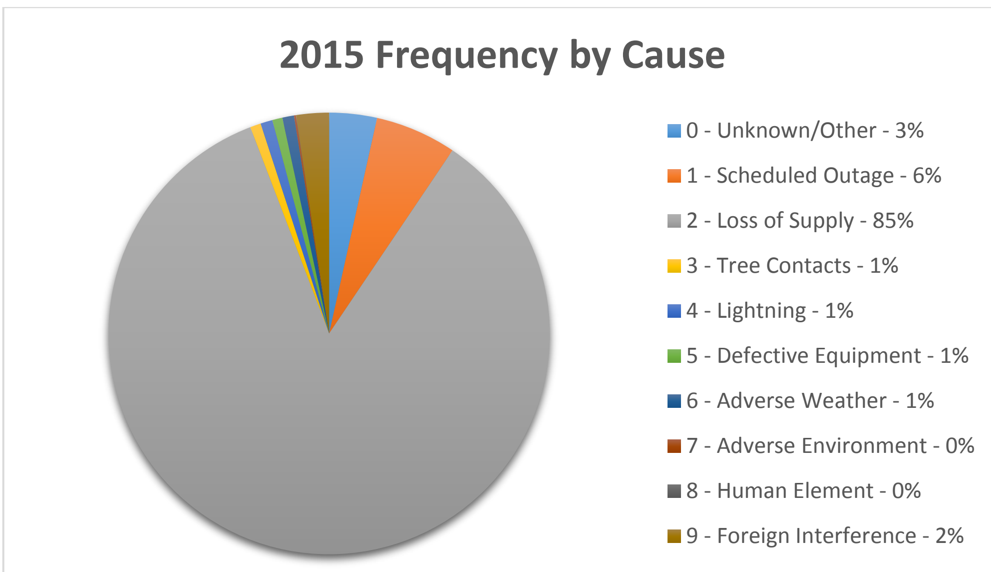


Figure #19 – SLHI Frequency by OEB Cause Code, 2015



The 2014 and 2015 Figures demonstrate that the majority of outages resulted from Loss of Supply from HONI. This, for the most part, is due to scheduled outages performed by Hydro One to complete maintenance and upgrades to the transmission line into Sioux Lookout which is a radial feed. In 2014, SLHI had 10,258 service interruptions to customers; 8,203 of these interruptions were due to Loss of Supply. Service in 2015 saw 6,586 customer interruptions, and 5,581 of them were from Loss of Supply.

To clarify the contributions of the interruptions that were not due to Loss of Supply, Figures were created that specifically exclude Loss of Supply.

Figure #20 – SLHI Frequency by OEB Cause Code, 2014 – Excluding LOS

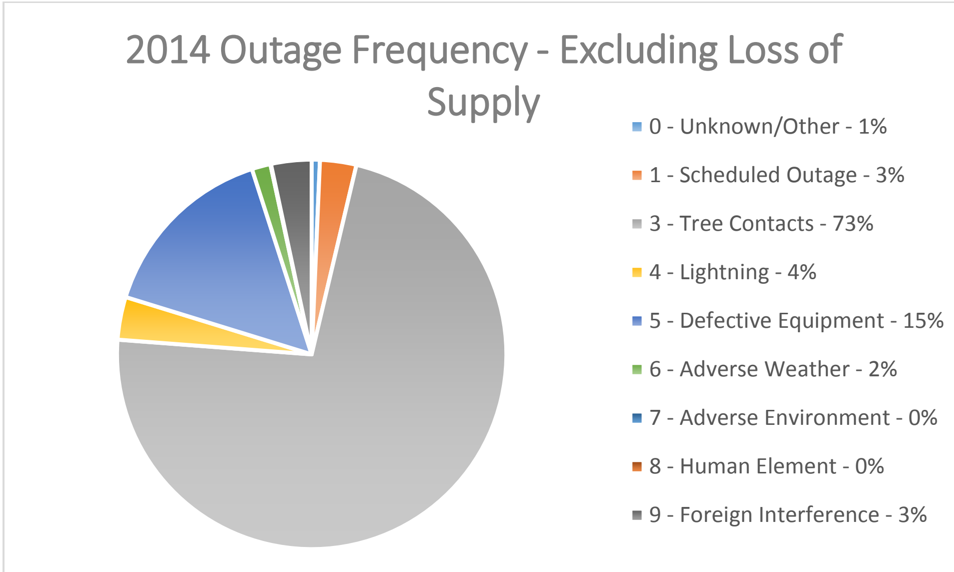
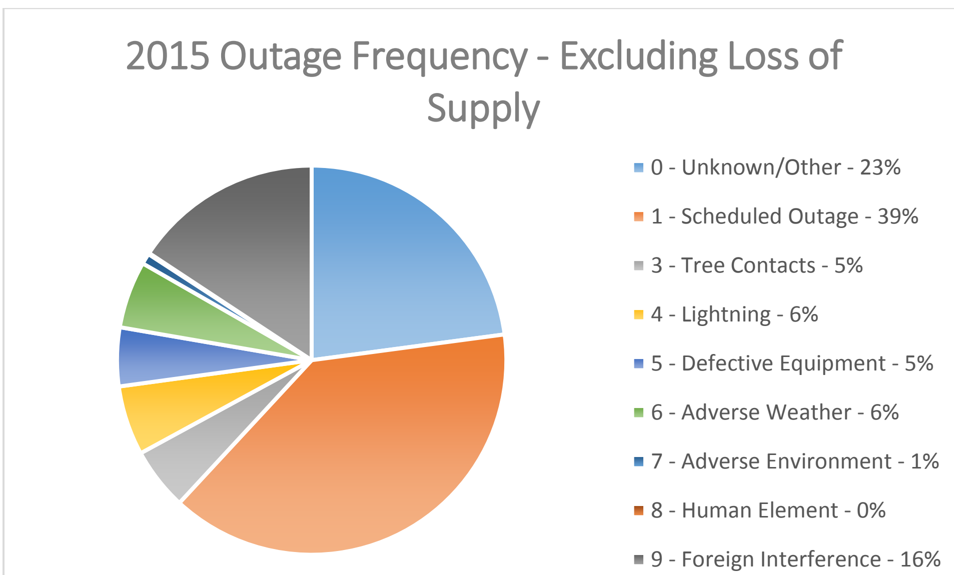


Figure #21 – SLHI Frequency by OEB Cause Code, 2015 – Excluding LOS



After Loss of Supply, the next-most significant cause of outages in 2014 was Tree Contact followed by Defective Equipment. The data from 2015 shows a distinct reduction in Tree Contact related outages and Defective Equipment outages. The main reason for these reductions is that there were fewer storms in 2015.

The following Figures highlight the duration of service outages to customers, in hours.

Figure #22 – SLHI Outage Duration (in hours) by OEB Cause Code, 2014

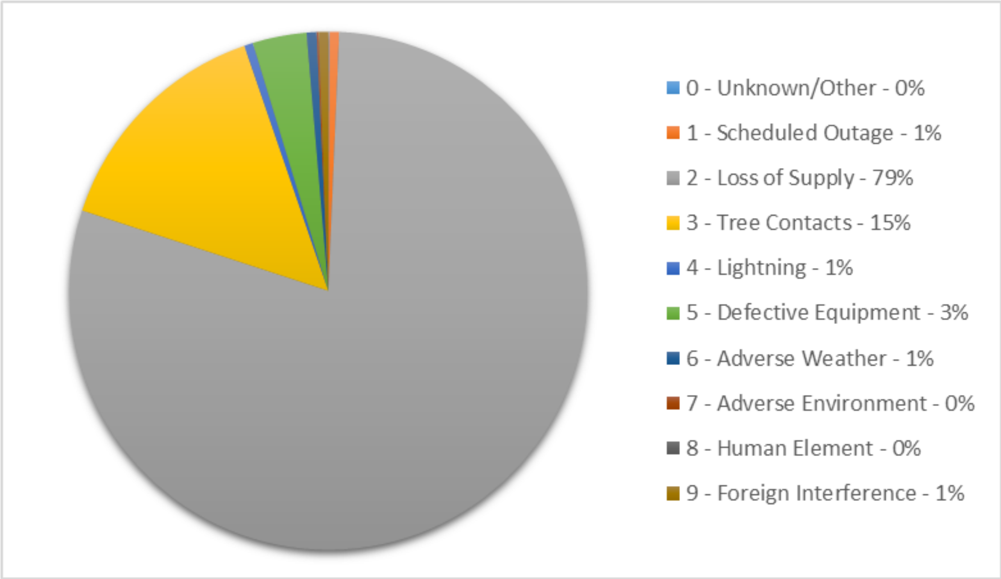
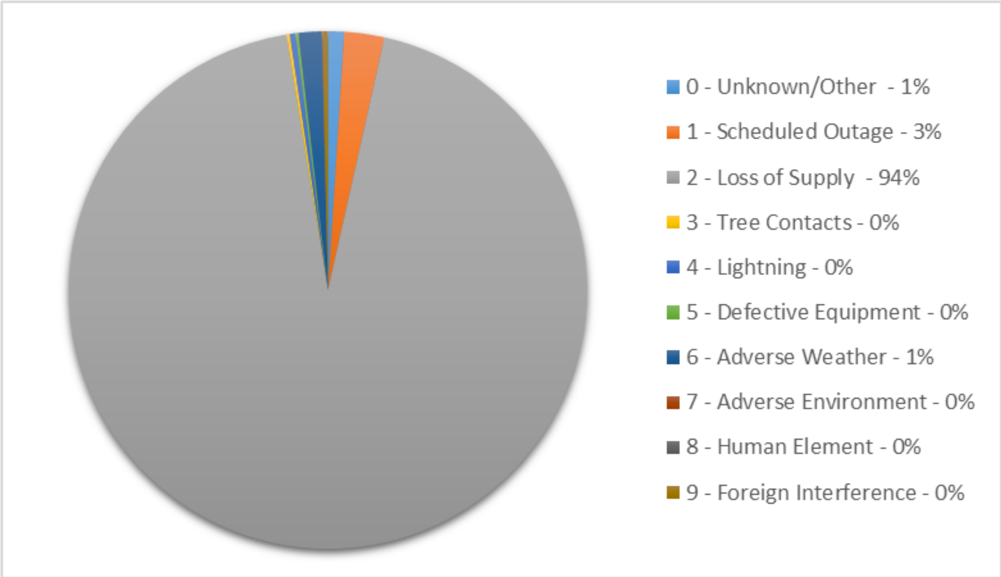


Figure #23 – SLHI Outage Duration (in hours) by OEB Cause Code, 2015



Loss of Supply is responsible for the majority of the outage hours to customers in 2014 and 2015. In 2014, the total customer interruption hours totaled 17,170, of which 13,624 were due to Loss of Supply. In 2015, SLHI customers experienced 31,254 interruption hours, which is a significant increase, yet Loss of Supply from HONI was responsible for 29,356 (94%) of those hours.

Similar to the outage frequency analysis, additional Figures have been created that exclude Loss of Supply to clarify the outage hours caused by aspects within the control of SLHI.

Figure #24 – SLHI Outage Duration (in hours) by OEB Cause Code, 2014 – Excluding LOS

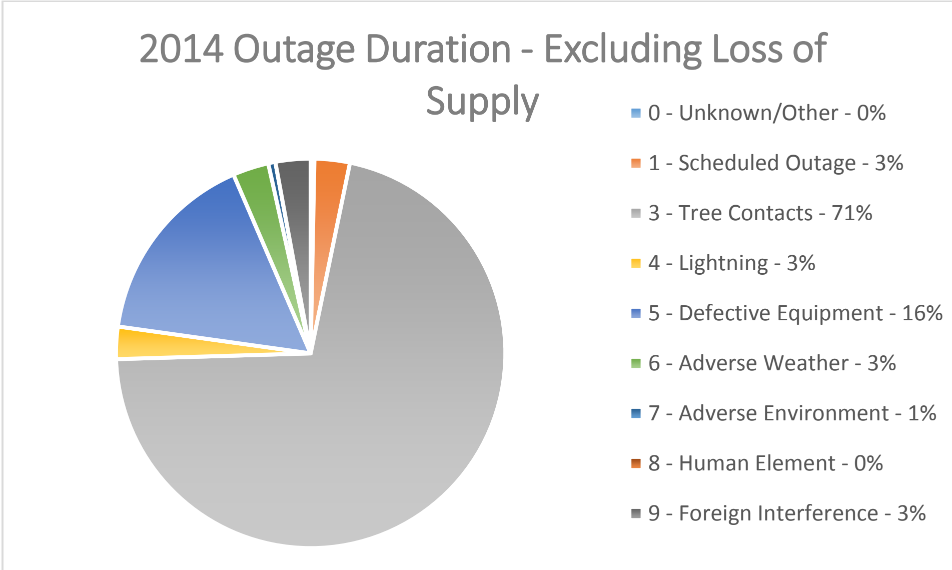
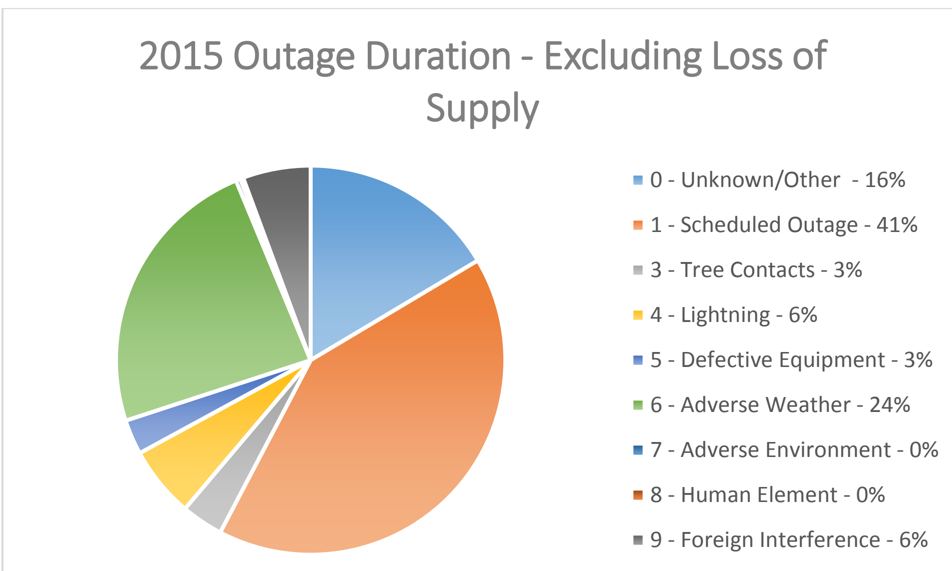


Figure #25 – SLHI Outage Duration (in hours) by OEB Cause Code, 2015 – Excluding LOS



Consistent with outage frequency, these Figures demonstrate that Tree Contact was a noteworthy issue in 2014, causing 2,527 interruption hours, but in 2015 only cause 66 interruption hours.

- Impact on DSP

Overall, SLHI has not identified any trends or specific outage causes that would warrant a change in the Asset Management Process or impact this DSP. There are no specific programs or projects that target reliability improvements. Continued emphasis on asset management and system renewal will ensure the reliability of the SLHI will remain consistent with previous years.

5.2.3.4 Financial Performance

SLHI's historical financial performance measures that impact customers and this DSP are summarized below.

Table #12 – Financial Metrics

	2011	2012	2013	2014	2015
Efficiency Assessment		3	3	3	3
Total Cost Per Customer	$742	$814	$802	$869	$818
Total Cost per km of Line	$7,219	$7,928	$7,845	$8,445	$8,273

The Efficiency Assessment is determined by third party consultant (PEG) who provide a ranking from 1 (best) to 5 (worst). An assessment of 3 is considered average with costs within +/- 10% of predicted.

The Total Cost per Customer is the sum of capital and operating costs divided by the number of customers.

The Total Cost per km of Line is the sum of capital and operating costs divided by the total km of line that is used to supply SLHI customers.

- Impact on DSP

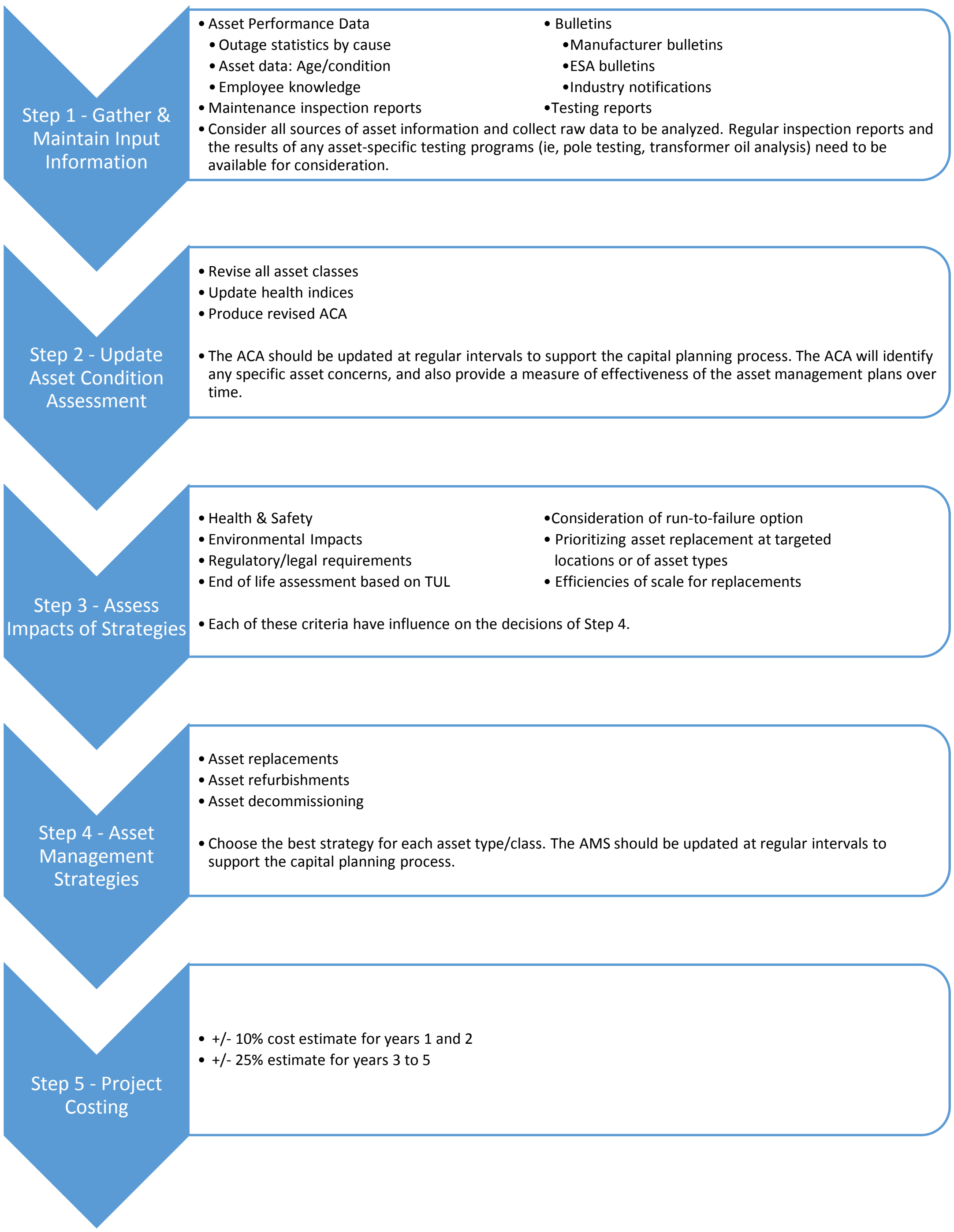
SLHI's performance in all three financial metrics has been very stable, with most of the variations due to one-time costs in some years. SLHI's goal for each of these metrics is to continue to be stable and show gradual improvements year over year. These metrics provide an overall spending envelope that encompasses all costs including the projects and programs identified within this DSP. These financial constraints provide SLHI with a top down approach that is balanced with the bottom up budgeting approach conducted through the AMP.

5.3 Asset Management Process

5.3.1 Asset Management Process Overview

SLHI's asset management process is demonstrated in the flowchart below.

Figure #26 – Asset Management Process



5.3.1.1 Asset Management Objectives

The objectives of this process are to:

- Gather accurate and comprehensive asset data;
- Provide thorough analysis of asset conditions;
- Assess the impacts and risks of the strategy;
- Create cost-effective asset refurbishment and replacement plans;
- Positively impact outage statistics; and
- Deliver safe and reliable service to customers, and optimal value to stakeholders.

5.3.1.2 Asset Management Components

The first step of the asset management process is gathering information from all pertinent and available sources. All of the data is compiled to create a comprehensive picture of the distribution system.

The second step feeds this data into the Asset Condition Assessment (ACA) and Asset Management Plan (AMP) reports. Previous versions of these documents, from preceding plan periods, are updated with the current asset knowledge. Any adjustments that need to be made, such as adding new assets or populations of assets, or removing asset counts, will be factored in to bring the reports up-to-date. The ACA will demonstrate the effectiveness of the actions within the previous planning period, and justify previous capital expenditures. The updated reports will provide the basis for the future capital projects.

The third step determines the priorities for the forecast portion of the plan period. The operational considerations include:

- Environmental concerns;
- Health and safety;
- Comparisons against typical useful life (TUL) measures;
- Legal and regulatory impacts;
- Asset locations;
- Regional planning and political ramifications;
- Run-to-failure options;
- Outage statistics; and
- Efficiencies to be gained by grouping asset replacement projects.

The fourth step includes the creation of a prioritized list of projects to be conducted within the planning period. These projects reflect the priorities of the utility and will be budgeted for within the capital spending envelop dictated by the top down budget provided by the CEO.

The fifth step is to create the capital expenditure projections by estimating the costs of each of the projects. These engineering estimates define costs at:

- +/- 10% for projects in the first two years of the plan (in this case, 2018-2019); and
- +/- 25% for projects in the latter three years of the plan (in this case, 2020-2022).

Moving between steps four and five may be necessary to ensure the total capital expenditure of the selected project list meets the budget constraints.

5.3.2 Overview of Assets Managed

5.3.2.1 Service Area

SLHI's distribution system covers a total of 536 square kilometers in the District of Kenora in Northwestern Ontario, serving the communities of Sioux Lookout and Hudson. The municipal population that the utility serves is 5,080 people. Most of this territory is rural. The area is riddled with lakes, and the distribution system crosses them to provide service to customers.

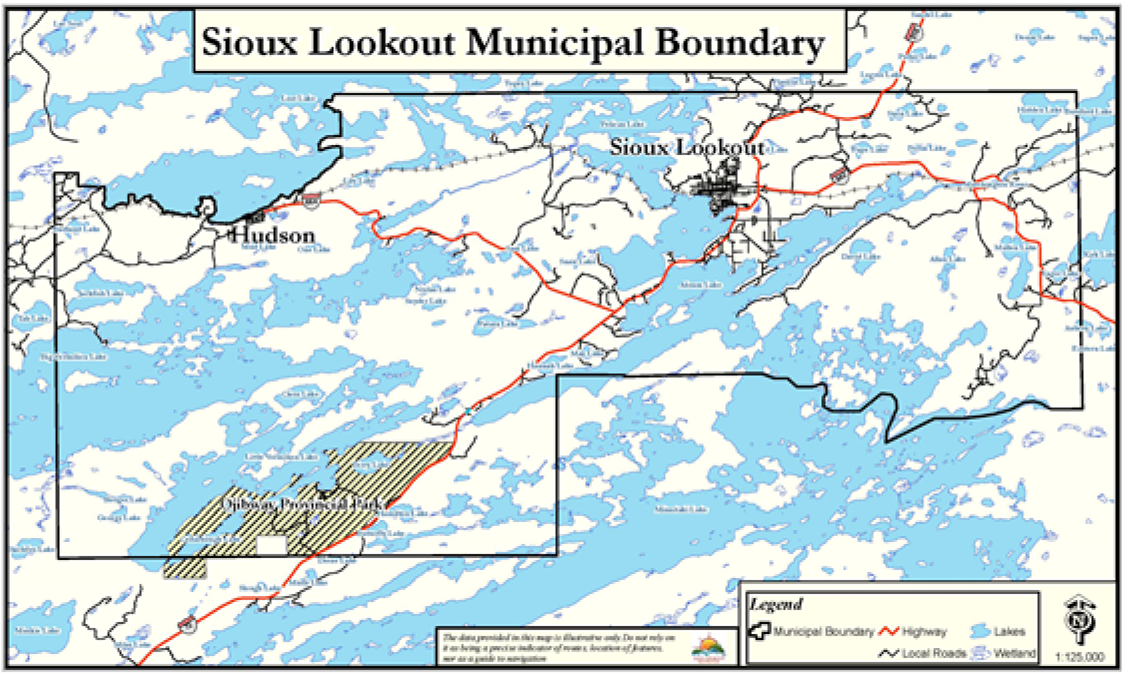


Figure #27 - Sioux Lookout Hydro Inc.'s Service Area

Derived from the Sioux Lookout Hydro Green Energy Act Plan, September 2012.

The population in this service territory is spread out over a large area, creating a very low population density.

The utility itself is based in the Municipality of Sioux Lookout. SLHI's service area is embedded within Hydro One territory; there are no LDCs embedded within SLHI's territory. There are currently 34 LTLT customers.

Sioux Lookout and Hudson endure a continental climate, which usually entails short, hot summers and long, cold winters. As with most LDCs in northern Ontario, SLHI is a winter-peaking utility, meaning that its highest load demands occur in the winter, due to the use of electric heat.

Table #13 – SLHI General Statistics as of June 2016

	2012	2013	2014	2015
Population Served	5,037	5037	5080	5,080
Municipal Population	5,037	5037	5080	5080
Seasonal Population				
Total Customers	2,755	2,767	2,779	2,779
Residential Customers	2,312	2,326	2,335	2,339
General Service <50 kW Customers	391	390	395	391
General Service >50 kW Customers	52	51	49	50
Total Service Area (km^2)	536	536	536	536
Rural Service Area (km^2)	530	530	530	530
Urban Service Area (km)	6	6	6	6
Total kWh Sold (Excluding Losses)	71,922,866	83,168,942	85,561,762	79,373,806
Total Distribution Losses (kWh)	3,739,756	4,592,139	3,481,779	3,711,607
Total kWh Purchased	75,662,622	87,761,081	89,582,951	83,393,450
Winter Peak (kW)	18,063	20,657	20,858	21,167
Summer Peak (kW)	12,044	14,659	13,582	10,244
Average Peak (kW)	12,301	14,192	13,951	13,827

5.3.2.2 System Configuration

SLHI does not own any transformer stations. SLHI's distribution system is supplied by the Hydro One Networks Inc. (HONI) -owned Sam Lake DS, and is made up of over 282 kilometers of primary conductor, including underground, overhead, and submarine cables. The system is predominantly overhead with 256km of overhead line and only 19km of underground. There are 882 distribution transformers, and 2,427 wood poles. The system was rebuilt in the 1980s and 1990s after the utility was established in 1940. Originally, Sioux Lookout Hydro was a Hydro Electric Commission; it incorporated in January 2000.

SLHI is fed by four feeders from the Sam Lake DS:

- Feeder 1 stretches west from the station to the town of Hudson, where most of the load on this feeder is created. Some additional load exists between the community and the station where small pockets of residences are found. This feeder also supplies a HONI transfer to Frenchman's Head, a small community across the lake from Hudson. Submarine cable is used for this load transfer. This is the most lightly loaded feeder currently in service.
- Feeder 2 extends south-east of the station to provide power for the southern half of Sioux Lookout, including the south shore of Abram Lake. The blue phase of this feeder branches south into rural areas on Highway 72. This section consists of a large number of single-phase 25 kVA and 50 kVA transformers. These transformers are lightly loaded. The phase balancing and conductor loading are within acceptable levels. This feeder makes up approximately 38% of the system load.
- Feeder 3 travels east of the station to supply the northern part of Sioux Lookout. This stretch includes most of the heavier loads in the municipality, including the airport and hospital. The blue phase of this feeder continues east of the town to supply a rural area on Highway 642, and

a load transfer for HONI. The phase loading on Feeder 3 represents the majority of the entire load at approximately 68%.

- Feeder 4 does not currently carry any load. It had previously been a dedicated feeder for the Hudson Saw Mill. Upon the mill's closure, the load was removed.

The low population density throughout most of SLHI's distribution system does not allow for effective switching of loads between all three active feeders. F2 and F3 are interconnected in the southern half of the community of Sioux Lookout. This provides switching between feeders in the more densely populated community. In the rural areas, where only a single-phase is required to supply long stretches of light load, it is not practical or cost-effective, at this time, to provide switching between feeders. There is more information on SLHI's feeders in section 5.3.2.4.

5.3.2.3 Asset Type

Maintaining a healthy asset base is crucial to the DSP. SLHI conducted an Asset Condition Assessment (ACA) in 2015, and completed an Asset Management Plan (AMP) in 2016. The purpose of the ACA is to establish an understanding of the health of each of the assets in the system; the AMP is then written to initiate a plan for caring for those assets, extracting the maximum useful life from them, and spending money wisely in maintaining and replacing them.

One asset that will be beneficial to the knowledge surrounding the other assets is the geographic information system (GIS), in which SLHI has plans to invest. The GIS will aide in gathering more comprehensive, thorough, and consistent data about each of the assets in the distribution system, and therefore, subsequent ACAs and AMPs will have more precise asset information. (The SLHI ACA and AMP can be found in Appendix A.)

As of the ACA in 2015, the assets in the SLHI distribution system and their assessed condition are as follows:

Table #14 – SLHI System Summary Overview (As of 2015) Assets included in Assessment

Asset Group	Asset Condition					Total Population	EOL within 10 years Units (%)
	Very Good	Good	Fair	Poor	Very Poor		
Distribution Poles	762	638	384	395	248	2427	42.3%
Secondary Poles	85	21	70	29	72	277	61.7%
Guy Poles	8	0	0	3	1	13	30.7%
Pole mount Transformers	331	161	141	121	36	785	36.8%
Pad mount Transformers	65	21	5	4	23	97	32.9%
Switches – 1 Phase Air Break	24	0	0	0	0	24	0%
Primary U/G Cables (m)	11,672	772	518	138	584	13,684	9%
Primary Submarine Cables (m)	2,840	201	2400	460	0	6,201	46.1%
Line Reclosers	2	0	2	0	0	4	50%

5.3.2.4 Asset Capacity

In terms of capacity, SLHI is limited to the capacity of the Sam Lake DS, which is owned by HONI.

There are four feeders supplying SLHI with power from the DS. Feeder F4 was originally installed to supply a single industrial customer which is no longer in service. This feeder is not currently loaded but could be returned to service if the customer resumes operation or the feeder is needed to supply other loads. However, the capacity of the three feeders in operation is 805 A. The peak loading of the three feeders is 530 A, which demonstrates that there is available capacity on the feeders for increased demand. Therefore, there are no plans in the near future to add capacity to the SLHI distribution system.

Table #15 below shows each feeder and its peak loading, compared to its total capacity. It also highlights that February is the month that sees peak loading; this is common among utilities in northern Ontario, due to the use of electrical heat.

Table #15 – Feeder Capacity vs. Peak Loading

Feeder	**Peak (A)**	**Month**	**Capacity (A)**
F1	80	February	140
F2	125	February	280
F3	325	February	385
F4	N/A	N/A	N/A

Table #16 below demonstrates the loading on each of the feeders supplying SLHI's distribution system from the Sam Lake DS.

Table #16 – SLHI Installed kVA by Phase by Feeder

Phase	F1	F2	F3	F4	Total
Blue	1,160	5,175	5,299	0	11,634
Red	570	4,425	3,006	0	8,301
White	310	4,509.5	4,203	0	9,022.5
Red/White/Blue	300	2,735	28,245	0	31,280
Total	2,640	16,844.5	40,753	0	60,237.5
% Total	4.38	27.96	67.65	0	100

Figures #28 and #29 further demonstrate the feeder loading.

Figure #28 – SLHI Installed kVA by Phase by Feeder

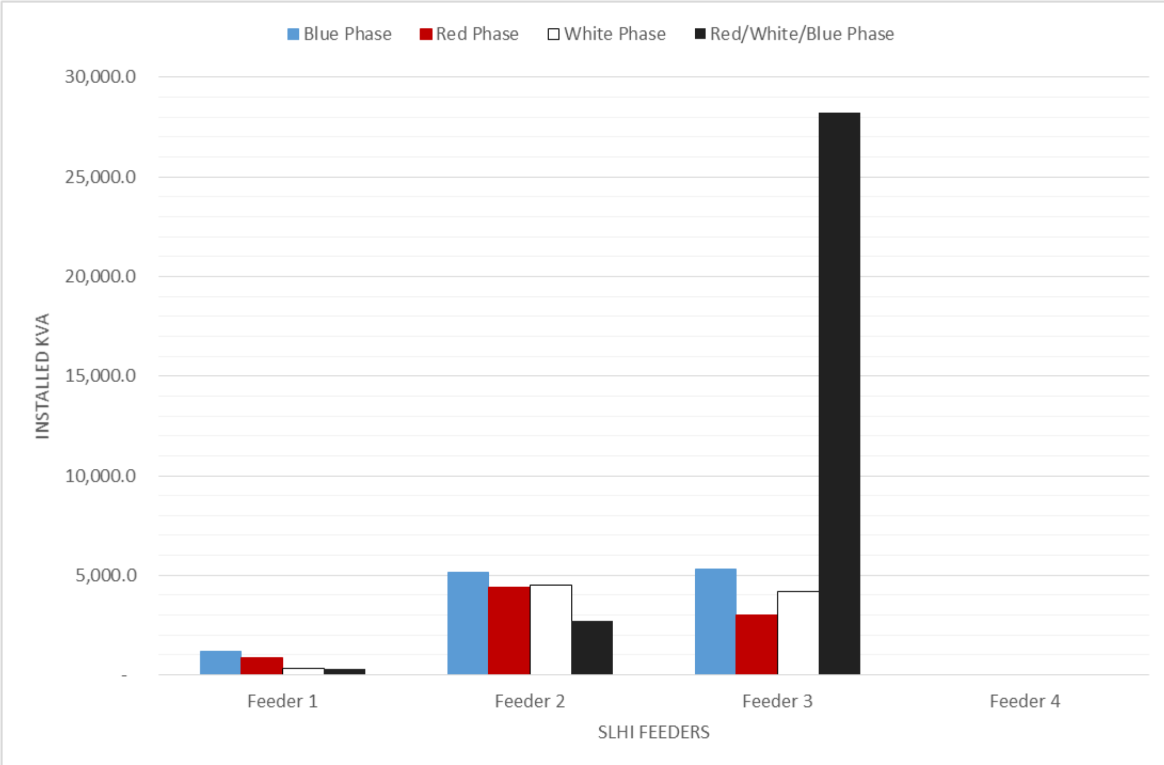
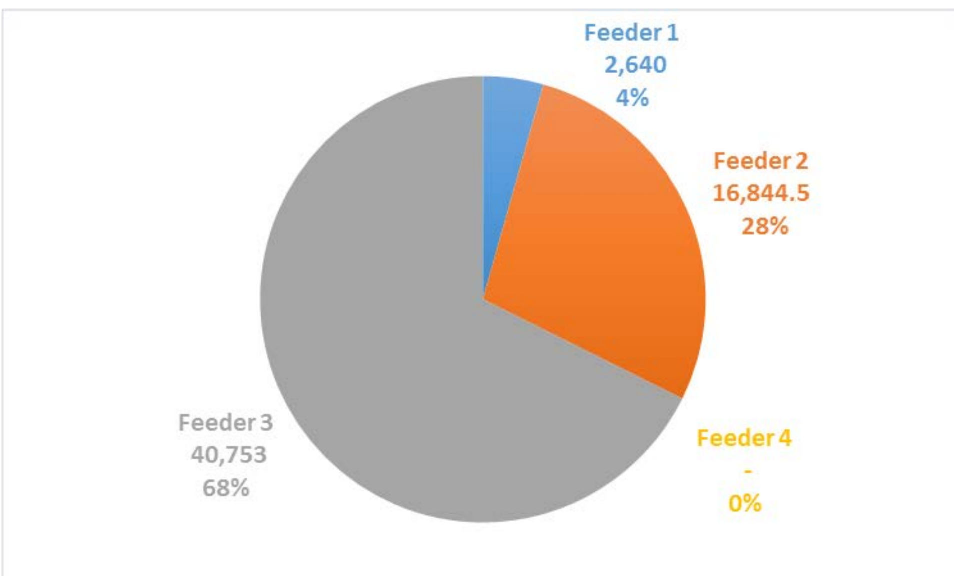


Figure #29 – Connected Transformation (kVA) by Feeder by Percentages of Total



5.3.3 Asset Lifecycle Optimization Policies and Practices

5.3.3.1 Overview

SLHI manages its assets by initiating replacements and refurbishments proactively, rather than on an as-needed basis[3]. The Asset Condition Assessment (ACA), along with its health indices, allows the utility to know in advance when assets are at risk, and need attention. The added information from the new GIS will increase the asset knowledge, and improve SLHI's ability to proactively provide asset maintenance.

The asset health indices that have been applied through the ACA and Asset Management Plan (AMP) provide quantifiers that point to asset health. The most vulnerable assets, evaluated as "Very Poor", are considered to be at the end of their useful life, and need immediate attention. When the utility can apply a comprehensive health index, it can isolate exactly which assets need replacing or refurbishing in a holistic way, meaning that it can provide attention to assets in a grouped and efficient manner. For example, instead of replacing several wood poles, and then a few months later replacing cross arms on those same poles, with the proper knowledge ahead of time, the replacement projects can be grouped together, saving time and money. Targeting multiple assets in a small service area reduces costs.

Asset age is one of the most important factors in assessing the asset health. The more information available about each asset, the more accurate the assessment will be. Other trends such as historical faulting, material composition, climate and weather, and wildlife issues are also considered in the asset assessment. The goal is to maximize the useful life of each asset, in a reasonable and practical way, while replacing assets when necessary, keeping safety and reliability as top priorities.

The distribution system has been assessed according to the four feeders that service the area. While one of these feeders is not currently in service, the other three carry the entire load of both communities of Sioux Lookout and Hudson, as they are supplied by the HONI-owned Sam Lake DS. The implementation of the new GIS will provide improved asset knowledge, which will help the utility maintain the distribution system more effectively and efficiently. Testing programs also assist in developing the utility's asset knowledge. For more information on distribution system inspection, see the SLHI Maintenance Inspection Program (Appendix C of the AMP, found in DSP Appendix A).

5.3.3.2 Asset Replacement/Refurbishment Prioritization

The process of prioritizing the replacement and refurbishment of assets involves analyzing the risks of failure. A failed asset may cause safety and service reliability concerns. Since employee and public safety are the utility's first priority, and service reliability is a close second, it is in SLHI's best interest to avoid allowing assets to fail in service. Upon asset inspection, a priority matrix is applied to determine the timeliness of asset replacement or refurbishment. The priority matrix is as follows:

- 1: Requires immediate attention
- 2: Replace/refurbish within the week
- 3: Replace/refurbish within three months
- 4: Replace/refurbish within the year
- 5: Replace/refurbish after one year, in accordance with the Asset Management Plan

[3] Replacing assets "as needed" is often referred to as "run to failure". SLHI's approach to asset management is to inspect and assess the condition of all assets on a regular basis, then schedule a replacement or refurbishment before the asset fails. The only asset class that is technically "run to failure" is secondary service conductor – these are repaired when they fail, or replaced if multiple failures occur in the same section.

5.3.3.3 Asset Refurbishment Summary

Some assets are conducive to refurbishment as a way to prolong their useful life. In many cases, refurbishing assets rather than replacing them can save the utility money. However, there are some assets that are not conducive to refurbishment, and in those cases, replacement is the best option for the utility. It is important that SLHI to discern which assets should be refurbished and which should be replaced. The following table demonstrates which assets SLHI has deemed appropriate for refurbishment.

Table #17 – Asset Refurbishment Summary Table

<table>
<tr><th></th><th colspan="3">Asset Details</th><th>Conducive to Refurbish</th></tr>
<tr><th>Category</th><th>Asset #</th><th colspan="2">Asset Type</th><th>Yes/No</th></tr>
<tr><td rowspan="12">Overhead</td><td>1</td><td colspan="2">Distribution Poles (Wood)</td><td>No</td></tr>
<tr><td>2</td><td colspan="2">Secondary Poles (Wood)</td><td>No</td></tr>
<tr><td>3</td><td colspan="2">Guy Poles (Wood)</td><td>No</td></tr>
<tr><td>4</td><td colspan="2">Cross Arms</td><td>No</td></tr>
<tr><td>5</td><td colspan="2">Pole Mounted Transformers</td><td>No</td></tr>
<tr><td>6</td><td colspan="2">Switches – 3Ph load break</td><td>Yes</td></tr>
<tr><td>7</td><td colspan="2">Switches – 3Ph air break</td><td>No</td></tr>
<tr><td>8</td><td colspan="2">Switches – Fused</td><td>No</td></tr>
<tr><td>9</td><td colspan="2">Switches – Inline</td><td>No</td></tr>
<tr><td>10</td><td colspan="2">Switches – Switching Cubicles</td><td>No</td></tr>
<tr><td>11</td><td colspan="2">Protective Line Relays</td><td>No</td></tr>
<tr><td>12</td><td colspan="2">Line Circuit Breakers/Reclosers</td><td>No</td></tr>
<tr><td rowspan="3">Underground</td><td>13</td><td colspan="2">Pad Mounted Transformers</td><td>No</td></tr>
<tr><td>14</td><td colspan="2">Primary Underground Cables</td><td>Yes[4]</td></tr>
<tr><td>15</td><td colspan="2">Primary Submarine Cables</td><td>Yes</td></tr>
<tr><td rowspan="10">General Plant</td><td>16</td><td colspan="2">Office Building/Garage</td><td>Yes</td></tr>
<tr><td>17</td><td colspan="2">Computer Hardware/Software</td><td>No</td></tr>
<tr><td rowspan="2">18</td><td rowspan="2">Vehicles</td><td>Trucks</td><td>Yes</td></tr>
<tr><td>Trailers</td><td>Yes</td></tr>
<tr><td>19</td><td colspan="2">Meters</td><td>No</td></tr>
<tr><td>20</td><td colspan="2">Backup Generators</td><td>Yes</td></tr>
<tr><td>21</td><td colspan="2">Office Equipment/Furniture</td><td>No</td></tr>
<tr><td>22</td><td colspan="2">Test/Measurement Equipment</td><td>No</td></tr>
<tr><td>23</td><td colspan="2">Garage Equipment/Tools</td><td>Yes</td></tr>
<tr><td>24</td><td colspan="2"></td><td></td></tr>
</table>

Any individual assets that have been refurbished will likely not be refurbished a second time; a refurbished asset that is nearing the end of its useful life, or approaching failure, should be replaced. Rarely is it found effective to refurbish an asset again.

[4] Silicone cable injection is considered on a case by case basis to extend the life of the cable, and compared with the cost of replacing the cable.

5.3.3.4 Distribution Class Asset Optimization Policies and Practices

Due to the extensive wilderness area covered by SLHI lines, tree trimming is consistently one of the largest costs associated with maintaining system reliability. As part of the regular maintenance plan for the conductor assets, SLHI schedules regular tree-trimming activities, as described below.

Vegetation and Right of Way control is a requirement under the Minimum Inspection Requirements of the DSC and good utility practice. SLHI distribution area includes some tourist areas and therefore can be sensitive to tree trimming activities. SLHI has a relatively heavy mature tree cover where overhead hydro lines are in proximity to trees. Tree contact with energized lines can cause the following:

- Interruption of power due to short circuit to ground or between phases;
- Damage to conductors, hardware, and poles;
- Danger to persons and property within the vicinity due to falling conductors, hardware, poles, and trees; and
- Danger of electric shock potential from electricity energizing vegetation.

Care must be taken to balance the requirements of customers and stakeholders, and the safe and reliable operation of the distribution system. In general, the three-phase circuit sections require higher reliability and are therefore trimmed on a more frequent basis than the single-phase circuit sections.

Tree trimming inspections have been incorporated into the other inspection programs included in this plan, and additional checks will be performed by work crews in the areas in which regular work is performed.

SLHI performs line clearing in accordance with the SLHI Line Clearing Program. Maintenance work orders are issued as a result of field observations and inspections. All work is scheduled accordingly.

To mitigate direct contact between trees and distribution assets, SLHI conducts tree trimming in accordance with the SLHI Procedures. Depending on the size, shape, and growth aspect of each tree species, the tree trimmers (SLHI employees) remove sufficient material from the tree to limit the possibility of contact during high wind situations.

All debris is removed and the site is returned to as-found condition. Any pole line damage or anomaly noticed by the tree trimming crew is reported to the Operation Manager of SLHI for remedial action.

5.3.3.5 General Plant Asset Optimization Policies and Practices

The decision to refurbish or replace general plant assets is usually based on cost. Larger vehicles and equipment are refurbished and repaired whenever possible; only when they require extensive or costly repairs are they replaced. Activities like re-paving parking lots and repairing building roofs are considered refurbishments, and happen when necessary.

Smaller, less costly tools and hardware items are used until their end of life and then replaced.

5.3.3.6 Asset Lifecycle Risk Management

The timing of replacing or refurbishing an asset is determined in relation to safety concerns in most cases. There are many assets that can remain in service until the end of their useful life, but when a failure raises a safety concern for the general public and/or utility employees, its maintenance is scheduled in anticipation of the failure. Poles, for example, can pose safety risks when they are in danger of falling, so poles are replaced in a pre-emptive manner, so to prevent accidents.

Comprehensive asset health knowledge is key to mitigating the risks associated with asset lifecycles. SLHI conducts asset tests (like pole testing), has programs implemented (like the tree trimming program), and uses technology (like the GIS) to alleviate the risks of failed assets.

5.4 Capital Expenditure Plan

5.4.1 Summary

This DSP has been generated out of the Asset Condition Assessment (ACA) and the Asset Management Plan (AMP), along with the utility's historical capital expenditures and the capital expenditure forecast for the plan period (2018-2022). The goal of coordinating these resources is to produce a comprehensive and strategic plan for the utility to deliver the best possible service to its customer base, in accordance with the OEB's renewed regulatory framework.

SLHI has considered its financial performance measures, outage statistics and service quality indicators, customer satisfaction, and regulatory requirements in formulating this plan. Continued attention to these factors, in conjunction with thorough asset health knowledge and asset management strategies (like implementing a new GIS for optimal asset knowledge), will help the utility to improve its quality of service supplied to customers. SLHI is responsible to ratepayers to deliver safe and reliable service while being financially conscious. The capital expenditure plans are derived from a comprehensive knowledge of the asset base and the remaining useful life of each asset in the distribution system; they demonstrate the priorities of the utility in maintaining the distribution system.

Highlighted within the capital expenditure forecast for the future portion of the plan period are the capital projects that meet the annual materiality threshold of $50,000 within any given year. These projects are considered noteworthy, as they represent significant percentages of each annual budget. The total capital allocated to each project is identified in Table #18. As with every activity in the capital plans, these projects are each associated with one of the four investment categories (System Access, System Renewal, System Service, and General Plant), and therefore are linked to the priorities and objectives of their respective investment categories. (The objectives of each investment category are highlighted within section 5.4.2.1.) The capital projects meeting the materiality threshold are shown in Table #18 below.

Table #18 – Capital Projects Meeting the Materiality Threshold

Capital Project	Investment Category	Total Capital Expenditure Over the Plan Period ($)
Truck Replacements	General Plant	750,000
Planned Primary Pole Replacements	System Renewal	474,895
New Connections	System Access	310,996
Planned U/G Cable Replacement	System Renewal	62,560

Table #19 below demonstrates how each of these material projects add up over the plan period to total the amounts shown in Table #18 above.

Table #19 – Annual Capital Expenditures for Material Projects (2018-2022)

			Forecast Years				
Investment Category	**Project**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
System Access	New Connections	60,000	61,080	62,179	63,299	64,438	310,996
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398	474,895
System Renewal	Planned U/G Cable Replacement		62,560				62,560
General Plant	Vehicle Replacement	355,000	60,000	300,000	35,000		750,000

The following discussion provides a detailed description of each of these projects, justifying the capital allocations throughout the forecast period.

Below in Table #20 is the utility's overall capital expenditure forecast, showing how these material projects are more significant line items than others not highlighted in the material projects discussion.

Table #20 – SLHI Forecasted Capital Expenditures (2018-2022)

			Forecast Years			
Investment Category	Project	2018	2019	2020	2021	2022
System Access	New Connections	60,000	61,080	62,179	63,299	64,438
	General Upgrades	40,000	40,720	41,453	42,199	42,959
Total:		100,000	101,800	103,632	105,498	107,397
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398
	Planned Secondary Pole Replacements	20,360				
	Unplanned Pole Replacements	18,324	18,654	18,990	19,331	19,679
	Polemount Transformer Replacements	24,025	24,457	24,897	25,346	25,802
	Planned U/G Cable Replacement		62,560			
	Meter Reverifications - New Meters		21,515			
Total:		154,329	220,456	138,836	141,335	143,879
System Service						
Total:		-	-	-	-	-
General Plant	Vehicle Replacement	355,000	60,000	300,000	35,000	
	Office Computer hardware	2,000	2,000	2,000	2,000	2,000
	Office Equipment	2,000	2,000	8,000	2,000	2,000
	General Small Tools	5,000	5,000	5,000	5,000	5,000
	Warehouse - foundation repair		10,000			
Total:		364,000	79,000	315,000	44,000	9,000
Total:		618,329	401,256	557,468	290,833	260,276

1. **Truck Replacement**

As part of SLHI's general plant assets, it owns various vehicles, including backhoes, trucks, diggers, and so on. These vehicles are used for servicing the distribution assets and keeping the distribution system in operation. Because some of these vehicles are very costly, this activity meets the materiality threshold in certain years; planning the purchase of one of these trucks is a major line item within the utility's capital expenditure plan. These vehicles are refurbished and maintained, just as the other distribution assets are, in order to extract the maximum useful life from them. Eventually, they do need to be replaced. (SLHI's general plant truck fleet listing is in Appendix H.)

As general plant assets, trucks and vehicles are important to maintaining the operation of the distribution system assets. Utility staff refurbish, repair, and replace distribution assets with the help of the general plant vehicles. The trucks are also used to respond to emergencies. These vehicles need to be in good working condition in order to properly, and safely, help the utility to provide reliable service to the customers. The capital expenditures for the forecasted years of this plan include replacing a 2001 freightliner truck in 2018, a 2008 Ford 1 ton truck in 2019, a 2013 Altec bucket truck in 2020, and a 2010 Chevrolet ½ ton truck in 2021. In 2021, this line item does not meet the materiality threshold, but is noteworthy because the threshold is met in the preceding years. There is no budgeted vehicle purchase in 2022.

2. Planned Primary Pole Replacements

Replacing primary distribution poles is a significant system renewal project for the utility. The primary poles support the distribution equipment that provides service to the customers. All of SLHI's primary poles are wood, and wood poles are subject to rot and decay, animal and pest interference, and deterioration due to the elements. It is important for the safety of the general public and utility staff that poles are replaced before they pose risk of falling down. Additionally, any pole health issues that threaten the maintenance of the equipment they uphold threaten the reliability of the distribution service. A falling pole can cause disturbance in the form of power outage.

The utility has allocated capital in each year of the plan period to replace poles in a proactive manner. The recent Asset Condition Assessment (ACA) demonstrates that 248 primary poles are at their end of life, and another 395 will reach their end of life within the coming five years. SLHI's capital plan shows that in 2017, it will more than double its expenditures on replacing these poles, which reflects a more aggressive approach. The poles rated "Poor" and "Very Poor" in the ACA will need attention in this plan period. (The ACA can be found in Appendix B of the AMP, found in DSP Appendix A.)

3. New Connections

Utilities are required to provide service to new customers in their service territories. Residential subdivisions usually have underground cables and pad mount transformers installed to provide service. New development is what drives the design and installation of the assets required for this activity. Despite SLHI's customer growth remaining very stable over the past years, the capital expenditures in the historical period of this plan demonstrate that a significant amount of capital must be allocated to the new connections category. This amount is consistent over the forecasted years of the plan.

4. Planned U/G Cable Replacement

Primary underground cables are an essential component of the distribution system and failures tend to be more challenging to locate, isolate, and repair which can lead to lengthy outages to customers. In 2016, SLHI used the services of Energy Ottawa to conduct testing on seven cables that the ACA had identified as near end of life (based on age) and critical in terms of delivering reliable service. The submarine cable tests indicated they were in "Good" condition while the cables that supply the Birchwood Crescent and Atwood Street areas were in "Fair" condition. To avoid outages associated with cable failures, the sections that were in found to be in "Fair" condition (441 metres) have been scheduled for replacement in 2019.

Additional Projects:

There are some projects in SLHI's capital expenditure plans for the forecast period that do not meet the materiality threshold, but are significant enough that they warrant explanation.

- **Meter Reverifications – New Meters**

Meter reverifications, and the purchase of new meters for the process, has been allotted $21,515 in 2019. This project falls under the system renewal category, as it allows the utility to provide continuous service to customers.

The smart meters used by SLHI were installed as mandated by the provincial government, replacing the electromechanical billing meters. These new meters use Advanced Meter Infrastructure ("AMI") two-way communication system. The Electricity and Gas Inspection Act, which is enforced by Measurement Canada, requires that meters are re-verified in order to ensure they meet accuracy and operational standards. Meters installed as part of the provincial government's mandate come due for re-verification in 2019, and thus, will need to be accounted for in the asset management and capital expenditure plans of this plan period.

SLHI has allotted capital to plan for the purchasing of new meters in order for the existing meters to be evaluated and resealed within the plan period. SLHI plans to begin sample testing it's R2S meters in 2017 in order to obtain seal extensions for the majority of its meters. This will require that SLHI purchase an inventory of smart meters to facilitate the meter removal/replacement plans for the sampling program. Pre-sampling will be utilized in order to increase confidence levels when determining the seal extension period applied for in the final testing performed by Measurement Canada. Given that most of the smart meters were installed around the same time, as mandated by the province, the number of meters to be verified will be significant. Sampling will allow SLHI to reduce costs by eliminating the need to re-verify all 2,600 of the R2S meters and thereby reducing costs. SLHI's commercial meters will be re-verified in 2019 as the number of meters is small. This will be done in small groups to eliminate the need to purchase all new meters and will be re-verified on a rotating schedule.

- **Mapping Software Conversions**

SLHI plans to convert its current mapping software from AutoCAD to ESRI in 2017, to address some issues with technical support and functionality limitations. ESRI will be more compatible with other add-ons we are contemplating for the future, such as Work Force Management, outage management etc. The Municipality also uses ESRI which should streamline data exchange and could reduce costs by sharing resources.

- **Polemount Transformer Replacements**

Polemount transformer replacements are scheduled for every year of the forecasted plan period, with a steady amount of $24,000 per year, adjusting for inflation for a total of $124,527 in the plan. This allows for the replacement of twenty polemount transformers over the life of the plan.

These transformers step the voltage down from the primary distribution level to the secondary utilization level. They are mounted above ground on poles, and are filled with liquid mineral oil, which is sealed in a tank inside the transformer. The industry expected useful life for these assets is 40 years.

SLHI's asset management strategy for polemount transformers is to run them to failure[5], and then replace them.

- **General Upgrades**

Each year, SLHI replaces computers, office equipment, and small tools as they become obsolete or wear out. These are typically replaced as needed due to their limited quantities. Buildings are inspected on a regular basis and upgrades / major repairs are planned to address deficiencies.

5.4.1.1 System Capability to Connect New Load

Table #21 below identifies the current system capacities and peak loading for each of the feeders in SLHI's distribution system.

Table #21 – Capacity vs. Load Demand

Feeder	Peak (A)	Month	Capacity (A)
F1	80	February	140
F2	125	February	280
F3	325	February	385
F4	N/A	N/A	N/A

As mentioned before in section 5.2.3.4 on asset capacity, this table shows that there is available capacity remaining on each of the three feeders in service. The capacity of F4, which is not currently loaded, is unknown but could be used in the future if needed. There is, however, room to connect new load to the feeders that supply SLHI's distribution system from the HONI-owned Sam Lake DS. The total capacity of the three in-use feeders is 805 A; the peak loading on these feeders is 530 A, leaving 275 A of unused capacity even when the feeders are reaching their peak loading in February of each year. Consistent with other northern Ontario utilities, SLHI sees its peak loading in the coldest of the winter months, as natural gas is not available in the area therefore most homes make use of electrical heat.

5.4.1.2 Total Annual Capital Expenditures

Table #22 below shows the capital expenditures for the forecast period of the plan, broken into the four investment categories, along with each category's totals. Table #3

Table #22 – Total Capital Expenditures by Investment Category

	Forecast Years					
Investment Category	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
System Access	100,000	101,800	103,632	105,498	107,397	518,327
System Renewal	154,329	220,456	138,836	141,335	143,879	798,835
System Service	-	-	-	-	-	-
General Plant	364,000	79,000	315,000	44,000	9,000	811,000
Total:	618,329	401,256	557,468	290,833	260,276	**2,128,162**

[5] "Run to failure" includes replacing units identified as in very poor or damaged condition during regular inspections or line patrols after outages.

Table #23 – Total Capital Expenditures by Investment Category in Percentages

	Forecast Years					
Investment Category	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
System Access	16.17%	25.37%	18.59%	36.27%	41.26%	24.36%
System Renewal	24.96%	54.94%	24.90%	48.60%	55.28%	37.54%
System Service	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
General Plant	58.87%	19.69%	56.51%	15.13%	3.46%	38.11%
Total:	100%	100%	100%	100%	100%	100%

5.4.1.3 Investment, Asset Management Output, Planning Effects on Expenditures

1. **System Access** investments are driven by obligation to customer needs, and primarily involve providing distribution service to new customers. This would include the development of new subdivisions, or a new industrial building, for example. The demand on system access is beyond the control of the utility, as it is based on customer need.

   Throughout the forecasted plan period, system access investments account for 25 percent of budgeted expenditures. The actual amount budgeted is consistent over the five years, at $100,000 every year adjusted for inflation; the total amount is $518,327.

2. **System Renewal** is the largest investment category in SLHI's forecasted expenditures. This category is concerned with refurbishing and replacing the distribution assets to keep the system working effectively. Some of the most significant projects and activities within this category are planned primary pole replacements, unplanned primary pole replacements, polemount transformer replacements, meter reverification, and the replacement of underground cable.

   This category makes up 39 percent of the total investments in the five-year forecast period, for a total of $798,835.

3. **System Service** activities are associated with the reliability measures for the utility's distribution service. SLHI has not planned any activities within this category for the forecast period.

4. **General Plant** investments include the equipment and physical plant assets that keep the distribution system in service. The largest line items in this category include the purchases of new trucks, such as freightliners and bucket trucks. Items like computer hardware and software, office equipment, and small tools also fall under this category.

   The capital allotted to this category varies greatly in the years of the forecast plan, largely contingent on the purchase of the aforementioned large trucks. In the years SLHI plans on purchasing trucks, the general plant category makes up a much more significant portion of the annual budget than in the years it does not. Overall, this category makes up 36 percent of the total budget for the forecast period, at $811,000, but the category varies from a maximum amount at 59 percent of the budget in 2020 to a minimum number of 3 percent of the budget in 2022. Because of the relatively low annual expenditures of this utility, a $355,000 bucket truck becomes a major portion of the annual budget.

5.4.1.4 Total Capital Cost

The comprehensive list of capital expenditure projects, and their associated categories, can be best understood through the tables provided below.

Table #24 – SLHI Historical Capital Expenditures

		Historical Years								Bridging Year
Investment Category	Project	2013 Budget	2013 Actual	2014 Budget	2014 Actual	2015 Budget	2015 Actual	2016 Budget	2016 Actual	2017 Budget
System Access	New Connections	58,438	85,799	65,000	69,175	87,700	68,629	87,700	68,561	140,000
	General Upgrades	39,380	57,585	48,000	61,284	15,000	64,180	15,000	41,593	25,000
	LTLT Elimination Activities									147,842
Total:		97,818	143,384	113,000	130,459	102,700	132,809	102,700	110,154	312,842
System Renewal	Pole Replacement	46,922	66,424	90,325	111,358	25,000	34,940	25,000	76,244	105,500
	Winoga Submarine Cable	72,200	-			55,000	33,317			
	Smart Grid (Trip Saver)	-	3,067	-	2,056					
	Smart Meter Upgrade			15,000	12,125					
	Spares				9,823	-	4,025			
	Cross Arm Replacements							25,000	31,907	
	Modems for Sam Lake					-	1,118			
	Polemount Transformer Replacements									23,600
	Meter Replacements								4,330	
	Meter Reverification Program									16,712
Total:		119,122	69,491	105,325	135,362	80,000	73,400	50,000	112,481	145,812
System Service	Southshore Drive Conversion	-	10,254	12,000	-					
	Highway 72 Primary Underground			25,000	-					
	Rear Front Street					42,140	25,353			
	Hudson Upgrade					16,000	25,108			
	F2 Blue Phase Reconductoring					58,000	45,184	48,126	52,039	48,000
Total:		-	10,254	37,000	-	116,140	95,645	48,126	52,039	48,000
General Plant	Amcorder Recording Meter	7,000	6,145							
	General Small Tools	5,000	1,357	10,000	3,504	10,000	1,005	10,000	5,323	5,000
	Office Computer Hardware	3,000	3,155	3,000	1,000	1,500	1,830	1,500		2,000
	Vehicle Replacement	86,000	85,090	55,000	54,539	15,000	14,234			35,000
	Mapping Upgrade			30,000	33,600					
	Web Presentment			8,000	7,250					
	Shop Internet Upgrade			2,500	4,441					
	Sentinel Lights		1,067			-	1,523			
	Office Equipment			-	278	2,000	2,318	2,000	299	2,000
	Web Site Redevelopment							5,400		
	Phone System Upgrade					10,500	11,167			
	Pole testing equipment							18,000	15,389	
	Mapping Upgrade									45,000
Total:		101,000	96,814	108,500	104,612	39,000	32,077	36,900	21,011	89,000
Totals		317,940	319,943	363,825	370,433	337,840	333,931	237,726	295,685	595,654

Table #25 – SLHI Forecasted Capital Expenditures

			Forecast Years			
Investment Category	Project	2018	2019	2020	2021	2022
System Access	New Connections	60,000	61,080	62,179	63,299	64,438
	General Upgrades	40,000	40,720	41,453	42,199	42,959
Total:		100,000	101,800	103,632	105,498	107,397
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398
	Planned Secondary Pole Replacements	20,360				
	Unplanned Pole Replacements	18,324	18,654	18,990	19,331	19,679
	Polemount Transformer Replacements	24,025	24,457	24,897	25,346	25,802
	Planned U/G Cable Replacement		62,560			
	Meter Reverifications - New Meters		21,515			
Total:		154,329	220,456	138,836	141,335	143,879
System Service						
Total:		-	-	-	-	-
General Plant	Vehicle Replacement	355,000	60,000	300,000	35,000	
	Office Computer hardware	2,000	2,000	2,000	2,000	2,000
	Office Equipment	2,000	2,000	8,000	2,000	2,000
	General Small Tools	5,000	5,000	5,000	5,000	5,000
	Warehouse - foundation repair		10,000			
Total:		364,000	79,000	315,000	44,000	9,000
Total:		618,329	401,256	557,468	290,833	260,276

5.4.1.5 Regional Planning Process/Regional Infrastructure Plan Impacts

The conclusions of the West of Thunder Bay Integrated Regional Resource Plan (IRRP) have little bearing on SLHI's DSP. The utility's capacity to connect renewable energy generation (REG) projects is largely dependent on the capacity of the Sam Lake distribution station (DS), which is owned by Hydro One; it is also dependent on the capacity of the feeders that supply SLHI territory. While SLHI was fully participatory in the IRRP process, and takes the planning group's recommendations into consideration, it has based its infrastructural plans more substantially on its own asset management strategies.

5.4.1.6 Customer Engagement Activities

SLHI conducted a Customer Satisfaction Survey in October 2014, and another in June 2016. The 2014 survey was distributed through bill inserts to customers receiving hardcopy bills; there was an online version of the survey for customers who receive bills electronically. In 2016 the survey was conducted via telephone to all residential and small general service customers.

5.4.1.7 System Development Expectations

Historically, growth in terms of customer count, load, the distribution system itself, and REG connections has been minimal. Based on these trends, SLHI does not anticipate any uncharacteristic growth; the system and its services have remained stable with regards to size and supply, and the utility expects consistency on this front.

As discussed in section 5.4.3, there is the potential for more REG project applications, as renewable energy is becoming more popular and feasible. However, in light of the fact that SLHI has received so few applications in the historical portion of this plan period (2013-2016), it does not anticipate receiving applications in amounts inconsistent with this trend.

5.4.1.8 Total Capital Costs of Planned Projects

5.4.1.8.1 Customer Preferences

The SLHI Customer Satisfaction Survey (October 2014) asked the question of whether customers would be willing to pay an additional cost for an outage management system, and the overwhelming response was negative. Of the customers who responded to the survey, 63.9 percent said no, and 13.2 percent said they did not know. Only 22.8 percent of respondents said they would be willing to pay, and that this system would be of value to them. SLHI is, however, still interested in improving its outage management system, and has been investigating options for doing so without incurring any addition cost to customers.

5.4.1.8.2 Technology-Based Opportunities

One technology-based capital project within this DSP and this planning period is the implementation of a new geographic information system (GIS). The GIS requires capital for implementation, but in the long run will save the utility money by providing more comprehensive asset knowledge, allowing for more strategic and effective asset maintenance. This will have a positive impact on the capital planning in future asset management plans and DSPs.

5.4.1.8.3 Innovation Projects

There are no innovation driven projects within this DSP.

5.4.2 Capital Expenditure Planning Process Overview

5.4.2.1 Expenditure Plan Objectives

SLHI's Mission and Vision Statements, form a key part of capital planning. The utility has a responsibility to the Municipality of Sioux Lookout, as the shareholder, and to the customers to whom it provides service. Safe, reliable service through efficient and informed planning offer the best value to rate payers. SLHI's priorities and objectives are set out in its mission and vision statements, which are as follows:

Sioux Lookout Hydro Inc.'s Mission Statement

Sioux Lookout Hydro Inc. is committed to:

- Ensure that health and safety to employees and the public is a priority;
- Supply safe and reliable electricity to residents and businesses in the Municipality of Sioux Lookout;
- Provide superior customer service; and
- Provide value to our shareholder, the Municipality of Sioux Lookout.

Sioux Lookout Hydro Inc.'s Vision Statement

To provide the community of Sioux Lookout with superior customer service and local presence while providing safe reliable electricity to all residents and businesses.

SLHI's capital expenditure objectives are aligned with the OEB-mandated investment categories. Each of the capital investments can be placed in one of the four categories: System Access, System Renewal, System Service, and General Plant. The following Figures detail how the investment categories compare, percentage-wise, over the forecasted years of the plan.

Figure #30 – SLHI Forecasted Capital Expenditures by Investment Category by Percentage, 2018

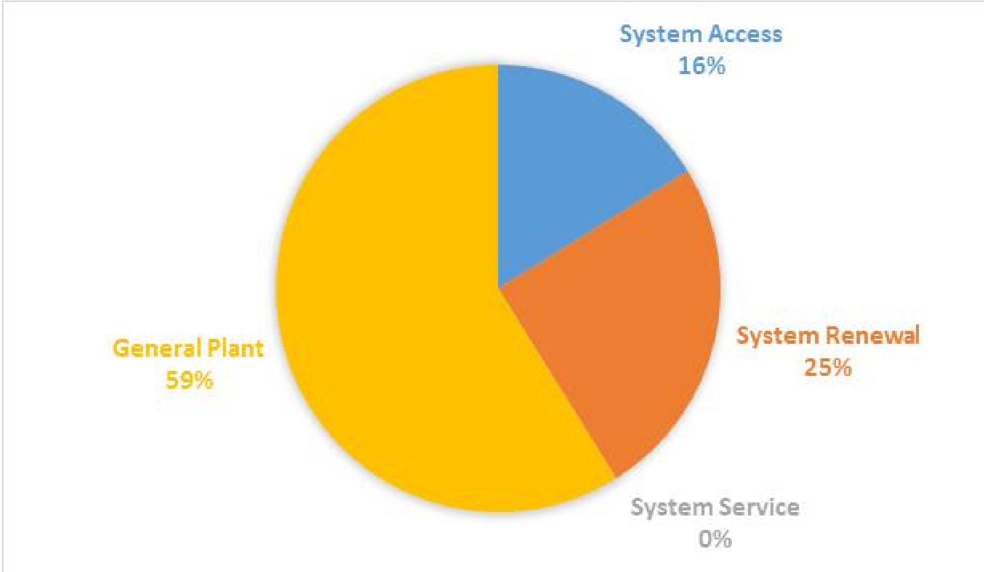


Figure #31 – SLHI Forecasted Capital Expenditures by Investment Category by Percentage, 2019

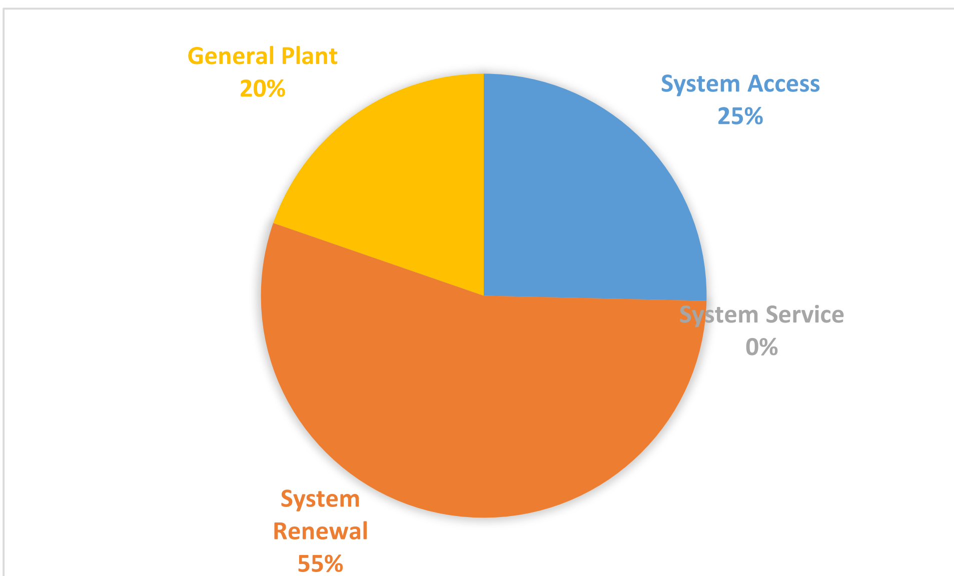


Figure #32 – SLHI Forecasted Capital Expenditures by Investment Category by Percentage, 2020

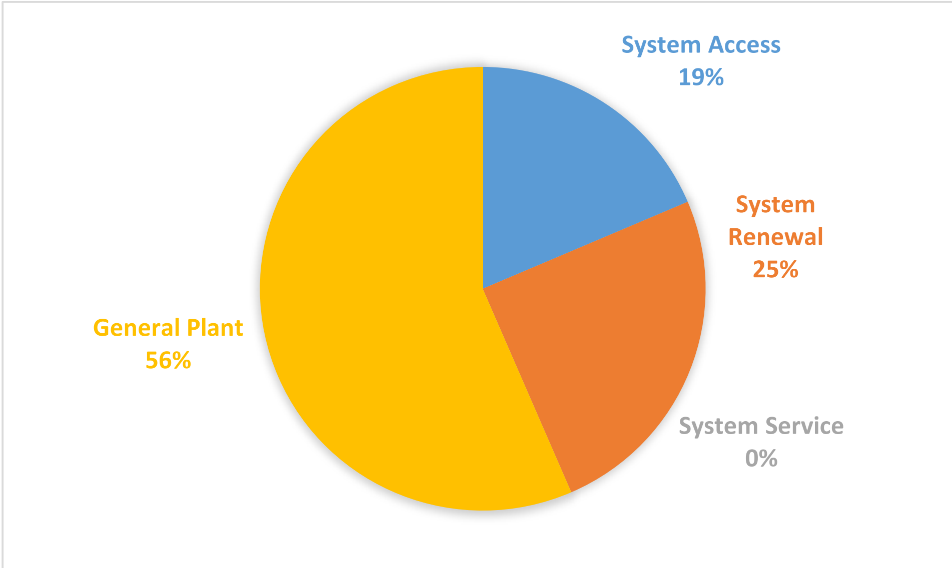


Figure #33 – SLHI Forecasted Capital Expenditures by Investment Category by Percentage, 2021

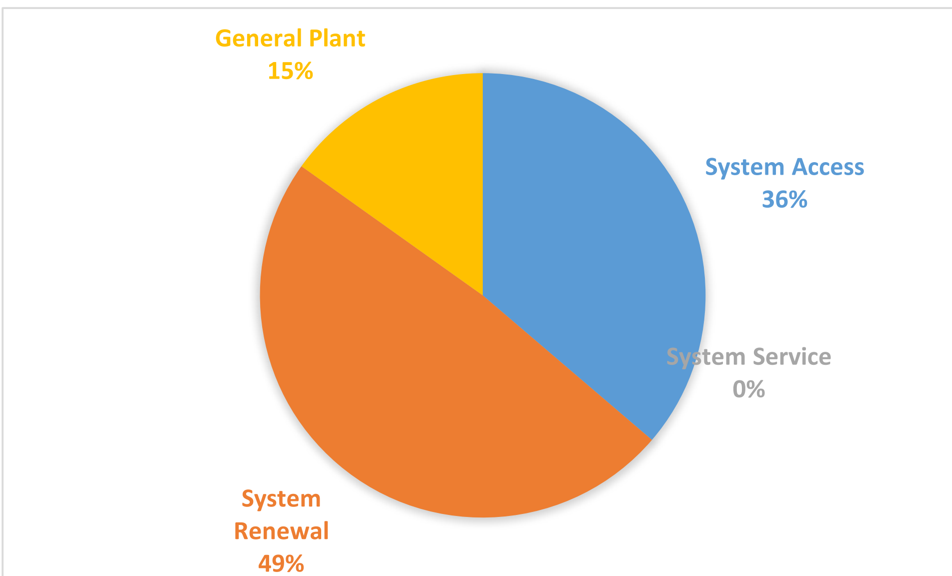
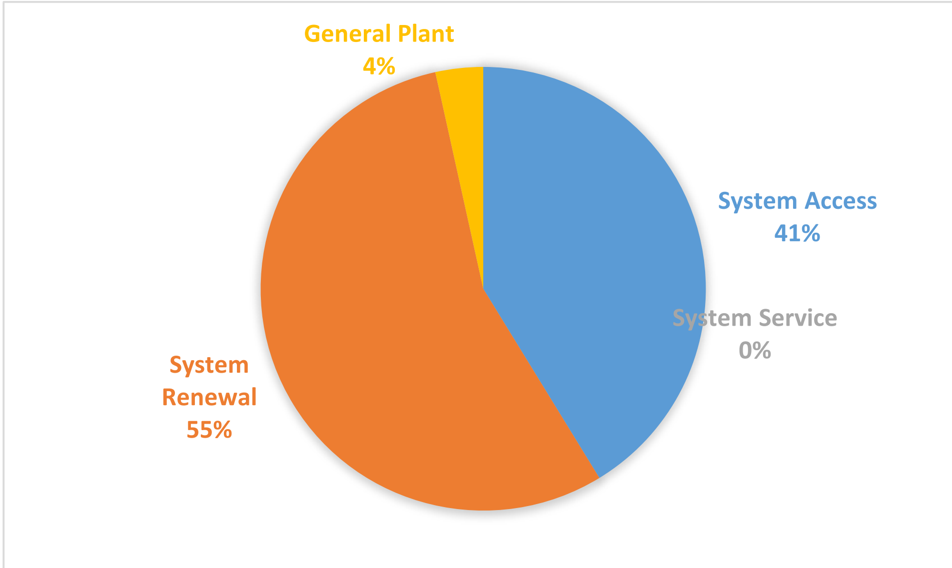


Figure #34 – SLHI Forecasted Capital Expenditures by Investment Category by Percentage, 2022



The priorities of each of the four investment categories are explained below.

5.4.2.1.1 System Access Investments

The system access category is concerned with providing service to newly connected customers. The utility has an obligation to provide service to those in its service territory. Funds allocated to the system access category facilitate the connections of new customers within the existing distribution system area, as well as new connections being made that expand the distribution system area, such as new subdivisions. The extent to which SLHI is required to allocate funds to this category is connected to the rates of growth within the service territory, and is largely beyond the control of the utility: SLHI must make room for system access ability, but does not regulate the growth it may need to account for. The system access investment category serves the AMP's objective of addressing growth in the utility's territory. This category comprises 24 percent of the total forecasted expenditures for the plan period, although it ranges from 17 percent to 41 percent in 2018 and 2022 respectively. The dollar amount allocated here is consistent; the amounts allotted to the other investment categories in any given year cause this category to become more, and less, significant in each annual budget.

5.4.2.1.2 System Renewal Investments

Distribution system maintenance, such as asset replacement and refurbishment, happen through the allocation of funds to the system renewal category. The main objective of this category is to keep the distribution system working as safely and reliably as possible. Allocating of funds to this category is highly contingent on the ACA and the AMP. The stronger the data and strategies are for assessing and addressing asset health, the more stringent SLHI can be with its system renewal expenditures. This is the largest investment category overall, with $798,835 in total investments throughout the life of the plan. The capital budgeted to this category is relatively stable over the five-year plan, although it ranges in percentage allocated from 25 percent to 55 percent, given the differing amounts of the general plant category, with which it is tied at 38 percent total investments. Mitigating outages to customers, both by reducing the length of time of planned outages through efficient maintenance strategies, and by reducing the number of unplanned outages through reliable distribution system equipment, is a key priority of System Renewal. The goal is to provide safe and reliable service to customers through an optimally maintained system, with minimal service disruptions.

5.4.2.1.3 System Service Investments

The system service category is concerned with the ability of the distribution system to meet existing and future service obligations in a reliable manner. Capital expenditure items that are related to following regulatory requirements, usage metering, and asset knowledge technologies all fall into the category of System Service. These activities allow the utility to track its reliability statistics and ensure that its distribution system is effective. The recent customer engagement efforts have confirmed that the SLHI system continues to perform at a level expected by customers, therefore, SLHI has not allocated any capital to projects fitting this investment category within the forecasted period of 2018-2022.

5.4.2.1.4 General Plant Investments

The general plant investments allow the utility to function on a daily basis through facilities, equipment, and technology. The other three investment categories are contingent on the general plant category providing the necessary tools to get the work done. Items such as trucks, computer hardware and software, office building maintenance, and so on, are all part of general plant investments. Investing into the general plant category supports the main objective of providing safe and reliable service to the customer base as it supports the other investment categories. This category sees the most variance in allotted capital, based on the need in certain years to replace large trucks. The total budgeted capital for this category comprises 38 percent of overall budget for 2018-2022. In 2018, however, general plant investments make up 59 percent of the annual budget; in 2022, general plant represents three percent of the annual budget. This category has the most range in budget significance.

5.4.2.2 Non-Distribution system alternatives

There are no projects within this DSP where non-distribution system alternatives were considered. Essentially all projects deal with assets that are replaced due to condition, or the connection of new customers.

5.4.2.3 Processes, Tools, and Methods

The priorities of the capital expenditure plans come out of a number of sources. Again, the first priority is always safety: the safety of the employees working on the distribution system, and the safety of the general public, including the customer base. The next priority is reliability of service to the customer base. All activities flow out of these two concerns.

The sources that coordinate to determine how capital expenditures should be allocated include:

- The ACA and the AMP;
- SLHI’s reliability statistics and quality of supply;
- Customer feedback through surveys;
- The IRRP process;
- Regulatory requirements as mandated by the OEB, IESO, and other governing bodies;
- SLHI’s financial performance measures; and
- Compliance.

All of these sources help to determine how capital is allocated over the forecast period.

5.4.2.4 Mechanism for Customer Engagement

SLHI maintains excellent communication with its customer base. This is in part because it has made effective use of communications technologies, and in part because its customer base remains fairly small. The mechanisms the utility uses to engage with its customers include:

- Customer survey in the form of a bill stuffer, and online downloadable option, for October 2014 Customer Satisfaction Survey (Appendix D);
- Customer survey via telephone and available online, for July 2016 Customer Satisfaction Survey (Appendix E);
- 24-hour call line for reporting outages and safety concerns;
- Facebook page
- Website

5.4.2.5 REG Investment Method/Criteria

As a utility, SLHI prioritizes the capability of its distribution system to connect renewable energy generation (REG) projects.

SLHI evaluates REG connection applications on an individual basis, as they are received. The applications that SLHI has received have all been under 10 kW, and are therefore considered microFIT projects. Section 5.4.3.1 elaborates on the applications and connections made to SLHI's distribution system.

SLHI has not received any applications for FIT projects, which are connections over 10 kW. If it were to receive any such applications, they would need to be considered with Hydro One Networks Inc. (HONI) because SLHI is an embedded distributor, connected to a HONI-owned distribution station. Section 5.4.3.5 expands on this further.

5.4.3 System Capability Assessment for Renewable Energy Generation

5.4.3.1 Renewable Energy Applications

When businesses, organizations, or individuals want to connect renewable energy generation (REG) projects to the distribution grid, they must apply with the local utility so the application may be properly assessed. These projects are known as microFIT and FIT connections, depending on their size. MicroFIT projects are up to 10 kW in size; projects larger than 10 kW are known as FIT.

Since 2010, SLHI has received 31 applications to connect microFIT REG projects and 2 applications to re-assign contracts. Of these applications, 21 were issued offers to connect. The following table shows the number of offers to connect that were issued, by year, and the sizes of the offers issued, as well as the size of the actual connections made, both in kW.

Table #26 - SLHI's microFIT Applications and Connections

Year	Offers to Connect Issued	Size of Offers (kW)	Completed	Total Size of Connections (kW)
2010	7	89.41	4	39.41
2011	10	100	3	30
2012	1	5.5	0	0
2013	1	10	0	0
2014	1	6.75	1	6.75
2015	1	10	1	10
Totals:	**21**	**221.66**	**9**	**86.16**

Of the 33 applications, two were re-assigned contracts, 21 were issued offers to connect, and ten were not completed. The collective size of the projects issued offers to connect totaled 221.66 kW. Ten applications were terminated before the offer to connect stage; these applications totaled 99.41 kW.

Once the 21 offers were issued, only nine projects reached completion, for various reasons. The total collective size of the microFIT projects connected to SLHI's distribution system since 2010 is 86.16 kW.

SLHI has no FIT projects, or REG connections individually sized over 10kW, nor has it received any applications for such connections.

5.4.3.2 Number/Capacity of Renewable Generation Connections Over Forecasted Period

SLHI has adequate capacity to connect an additional 2 MW microFIT projects at a minimum. Based on the past precedent of applications, the local distribution company (LDC) does not see any need to invest in any additional infrastructure to allow for REG connections.

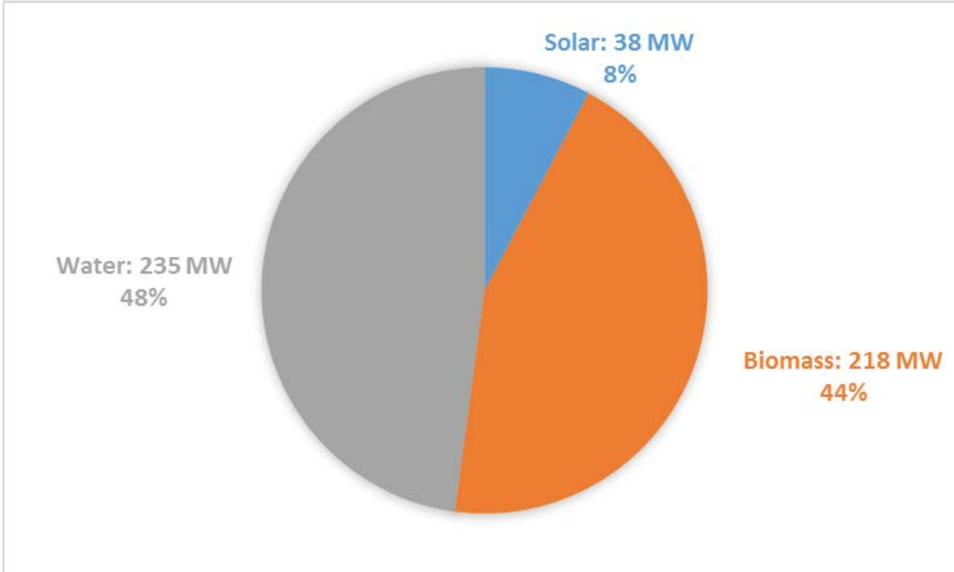
Since SLHI has no FIT projects, and has received no FIT project applications in the past five years, predicting the forecasted number and size of future applications is a difficult task. Although it could be expected that SLHI should not receive any FIT applications within the forecasted five-year period, based on past precedent, there is always the possibility for it.

Within the Integrated Regional Resource Planning (IRRP) working group, the West of Thunder Bay sub-region (of which SLHI is a part), there is a 205 MW biomass-driven generation station in Atikokan, Ontario, which is a former coal plant (see the IRRP report in Appendix B). Because this region of Northern Ontario provides ample space and opportunity for such generation facilities, there is the possibility that a similar FIT project arises in SLHI's distribution territory. Therefore, SLHI cannot rule out the prospect of receiving a large REG application.

5.4.3.3 Capacity to Connect to REG

According to the IRRP report for the sub-region of West of Thunder Bay, there are approximately 491 MW of renewable energy generation connected to the distribution system (section 4.2.1 of the IRRP in Appendix B). The Figure below shows the breakdown of the types of generation and their respective amounts.

Figure #35 - Renewable Energy Generation in the West of Thunder Bay Sub-region



Data derived from the IRRP report, Appendix B.

Since SLHI has capacity for at least 2 MW of additional microFIT connections, the applications it receives for microFIT projects are not denied based on size. SLHI considers applications on a case-by-case basis to decide whether or not they are feasible. When a project is deemed feasible, an offer to connect is issued.

5.4.3.4 REG Connection Constraints

The constraints that would negatively affect an application's probability of approval include the LDC's transformer capacity, the capacity of the transmission line connecting the generation project to the transformer station, and the security of the transmission of the generated power. These factors are all discussed within the West of Thunder Bay IRRP report.

5.4.3.5 Embedded Distributor Connection Restraints

As mentioned previously, SLHI is responsible to coordinate with HONI regarding any FIT connections, which are renewable connections over 10 kW. The Sioux Lookout Hydro Green Energy Act Plan, September 2012 (Appendix G) quotes the OPA in saying:

> "For Sam Lake DS, this station has 16 MW of station availability to accommodate additional renewable generation. Please note this availability is based on the station's ability to connect. For a project to be issued a FIT contract, the project must be accommodated at all levels, including distribution system, station, local transmission circuits, and area transmission…
>
> Currently the OPA is actively participating in the OEB's Transmission Designation Process to designate a transmitter to develop the East-West Tie expansion. The project has a planned in-service date of 2017. You can find further information on the OEB's web site. There is also an on-going effort for transmission system expansion to accommodate additional load increases in the area North of Dryden."

SLHI continues to evaluate microFIT project applications as they are received. Since FIT projects have a larger bearing on the distribution system and associated stations, they would need to be considered in coordination with HONI, which owns the Sam Lake DS that feeds SLHI.

5.4.4 Capital Expenditure Summary

5.4.4.1 Historical Period Detailed Capital Project Summary

The capital expenditures of the plan's historical period (2013-2016; 2017 as the bridging year) are included in the table below. This table provides a snapshot of SLHI's expenditures, both as they were planned for, and as they were realised. The table also shows the variance between the budgeted expenditures and the actual expenditures. The four investment categories have been applied to the capital projects here.

Table #27 - SLHI Capital Expenditures for the Historical Period, Budget versus Actual

		Historical Years								Bridging Year
Investment Category	Project	2013 Budget	2013 Actual	2014 Budget	2014 Actual	2015 Budget	2015 Actual	2016 Budget	2016 Actual	2017 Budget
System Access	New Connections	58,438	85,799	65,000	69,175	87,700	68,629	87,700	68,561	140,000
	General Upgrades	39,380	57,585	48,000	61,284	15,000	64,180	15,000	41,593	25,000
	LTLT Elimination Activities									147,842
Total:		97,818	143,384	113,000	130,459	102,700	132,809	102,700	110,154	312,842
System Renewal	Pole Replacement	46,922	66,424	90,325	111,358	25,000	34,940	25,000	76,244	105,500
	Winoga Submarine Cable	72,200	-			55,000	33,317			
	Smart Grid (Trip Saver)	-	3,067	-	2,056					
	Smart Meter Upgrade			15,000	12,125					
	Spares				9,823	-	4,025			
	Cross Arm Replacements							25,000	31,907	
	Modems for Sam Lake					-	1,118			
	Polemount Transformer Replacements									23,600
	Meter Replacements								4,330	
	Meter Reverification Program									16,712
Total:		119,122	69,491	105,325	135,362	80,000	73,400	50,000	112,481	145,812
System Service	Southshore Drive Conversion	-	10,254	12,000	-					
	Highway 72 Primary Underground			25,000	-					
	Rear Front Street					42,140	25,353			
	Hudson Upgrade					16,000	25,108			
	F2 Blue Phase Reconductoring					58,000	45,184	48,126	52,039	48,000
Total:		-	10,254	37,000	-	116,140	95,645	48,126	52,039	48,000
General Plant	Amcorder Recording Meter	7,000	6,145							
	General Small Tools	5,000	1,357	10,000	3,504	10,000	1,005	10,000	5,323	5,000
	Office Computer Hardware	3,000	3,155	3,000	1,000	1,500	1,830	1,500		2,000
	Vehicle Replacement	86,000	85,090	55,000	54,539	15,000	14,234			35,000
	Mapping Upgrade			30,000	33,600					
	Web Presentment			8,000	7,250					
	Shop Internet Upgrade			2,500	4,441					
	Sentinel Lights		1,067			-	1,523			
	Office Equipment			-	278	2,000	2,318	2,000	299	2,000
	Web Site Redevelopment							5,400		
	Phone System Upgrade					10,500	11,167			
	Pole testing equipment							18,000	15,389	
	Mapping Upgrade									45,000
Total:		101,000	96,814	108,500	104,612	39,000	32,077	36,900	21,011	89,000
Totals		317,940	319,943	363,825	370,433	337,840	333,931	237,726	295,685	595,654

Table #28 - SLHI Capital Expenditures by Investment Category for the Historical Period, Budget versus Actual

	Historical Years												Bridging Year
Investment Category	2013 Budget	2013 Actual	Variance	2014 Budget	2014 Actual	Variance	2015 Budget	2015 Actual	Variance	2016 Budget	2016 Actual	Variance	2017 Budget
System Access	97,818	143,384	45,566	113,000	130,459	17,459	102,700	132,809	30,109	102,700	110,154	7,454	312,842
System Renewal	119,122	69,491	(49,631)	105,325	135,362	30,037	80,000	73,400	(6,600)	50,000	112,481	62,481	145,812
System Service	-	10,254	10,254	37,000	-	(37,000)	116,140	95,645	(20,495)	48,126	52,039	3,913	48,000
General Plant	101,000	96,814	(4,186)	108,500	104,612	(3,888)	39,000	32,077	(6,923)	36,900	21,011	(15,889)	89,000
Totals	317,940	319,943	2,003	363,825	370,433	6,608	337,840	333,931	(3,909)	237,726	295,685	57,959	595,654

5.4.4.2 Forecast Period Detailed Capital Project Summary

The OEB Chapter 5 filing requirements delineate that the capital projections for the forecasted five-year plan are to be included in this DSP. The following table outlines the capital expenditure budgets for the future portion of the plan period, 2018-2022, separated into the four investment categories.

Table #29 - SLHI Capital Expenditure Plans for the Forecast Period, 2018-2022

			Forecast Years			
Investment Category	Project	2018	2019	2020	2021	2022
System Access	New Connections	60,000	61,080	62,179	63,299	64,438
	General Upgrades	40,000	40,720	41,453	42,199	42,959
Total:		100,000	101,800	103,632	105,498	107,397
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398
	Planned Secondary Pole Replacements	20,360				
	Unplanned Pole Replacements	18,324	18,654	18,990	19,331	19,679
	Polemount Transformer Replacements	24,025	24,457	24,897	25,346	25,802
	Planned U/G Cable Replacement		62,560			
	Meter Reverifications - New Meters		21,515			
Total:		154,329	220,456	138,836	141,335	143,879
System Service						
Total:		-	-	-	-	-
General Plant	Vehicle Replacement	355,000	60,000	300,000	35,000	
	Office Computer hardware	2,000	2,000	2,000	2,000	2,000
	Office Equipment	2,000	2,000	8,000	2,000	2,000
	General Small Tools	5,000	5,000	5,000	5,000	5,000
	Warehouse - foundation repair		10,000			
Total:		364,000	79,000	315,000	44,000	9,000
Total:		618,329	401,256	557,468	290,833	260,276

As much as possible, SLHI expects to adhere to these projections. There is always a degree of uncertainty when planning for the future: 2018 and 2019 are planned with a higher degree of certainty than 2020-2022. There are many factors that may alter the utility's ability to operate precisely within these budgets (see section 5.2.1.9 The Distribution Plan's Contingencies and Risks). These plans, however, are created on the basis of informed asset condition knowledge, sound asset management planning and asset management strategies, and past years' experiences.

5.4.4.3 Budget versus Actual Capital Expenditure of Whole Plan Period

SLHI's capital expenditures for the whole plan period (2013-2022) can be found within Table #30. These include both budgeted and actual for the historical period of the plan (2013-2016), budgeted for the bridging or filing year (2017), and budgeted for the forecasted period of the plan (2018-2022).

Table #30 - SLHI’s Capital Expenditure Plans for the Whole Plan Period

		Historical Years								Bridging Year	Forecast Years				
Investment Category	Project	2013 Budget	2013 Actual	2014 Budget	2014 Actual	2015 Budget	2015 Actual	2016 Budget	2016 Actual	2017 Budget	2018 Budget	2019 Budget	2020 Budget	2021 Budget	2022 Budget
System Access	New Connections	58,438	85,799	65,000	69,175	87,700	68,629	87,700	68,561	140,000	60,000	61,080	62,179	63,299	64,438
	General Upgrades	39,380	57,585	48,000	61,284	15,000	64,180	15,000	41,593	25,000	40,000	40,720	41,453	42,199	42,959
	LTLT Elimination Activities									147,842					
Total:		97,818	143,384	113,000	130,459	102,700	132,809	102,700	110,154	312,842	100,000	101,800	103,632	105,498	107,397
System Renewal	Pole Replacement	46,922	66,424	90,325	111,358	25,000	34,940	25,000	76,244	67,500	91,620	93,270	94,949	96,658	98,398
	Winoga Submarine Cable	72,200	-			55,000	33,317								
	Smart Grid (Trip Saver)	-	3,067	-	2,056										
	Smart Meter Upgrade			15,000	12,125										
	Spares				9,823	-	4,025								
	Cross Arm Replacements							25,000	31,907						
	Modems for Sam Lake					-	1,118								
	Planned Secondary Pole Replacements									20,000	20,360				
	Unplanned Pole Replacements									18,000	18,324	18,654	18,990	19,331	19,679
	Meter Replacements								4330						
	Meter Reverifications - New Meters									16,712		21,515			
	Planned U/G Cable Replacement											62,560			
	Polemount Transformer Replacements									23,600	24,025	24,457	24,897	25,346	25,802
Total:		119,122	69,491	105,325	135,362	80,000	73,400	50,000	112,481	145,812	154,329	220,456	138,836	141,335	143,879
System Service	Southshore Drive Conversion	-	10,254	12,000	-										
	Highway 72 Primary Underground			25,000	-										
	Rear Front Street					42,140	25,353								
	Hudson Upgrade					16,000	25,108								
	F2 Blue Phase Reconductoring					58,000	45,184	48,126	52,039	48,000					
Total:		-	10,254	37,000	-	116,140	95,645	48,126	52,039	48,000	-	-	-	-	-
General Plant	Amcorder Recording Meter	7,000	6,145												
	General Small Tools	5,000	1,357	10,000	3,504	10,000	1,005	10,000	5,323	5,000	5,000	5,000	5,000	5,000	5,000
	Office Computer Hardware	3,000	3,155	3,000	1,000	1,500	1,830	1,500		2,000	2,000	2,000	2,000	2,000	2,000
	Vehicle Replacement	86,000	85,090	55,000	54,539	15,000	14,234			35,000	355,000	60,000	300,000	35,000	
	Mapping Upgrade			30,000	33,600										
	Web Presentment			8,000	7,250										
	Shop Internet Upgrade			2,500	4,441										
	Sentinel Lights		1,067			-	1,523								
	Office Equipment/Improvements			-	278	2,000	2,318	2,000	299	2,000	2,000	2,000	8,000	2,000	2,000
	Web Site Redevelopment							5,400							
	Phone System Upgrade					10,500	11,167								
	Pole Testing Equipment							18,000	15,389						
	Mapping Software Conversion									45,000					
	Warehouse - foundation repair											10,000			
Total:		101,000	96,814	108,500	104,612	39,000	32,077	36,900	21,011	89,000	364,000	79,000	315,000	44,000	9,000
Totals		317,940	319,943	363,825	370,433	337,840	333,931	237,726	295,685	595,654	618,329	401,256	557,468	290,833	260,276

5.4.5 Justifying Capital Expenditures

5.4.5.1 Overall Plan

SLHI's capital expenditure plans, both historical and forecasted are divided into the four OEB-mandated investment categories (System Access, System Renewal, System Service, and General Plant), and are determined by the priorities outlined in the Asset Condition Assessment (ACA), the Asset Management Plan (AMP), and the third-party consultations.

5.4.5.1.1 Comparative Expenditures by Category

The capital expenditures of the historical portion of the plan period have been compiled and analysed for consistencies. They have been divided into the four investment categories. The total annual budgets, and actual expenditures, are consistently within the $300,000 range for SLHI. The historical expenditures, budgeted versus actual appear in the table below.

Table #31 - Investment Categories, by Percentage, for the Historical Period

	Historical Years								Bridging Year
Investment Category	2013 Budget	2013 Actual	2014 Budget	2014 Actual	2015 Budget	2015 Actual	2016 Budget	2016 Actual	2017 Budget
System Access	30.8%	44.8%	31.1%	35.2%	30.4%	39.8%	43.2%	37.3%	52.5%
System Renewal	37.5%	21.7%	28.9%	36.5%	23.7%	22.0%	21.0%	38.0%	24.5%
System Service	0.0%	3.2%	10.2%	0.0%	34.4%	28.6%	20.2%	17.6%	8.1%
General Plant	31.8%	30.3%	29.8%	28.2%	11.5%	9.6%	15.5%	7.1%	14.9%
Totals	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The System Access category consistently makes up a significant portion of the allocated expenditures, ranging from 30 percent to 45 percent of each annual budget, both in projected and actual figures. This category is concerned with providing service to new customers, growth, and development in the service territory. The line items included in this category are New Connections and General Upgrades. These activities are subject to economic growth and change within the community, and are not within the utility's control.

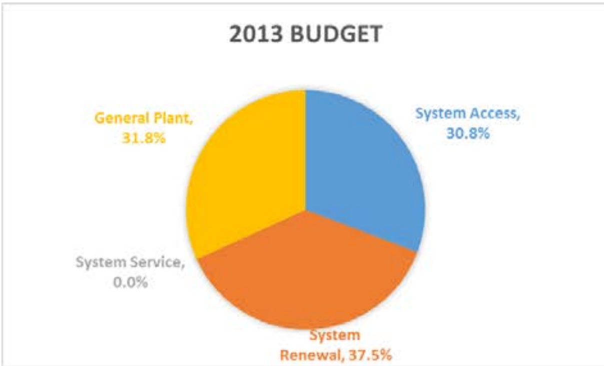
System Renewal activities keep the utility running effectively. Some of the line items in this category include: pole replacements, cross arm replacements, Smart Meter upgrades, and cable maintenance. This category consistently equates to roughly one-quarter to one-third of the budget each year.

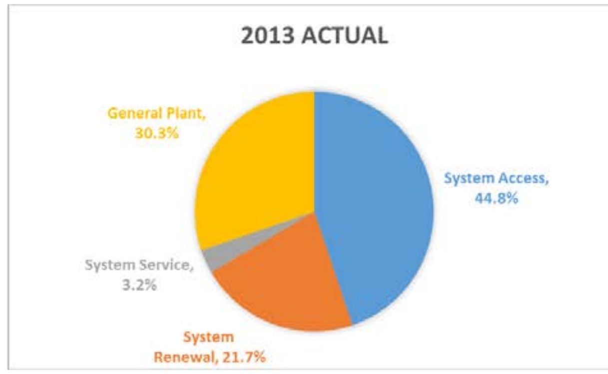
The category of System Service deals with the regulatory and metric aspects of the utility's service. This generally includes converting system assets to OEB-approved assets for the purposes of staying within the regulatory frameworks. The trends in SLHI's budgets and expenditures demonstrate that this category did not demand significant funds, and therefore was not allocated significant funds. In the latter years of the historical period, this category took on a more substantial portion of the budgets.

The activities in the General Plant category include providing and sustaining the distribution system through tools, equipment, and proper facilities. Office equipment and computers, as well as trucks and vehicles, are included in this category. Contrary to the System Service category, this investment category represented a larger quotient of the budget in the earlier years of the plan, and has decreased in more recent years.

The Figures below show a comparison of the figures, budget versus actual, in each year of the historical period (2013-2016), divided into the four investment categories. There were noteworthy variances in planned vs actual spending in 2013 and 2014, and these are explained below the respective Figures.

Figure #36 - SLHI Budgeted and Actual Expenditures, 2013

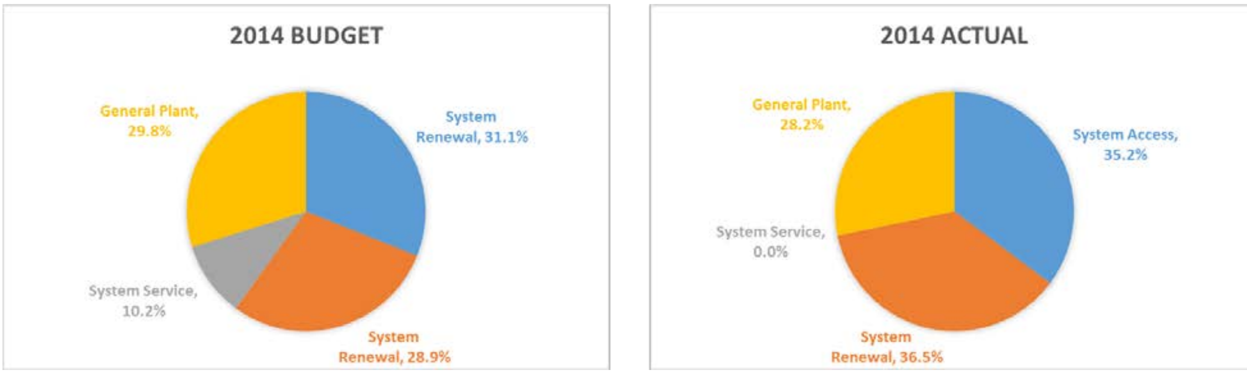




In 2013 $72,200 was allocated for the replacement of the Winoga Lodge submarine cable and approved in our last Cost of Service application (EB-2012-0165). This amount was also included as capital contributions as an offset to the expenditure. However, there was uncertainty about whether or not the customer could be charged customer contributions since Sioux Lookout Hydro acquired this customer in 1998 when the Municipality amalgamated and took over all Hydro One customers in the new expanded service territory. SLHI deferred the project until it could be determined who would be responsible for the cost of the replacement. SLHI performed an investigation through contact with Hydro One and the customer and determined late in 2014 that SLHI would not be able to charge the customer to replace the cable since they had paid Hydro One when the cable was first installed. Therefore, the project was put back on the budget for 2015 and completed at a cost of $33,317. The reduced cost was largely due to the fact that the customer possessed a barge which allowed us to save a significant amount of money on outside contractor costs to provide us with the equipment to run the cable across the lake.

Once it was determined that the Winoga project would be deferred, more capital was expensed on pole replacements, and a project to convert the voltage from 7.2 kV to 14.4 kV on South Shore Drive was initiated in order to reduce line loss. There was also increased cost for new connections in 2013 of approximately $30,000 which was offset by customer contributions.

Figure #37 - SLHI Budgeted and Actual Expenditures, 2014



In 2014 SLHI budgeted $37,000 for System Service to complete the South Shore Drive conversion and replace some overhead primary with underground in a heavily wooded area on Hwy 72. However, the South Shore Drive project was cancelled since there was uncertainty about the primary submarine cable feeding the area as it was installed by Hydro One. There was a risk that the cable would blow if the voltage was doubled, and there was no way to measure the capacity at that time. Also, it was determined that the Hwy 72 Primary U/G project was not feasible after determining that the existing poles were still in good condition and the bobcat was used to clear the line sufficient to reduce the risk of power outages. Therefore, there was no capital spent on System Service in 2014, with more capital allocated to pole replacements.

Figure #38 - SLHI Budgeted and Actual Expenditures, 2015

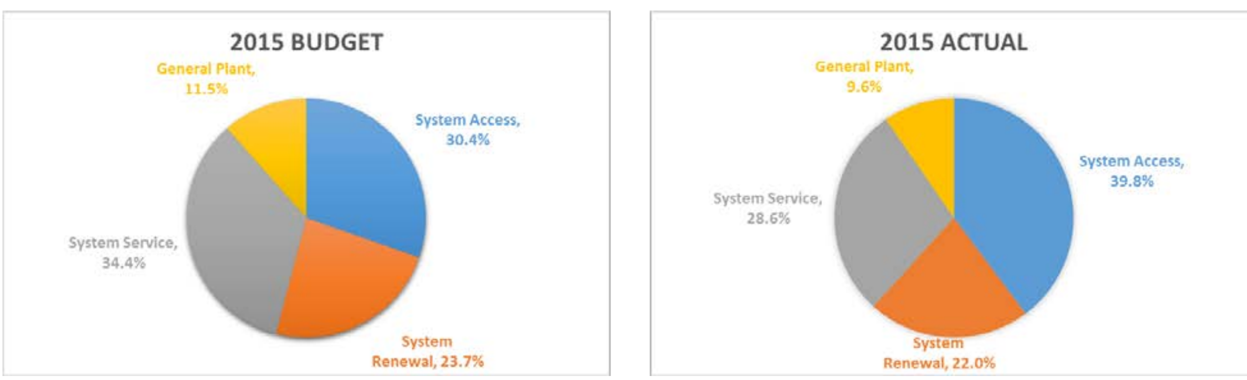
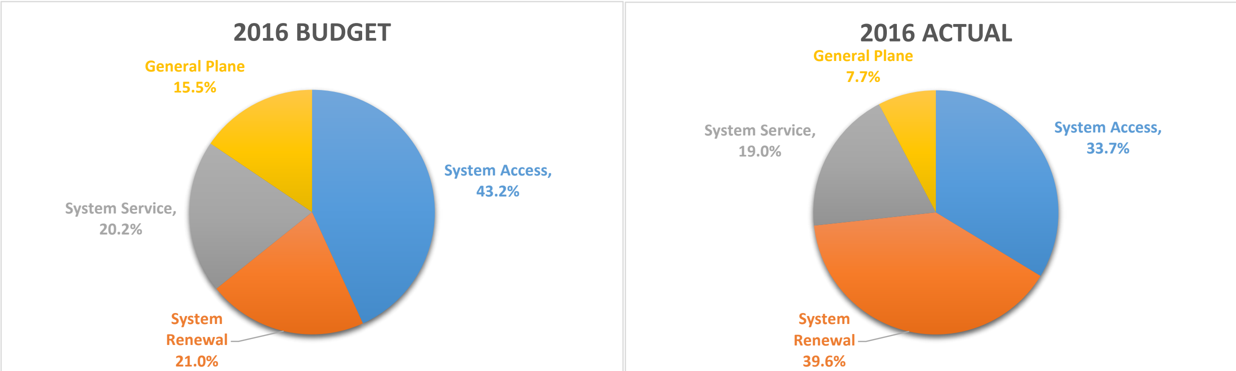


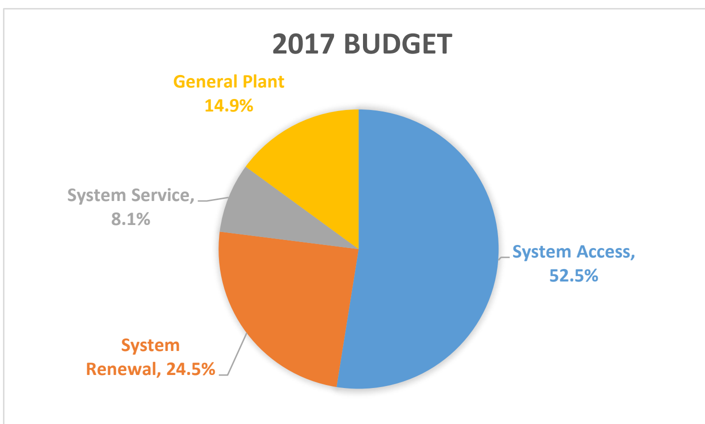
Figure #39 - SLHI Budgeted Expenditures, 2016



In 2016 SLHI budgeted $25,000 for pole replacements, however once the pole testing equipment and program was implemented in response to the ACA, SLHI identified a number of poles which required replacement in a timely manner. Therefore the actual amount spent on pole replacements was $76,244 and increased the amount spent on System Renewal.

For the capital projects of the bridging year, in which this DSP is being filed, see Figure #40 below.

Figure #40 - SLHI Budgeted Expenditures, 2017



For the forecasted portion of the plan, the division of projected fund allocations is demonstrated in the Figures below:

Figure #41 - SLHI Budgeted Expenditures, 2018 and 2019

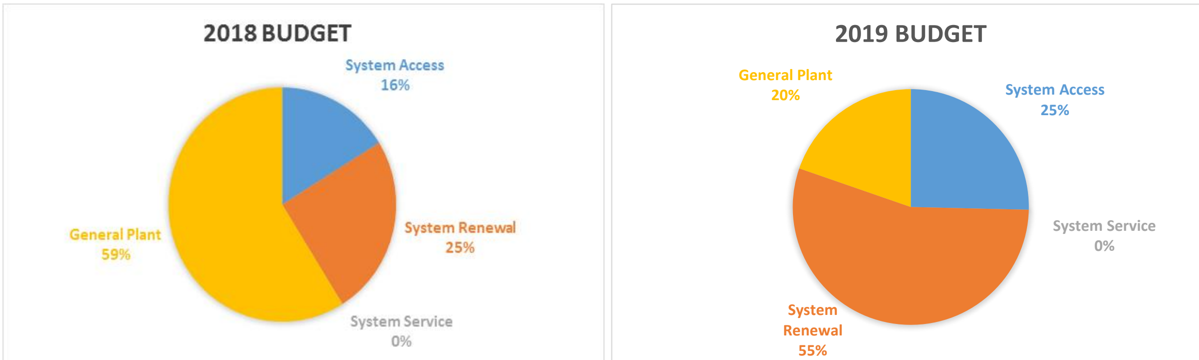


Figure #42 - SLHI Budgeted Expenditures, 2020 and 2021

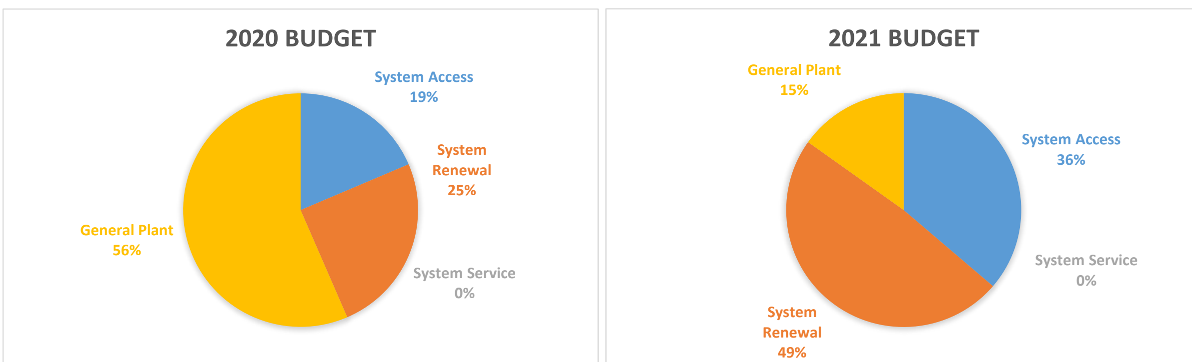
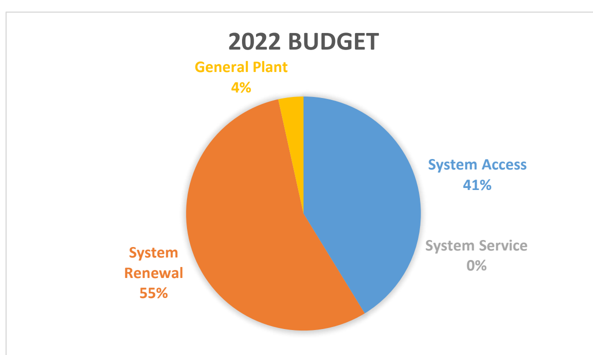
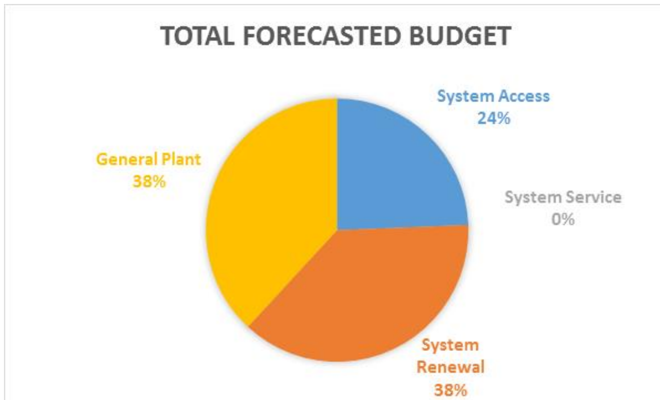


Figure #43 - SLHI Budgeted Expenditures, 2022



The breakdown of the investment categories by percentage for the whole forecasted plan period, 2018-2022, can be seen in Figure #44 below.

Figure #44 - SLHI Budgeted Expenditures, Whole Forecast Period



5.4.5.1.2 Forecast impact of system investment on O&M costs

SLHI expects to keep O&M costs comparable to previous years by proactively replacing assets at risk of failure, and utilizing inspection and testing methods to identify potential failures before they become problems and require unplanned work which is inherently costlier. Due to the general nature of this expectation it is not possible to quantify the impact to O&M costs by taking a proactive approach to asset management, instead of letting all assets run to failure.

Table #32 - SLHI Capital Expenditures by Investment Category for the Forecast Period

			Forecast Years			
Investment Category	Project	2018	2019	2020	2021	2022
System Access	New Connections	60,000	61,080	62,179	63,299	64,438
	General Upgrades	40,000	40,720	41,453	42,199	42,959
Total:		100,000	101,800	103,632	105,498	107,397
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398
	Planned Secondary Pole Replacements	20,360				
	Unplanned Pole Replacements	18,324	18,654	18,990	19,331	19,679
	Polemount Transformer Replacements	24,025	24,457	24,897	25,346	25,802
	Planned U/G Cable Replacement		62,560			
	Meter Reverifications - New Meters		21,515			
Total:		154,329	220,456	138,836	141,335	143,879
System Service						
Total:		-	-	-	-	-
General Plant	Vehicle Replacement	355,000	60,000	300,000	35,000	
	Office Computer hardware	2,000	2,000	2,000	2,000	2,000
	Office Equipment	2,000	2,000	8,000	2,000	2,000
	General Small Tools	5,000	5,000	5,000	5,000	5,000
	Warehouse - foundation repair		10,000			
Total:		364,000	79,000	315,000	44,000	9,000
Total:		618,329	401,256	557,468	290,833	260,276

5.4.5.1.3 Justification of investment drivers

The OEB-mandated investment categories each serve unique purposes in the utility's task of characterizing, prioritizing, and projecting capital expenditures over the life of the plan. The four categories have their own motivations and functions that allow the utility to continue to provide effective distribution operations to the customer-base. The general plant category is unique as it provides the infrastructure that facilitates the other categories' functions. General plant generally includes the equipment and tools that allow the utility to distribute service to its customers.

5.4.5.1.4 Information Related to Distributor's System Capability Assessment

As noted in previous sections, the existing SLHI distribution system has the capability to connect reasonably foreseeable load and REG customers without the need for additional investments.

5.4.5.2 Material Investments

Project Information: Truck Replacement

Investment Category: General Plant
Capital Project Name: Truck Replacement
Drivers: Service Quality, Reliability Safety, End of Life
Asset Type(s): Vehicles
Total Capital Cost (2018-2022): $750,000
Average Annual Capital Cost: $187,500 (4-year project period)
Start Date: January 1, 2018 (on-going, pre-dating this plan period)
End Date: December 31, 2021

A. General information of the project

As part of SLHI's general plant assets, it owns various vehicles, including backhoes, trucks, diggers, and so on. These vehicles are used for servicing the distribution assets and keeping the distribution system in operation. Because some of these vehicles are very costly, this activity meets the materiality threshold in certain years; planning the purchase of one of these trucks is a major line item within the utility's capital expenditure plan. These vehicles are refurbished and maintained, just as the other distribution assets are, in order to extract the maximum useful life from them. Eventually, they do need to be replaced. (Appendix H contains the most current fleet inventory, vehicle replacement assessments, and the planned replacements, along with a letter from the chief mechanic recommending that the 2001 Freightliner be replaced.)

As general plant assets, trucks and vehicles are important to maintaining the operation of the distribution system assets. Utility staff refurbish, repair, and replace distribution assets with the help of the general plant vehicles. The trucks are also used to respond to emergencies. These vehicles need to be in good working condition in order to properly, and safely, help the utility to provide reliable service to the customers. The capital expenditures for the forecasted years of this plan include replacing a 2001 freightliner truck in 2018, a 2008 Ford 1 ton truck in 2019, a 2013 Altec bucket truck in 2020, and a 2010 Chevrolet ½ ton truck in 2021. In 2021, this line item does not meet the materiality threshold, but is noteworthy because the threshold is met in the preceding years. There is no budgeted vehicle purchase in 2022. Table #33 below shows the annual expenditures allotted to truck replacement.

Table #33 – Allocated Funds for Truck Replacement

Category	Project Activity	Budget 2018	Budget 2019	Budget 2020	Budget 2021	Budget 2022	Totals
General Plant	Truck Replacement	355,000	60,000	300,000	35,000		750,000

B. Evaluation criteria and information requirements for each project

1. Efficiency, Customer Value, Reliability

The replacement of general plant vehicles and trucks is driven by each assets' end of life and its operational effectiveness. Trucks generally have a useful life of ten-to-fifteen years; this useful life is extended by proper maintenance and parts replacement, but at some point, the vehicles need to be replaced in order to ensure proper working condition, as well as safety to employees and customers. SLHI performs regular maintenance inspections on its vehicles to keep them operationally effective. Servicing the distribution assets depends on these trucks working properly. Investing in general plant vehicles is a priority, because the health of all other assets is contingent on the adequate effectiveness of the service trucks.

Table #34 – Annual Vehicle Maintenance Expenses

Vehicle	Hours	Mileage (kms)	2011	2012	2013	2014	2015	2016	Total Expenses LTD
2001 Freightliner	2,418	68,209	$6,720.17	$5,642.76	$8,889.81	$10,471.02	$18,485.68	$22,001.24	$155,968.03
2008 Ford F350		122,160	$2,492.03	$3,183.50	$2,058.77	$1,606.12	$3,434.50	$6,525.42	$19,300.34
2010 Chevy Silverado 4x4		104,580	$395.30	$355.58	$361.16	$208.15	$708.39	$2,281.73	$4,310.31
2013 International 7400	1,285	40,836			$5,418.29	$5,662.54	$8,634.88	$13,000.74	$32,228.52
2015 GMC Sierra 4x4		38,946					$530.42	$114.11	$644.53
2012 Bobcat E50					$4,891.57	$3,159.40	$3,312.75	$2,367.79	$13,731.51
2005 Polaris Ranger 6x6			$940.89	$1,574.95				$1,213.75	$5,141.38
2016 Ski-Doo Skandic SWT									$0.00
Annual Expenses			$10,548.39	$10,756.79	$21,619.60	$21,107.23	$35,106.62	$47,504.78	

Table #34 above shows the vehicle maintenance expenses over the past five years, and the life to date costs to the end of 2016. These values are used in the process of deciding when a vehicle should be replaced. The kilometers of usage is not the only factor to consider for large trucks used for overhead electrical work. These units tend to gather many more hours of service than the mileage would otherwise indicate.

2. Safety

Safety is a top priority for SLHI. Ensuring that the trucks and vehicles are in good working condition ensures the safety of the utility staff operating them, as well as the general public and customers who may come into close proximity with the vehicles. Operating the vehicles on the roads and servicing the distribution assets require the trucks to be working safely and effectively. Also, when an emergency, after-hours service call is made, public safety could be at risk, so the safe and reliable service of the trucks in responding to that call is paramount.

3. Cyber-security, Privacy

Not applicable.

4. Co-ordination, Interoperability

SLHI has its trucks and vehicles inspected regularly to ensure they are safe and meet reliability standards.

5. Economic Development

Not applicable.

6. Environmental Benefits

There are environmental benefits to operating newer vehicles, as older vehicles often offer less fuel efficiency and are not equipped with the same emissions controls as newer vehicles.

C. Category-specific requirements for each project

General Plant:

General plant assets work to support the distribution system assets. The decision to purchase new vehicles is important because it allows the daily operations of the utility to continue, efficiently and effectively. Unreliable vehicles contribute to OM&A costs, wasting time and money in unnecessary repairs.

Reliability of distribution service to customers is connected to the reliability of the general plant vehicles in that outage calls and asset failures are mitigated with the use of the service trucks. Worker safety depends on the good working order of the vehicles.

Project Information: Planned Primary Pole Replacements

Investment Category: System Renewal
Capital Project Name: Planned Primary Pole Replacements
Drivers: Safety, Reliability, End of Life
Asset Type(s): Distribution Poles (wood)
Total Capital Cost (2018-2022): $474,895
Average Annual Capital Cost: $94,979
Start Date: January 1, 2018 (on-going, pre-dating this plan period)
End Date: December 31, 2022

A. General information of the project

Replacing primary distribution poles is a significant system renewal project for the utility. The primary poles support the distribution equipment that provides service to the customers. All of SLHI's primary poles are wood, and wood poles are subject to rot and decay, animal and pest interference, and deterioration due to the elements. It is important for the safety of the general public and utility staff that poles are replaced before they pose risk of falling down. Additionally, any pole health issues that threaten the maintenance of the equipment they uphold threaten the reliability of the distribution service. A falling pole can cause disturbance in the form of power outage.

The utility has allocated capital in each year of the plan period to replace poles in a proactive manner. The recent Asset Condition Assessment (ACA) demonstrates that 248 primary poles are at their end of life, and another 395 will reach their end of life within the coming five years. SLHI's capital plan shows that in 2019, it will double its expenditures on replacing these poles, which reflects a more aggressive approach. The poles rated "Poor" and "Very Poor" in the ACA will need attention in this plan period. (The ACA can be found in Appendix B of the AMP in DSP Appendix A.)

Table #35 – Allocated Funds for Planned Primary Pole Replacement

Category	Project Activity	Budget 2018	Budget 2019	Budget 2020	Budget 2021	Budget 2022	Totals
System Renewal	Planned Primary Pole Replacement	91,620	93,270	94,949	96,658	98,398	474,895

B. Evaluation criteria and information requirements for each project

1. Efficiency, Customer Value, Reliability

The plan to replace primary poles that are reaching their end of life is driven by concerns for reliability, safety, and the risk of failure. The replacement program will target poles that are at significantly higher risk of failure, since a failed pole poses safety concerns for staff, customers, and the general public; failed poles also lead to power outages, which affect reliability statistics and customer satisfaction. There is a benefit to implementing a planned outage to replace a near-failing pole, rather than allowing the pole to fail in service.

This project is of high priority, which is demonstrated by the capital projections on 2018 onward. The ACA highlighted that SLHI had several poles in need of replacement in the coming years, and this program is aggressively, proactively dealing with that.

The pole testing program allowed SLHI to target failing poles in a more informed manner, rather than simply basing the replacement program on age alone.

2. Safety

Poles that are failing in service pose serious safety threats to the general public and to the workers who are servicing the distribution system. Workers and nearby customers may face electrocution if a pole falls Investing in the proactive replacement of failing poles mitigates these risks.

3. Cyber-security, Privacy

Not applicable.

4. Co-ordination, Interoperability

SLHI's distribution pole line design meets the Utility Standards Forum (USF) and Ontario Regulations 22/04 requirements. These standards ensure that the hydro pole framing is safely constructed. The utility also takes into account the requirements of existing and potential third-party service providers that may impact the loading of its distribution poles.

5. Economic Development

The materials used in replacing primary distribution poles are supplied from Ontario companies. The additional services needed for pole installation are contracted from local businesses. Using local resources allows the investment to stay within the local economy.

6. Environmental Benefits

There are environmental benefits to removing a primary pole reaching its end of life, including the prevention of forest fires and transformer oil spills that can occur when a pole falls. These types of crises pose environmental consequences, like damage to vegetation and harm to wildlife. The proactive replacement of poles prevents environmental safety hazards.

C. Category-specific requirements for each project

System Renewal:

Investments in the System Renewal category keep the distribution system in working order. Targeting near-failing and failing poles is a strategic move to maintain the condition of all of the other distribution assets. Of the 2427 primary poles, nearly 27% are “Poor” or “Very Poor”, meaning they will reach their end of life within the life of this plan. As SLHI conducts its pole testing program to further assess the poles in these conditions, the utility may determine that some of these poles’ lives can be extended. At this time, SLHI has planned on replacing 20 poles per year, which is more aggressive than in previous years, yet takes into account that some poles may be left in service for some more time.

When a pole fails in service, it can have catastrophic ramifications for a few different reasons. There are safety concerns connected with a pole falling, including safety to the general public, customers, and utility staff who service the assets. There is danger associated with staff working on a failing pole, or in a section of pole line where one or more poles have failed. Inclement weather can also have adverse effects on poles, especially when they are already experiencing rot and compromised structure. Harsh weather can cause failing poles to pose safety risks to workers. When a storm, for example, causes a pole to fail, it can lengthen the unplanned service outage, because it is increasingly difficult for workers to reinstate the service, as working conditions are poor.

Refurbishing primary poles is rare. A pole that is decrepit will need to be inspected, as will all of the equipment on it. Most times, the pole and the equipment are of the same vintage, so most of the equipment will need replacing at the same time. There are some assets, however, like stand-off brackets and down guys, which may be considered for a second lifecycle, or reuse, if they are in good condition, which minimizes replacement costs.

The risk of not replacing near-failing poles is absorbing the replacement costs in OM&A. There is a significant advantage to replace poles through planned outages and within regular working hours, rather than waiting until a failure, which often includes lengthy unplanned outages, after-hours service, and damage to other assets, property, and vegetation. Replacing poles proactively saves the life of the assets on the poles.

Project Information: New Connections

Investment Category: System Access
Capital Project Name: New Connections
Drivers: Customer Service Requests
Asset Type(s): Cables, Transformers, Poles, Conductor
Total Capital Cost (2018-2022): $310,996
Average Annual Capital Cost: $62,199
Start Date: January 1, 2018
End Date: December 31, 2022

A. General information of the project

Utilities are required to provide service to new customers in their service territories. Residential subdivisions usually have underground cables and pad mount transformers installed to provide service. New development is what drives the design and installation of the assets required for this activity. Despite SLHI's customer growth remaining very stable over the past years, the capital expenditures in the historical period of this plan demonstrate that a significant amount of capital must be allocated to the new connections category; this amount is consistent over the forecasted years of the plan. The reason for the seemingly large amount of capital for such little growth is the geographic nature of the utility, as it spans such large territory. Accommodating new connections generally involves installing new poles and transformers, especially in rural areas where the new connection occurs so far away from any neighbouring connections. This often results in a pole and a 25 kVA transformer feeding a single customer. Because this growth is customer-driven, it is difficult for the utility to predict future needs, but based on years past, SLHI has determined that $60,000 annually is required for this activity.

Table #36 – Allocated Funds for New Connections

Category	Project Activity	Budget 2018	Budget 2019	Budget 2020	Budget 2021	Budget 2022	Totals
System Access	New Connections	60,000	61,080	62,179	63,299	64,438	310,996

B. Evaluation criteria and information requirements for each project

1. Efficiency, Customer Value, Reliability

Customer service requests drive this project, as the utility must provide service, and therefore distribution system expansion, to accommodate the growth. This item remains a significant line item, as it meets the materiality threshold in every year of the forecasted plan period.

2. Safety

Safety is not a driver for this project, but it is certainly taken into consideration as the project is executed. All new installations and expansions are completed with strict adherence to safety regulations and standards.

3. Cyber-security, Privacy

Not applicable.

4. Co-ordination, Interoperability

All new connections are established consistent with the USF standards, adhering to the Ontario Regulations 22/04.

5. Economic Development

The services associated with accommodating new connections are usually contracted from local businesses. The materials used are procured from local and provincial suppliers, allowing the economic investment to stay within Ontario.

6. **Environmental Benefits**

This project is not specifically linked to any environmental benefits, however, SLHI maintains environmental standards and follows regulations when providing new connections.

C. Category-specific requirements for each project

System Access:

System access is a small, yet consistent, investment category for SLHI. The utility does not see many new connections, and does not have to provide much expansion to its service territory for development, but it has allotted steady amounts of capital to this category over the forecast period of the plan. The amounts are informed by previous years' needs. New growth can be somewhat unpredictable, and is outside of the utility's control when it occurs.

Project Information: U/G Cable Replacement

Investment Category: System Renewal
Capital Project Name: U/G cable replacement
Drivers: Service Quality, Reliability, Power Quality, End of Life, Safety
Asset Type(s): Underground cable
Total Capital Cost (2018-2022): $62,560
Average Annual Capital Cost: $62,560 (One year project)
Start Date: January 1, 2019
End Date: December 31, 2019

A. General information of the project

The underground cable testing identified by the Energy Ottawa report indicates that the F3 submarine cables are in good condition and therefore do not need to be replaced during the plan period. However, other cables tested that supply the Birchwood Cres and Atwood St areas, should be a concern. These cables (441m total) have been slated for replacement in 2019.

Table #37 – Allocated Funds for Replacement of Underground Cable

Category	**Project Activity**	**Budget 2018**	**Budget 2019**	**Budget 2020**	**Budget 2021**	**Budget 2022**	**Totals**
System Renewal	Planned U/G Cable Replacement		62,560				62,560

B. Evaluation criteria and information requirements for each project

1. **Efficiency, Customer Value, Reliability**

As stated above, replacing this cable prior to its failure is paramount for the customers supplied by it, especially if it were to fail in the winter time. Ensuring its good working condition is essential to those customers, as well as to the utility's reliability of service.

2. Safety

If this cable failed in service, especially in the winter months, there would be indirect safety concerns cause by the outage.

3. Cyber-security, Privacy

Not applicable.

4. Co-ordination, Interoperability

Not applicable.

5. Economic Development

The equipment and labour associated with replacing this cable would be procured from local sources, allowing the investment to stay within the local economy.

6. Environmental Benefits

There are no direct environmental benefits to replacing the cable, but the utility always maintains the proper environmental standards in conducting this type of work.

C. Category-specific requirements for each project

<u>System Renewal:</u>

As system renewal is concerned with the operational effectiveness of the distribution system, this activity is important to maintaining the service supplied by these underground cables. The customers in this area rely on its safe, reliable, and quality service, so the maintenance and eventual replacement of this cable is essential to meeting those needs.

Glossary

Acronym	Term	Definition
ACA	Asset Condition Assessment	
AMP	Asset Management Plan	
DSC	Distribution System Code	
IRRP	Integrated Regional Resource Planning	

Appendix A – Asset Management Plan

Includes the Asset Condition Assessment (ACA) – See Appendix B of the AMP

Project # 16157

Asset Management Plan

Prepared for:

Sioux Lookout Hydro Inc.

costello
Utility Consultants

January 25, 2017

LICENSED PROFESSIONAL ENGINEER
R. E. LAPIER
JAN 25/17
PROVINCE OF ONTARIO

Reviewed By: ______________________
Ahmed Almadhoun. P.Eng.

Approved By: ______________________
Ron LaPier. P.Eng.

Written Document Control

Version/ Revision	Prepared By/ Date	Reviewed By/ Date	Senior Reviewed By/ Date	Comments
Final	Diane W.	Ahmed A. 25.01.2017	Ron L. 25.01.2017	

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1.0 Introduction

This document outlines the Sioux Lookout Hydro Inc. (henceforth, SLHI) Asset Management Plan for the period of 2017 to 2022. The report also identifies recommendations to improve on the available asset data and potential to implement a more structured and analytical asset management strategy. This report will focus on asset inspection and maintenance, capital expenditure planning, and the required supporting information management systems.

In developing this asset management plan, the following factors were considered:

- Available asset inventory;
- Asset condition based on the current inspection processes; and
- Current capital expense programs, as identified by SLHI staff.

Observations for improvements in inspection, data collection, supporting systems, and related asset management processes were also made.

Sioux Lookout Hydro Inc. contracted the services of Costello Utility Consultants to assist with the process of producing as the Asset Condition Assessment, the Asset Management Plan, and the Distribution System Plan. The two entities have worked in conjunction to produce this report.

Sioux Lookout Hydro Inc. provides electricity delivery and services to the Municipality of Sioux Lookout. The total municipal population served is 5,080 with a total service area of 536 square kilometers. The municipality includes the communities of Sioux Lookout and Hudson. Outside of these two communities are large rural areas which comprise 530 square kilometers, or most of the municipality. The system consists of over 282 kilometers of primary conductor, both overhead and underground, and 887 distribution transformers, supported by 2,427 poles. Sioux Lookout Hydro does not own any stations.

Sioux Lookout Hydro Inc. operates from the Municipality of Sioux Lookout. SLHI does not host any utilities and does not have any embedded utilities within its service area. SLHI itself is embedded within Hydro One.

The Ontario Energy Board (OEB) has mandated that all long-term load transfer (LTLT) customers, which are Hydro One Network Inc. (HONI) customers supplied from the SLHI distribution system, be made SLHI customers by June 2017. These connection arrangements have existed for many years and have been dealt with through billing arrangements and customers have been left confused when trying to enquire about outage durations and other issues to a utility where they are not recognized as customers. HONI and SLHI have come to an agreement to resolve these LTLT connections and these costs are reflected in the capital expenditures for the plan period. Together with Hydro One, SLHI submitted their joint application to eliminate the Load Transfer customers in EB-2016-0249 on August 11, 2016. SLHI has 38 LTLT customers (Appendix A).

SLHI has allocated capital to buy out the LTLT assets. The utility will be acquiring 56 poles, only three of which are at their end of life, and 26 transformers, none of which are at their end of life. There is no repair work associated with the process of converting the LTLT customers. This buyout is scheduled to happen in 2017, although it may occur at least in part in 2016.

The current SLHI system was primarily rebuilt in the 1980s and 1990s. This rebuild upgraded the voltage of the system from 4.16 kV to 26.4 kV. Although some pockets of single-phase 7.2 kV remain, this system will not be expanded.

SLHI's service is unique in that its territory is spread out, yet it has a relatively low customer base given is geographic size. The figures below show SLHI's service territory.

Figure #1 – Sioux Lookout

Figure #2 – Sioux Lookout Hydro Inc. Service Area

Table #1 below shows the most recent five year customer statistics, showing stability and maturity in the municipality. The following observations can be made:

- Over the past five years, the number of customers serviced by SLHI has been very stable, with very little year-to-year change

Table #1 – SLHI General Statistics as of June 2016

	2012	2013	2014	2015
Population Served	5,037	5037	5080	5,080
Municipal Population	5,037	5037	5080	5080
Seasonal Population				
Total Customers	2,755	2,767	2,779	2,779
Residential Customers	2,312	2,326	2,335	2,339
General Service <50 kW Customers	391	390	395	391
General Service >50 kW Customers	52	51	49	50
Total Service Area (km^2)	536	536	536	536
Rural Service Area (km^2)	530	530	530	530
Urban Service Area (km)	6	6	6	6
Total kWh Sold (Excluding Losses)	71,922,866	83,168,942	85,561,762	79,373,806
Total Distribution Losses (kWh)	3,739,756	4,592,139	3,481,779	3,711,607
Total kWh Purchased	75,662,622	87,761,081	89,582,951	83,393,450
Winter Peak (kW)	18,063	20,657	20,858	21,167
Summer Peak (kW)	12,044	14,659	13,582	10,244
Average Peak (kW)	12,301	14,192	13,951	13,827

The capital expenditure program presented later in this document consists of projects driven by factors such as safety, system reliability, customer demand, and system loss reduction. These projects are categorized into the four investment drivers: system renewal, system service, system access, and general plant. SLHI will be developing a capital expenditure model based on a set of consistent criteria, with weight factors that will be applied. Direction was provided by the SLHI Board of Directors, the Municipality Official Plan, Costello Utility Consultants, and developers. The web links below provide a reference to the official plan documents. Each project identified by SLHI is supported by the appropriate documentation in Section 9 of this document.

The official plan for the communities serviced by SLHI is linked here:

http://www.siouxlookout.ca/en/invest-grow/official-plan.asp .

In addition, the Ministry of Energy and Infrastructure has a strategic vision for growth for the SLHI area and can be found here: https://www.placestogrow.ca/images/pdfs/GPNO-final.pdf .

The Asset Management Plan is a 'living document', and will be reviewed on an on-going basis.

2.0 SLHI Distribution System Overview

The SLHI Asset Management Plan primarily focuses on the assets summarized in the table below. These assets represent the major equipment as defined by the Electrical Safety Authority (ESA) *Equipment and*

Material Guideline. The subsequent sections of the report provide further detail and assessment of each asset type, as per the Asset Condition Assessment (Appendix B). Table #2 also identifies some key system indicators.

Table #2 – SLHI System Summary Overview (As of 2015): Assets included in Assessment

Asset Class	Population
Distribution poles (Wood)	2,427
Distribution Poles (Steel)	0
Secondary Poles (Wood)	277
Guy Poles (Wood)	13
Cross arms	487
Pole mounted transformers	785
Pad mounted transformers	97
Switches – 3Ph load break	0
Switches – 3Ph air break	0
Switches – Fused	122
Switches – Inline	24
Switches – Switching Cubicles	0
Primary U/G cables	13,684m
Primary Submarine Cables	6,201m
Protective line relays	0
Line circuit breakers/ reclosers	4

2.1 Inspection

Sioux Lookout Hydro Inc. has implemented, and follows, inspection and maintenance procedures, in accordance with the Distribution System Code (DSC), Regulation 22/04, Sections 4 and 5, and ESA Guidelines.

These procedures were implemented in February 2007, and are defined by the document entitled, "Sioux Lookout Hydro Inc. Maintenance Inspection Program". This document contains three supporting tables, namely:

1. Table C-1 Electric Utility System Inspection Cycles (Maximum intervals in Years)
2. Table C-2 Sample Line Patrol Inspection Checklist - Poles
3. Table C-3 Sample Line Patrol Inspection Checklist – Overhead and Padmount Transformers

SLHI refers to the SLHI Maintenance Inspection Program when dangerous situations do or could exist. This includes an indication of the appropriate response to any hazard by identifying its priority as "high", "low", or "requiring an outage".

For the purpose of this report, these documents collectively will be referred to as the SLHI Maintenance Inspection Program, and are included in Appendix C. These procedures generate a number of forms and checklists, which will be referred to as Records.

All line patrols and inspections are documented using the above Records. The asset inspection data and available device information are used to support maintenance activities and capital expense planning. Specific inspection and testing processes are dependent on the asset type.

SLHI recognizes an opportunity to better manage its assets using a longer term plan. The integration of an asset management system with all data linked to a Geographic Information System (GIS) will facilitate the interpretation of data and allow for better planning of construction, inspection, and maintenance work.

With the implementation of an asset management system, SLHI can correlate asset condition data, asset maintenance, replacement expenditures, and the resulting system performance indicators. These systems and their information collaborate and support the experience of SLHI staff.

In order to perform an accurate condition assessment of the Sioux Lookout Hydro system assets, the most up to date information was necessary. Asset information was utilized from an information database, personal knowledge of SLHI staff, and written records. Most asset information at SLHI is currently contained in a custom goAsset software system.

This goAsset database contains a variety of distribution asset information, such as asset IDs, ages, material types, and asset locations. Unfortunately, not much condition information is contained in the database and therefore assessments were based solely on asset ages.

Costello Utility Consultants staff spent one week on site in October 2015 to meet with SLHI staff and to view database information. An escorted tour of the SLHI system was also conducted at that time. Some assumptions had to be made where there was information missing from the database.

The purpose of the asset condition assessment is to evaluate the current condition of the asset and to assess where the asset lies along the expected useful life cycle. Other factors, such as visual inspections, damage reports, and testing data also contribute to the evaluation of the asset condition. This was important in order to properly plan for major capital expenditures, and for the replacement or refurbishment of the equipment. All of these factors are important in identifying which assets require attention or replacement to improve customer reliability, ensure better public safety, and provide on-going worker and environmental safety.

Given the evaluation of the SLHI's distribution assets, it is evident that many of the distribution assets are aging, with wood poles, pole mount transformers, and submarine cables indicating the most potential work required.

This knowledge can now be used to develop a detailed asset replacement plan that is targeted at those assets most in need of work.

This replacement strategy needs to take account of the impacts on customer and system reliability from a "run to failure" operating strategy for any assets supplying a small number of customers. An example of this is transformers supplying one or two customers, or submarine cables supplying only a single customer. Therefore adding the number of customers served by each asset to the databases would facilitate adding the reliability impact to the decision making process.

This report is based on all available information from all sources at SLHI's disposal. For the purposes of the Asset Condition Assessment, an asset health index was applied. The health index is as follows:

Table #3 – General Health Index Categories

Health Index	Condition	Description	Expected Lifetime	Age (yrs)	Requirements
85-100	Very Good	At worse, some aging or deterioration of a limited number of components	15+yrs	25 or younger	Normal inspection and maintenance
70-85	Good	Deteriorating of some components	10-15yrs	25-29	Normal inspection and maintenance
50-70	Fair	Noticeable deterioration or serious deterioration of specific components	5-10yrs	30-34	Increase diagnostic testing, possible replacements needed before 5 years depending on criticality
0-50	Poor	Widespread serious deterioration or significant deterioration of a dominant component	1-5 yrs	35-40	Start planning process to replace, considering risk and consequences of failure
0-30	Very Poor	Extensive serious deterioration or serious deterioration of a dominant component	0-1 yr	41-50+	At end-of –life, immediately assess risk; replace based of assessment

Where data other than age of the asset is available (such as inspection reports, test records) these factors are added to the health index evaluation. In the absence of additional supporting data, the Health Index evaluation is based on asset age.

2.2 Maintenance and Operating Activities

SLHI performs a number of maintenance and operating activities to ensure a safe and reliable operation of the distribution system. These activities are budgeted on an annual basis. The five year plan is presented in Table 21 in Section 9 of this report.

2.2.1 Locates and Connections

SLHI provides locating services for the residents served by SLHI, and in response to contractors performing work on and around the SLHI underground system. Table 4 indicates the number of locates per year has varied over the past four years as a results of variance in construction activity. (The period shown here includes the four previous years, and excludes the current year, as statistics are not yet available for 2016. The 2016 figures will appear in the Distribution System Plan, to be filed in 2017, as the data for 2016 will be ready by that time. The implementation of ON1Call in 2013 explains the significant increase of locates in that year, while 2014 and 2015 somewhat level off. The new connection activity is relatively stable – with a decrease in 2013, and some increase in 2014 and 2015 that brings the figures back toward the 2012 figures – this is indicated by the numbers over the last four years, as shown in Table #4 below.

Service layouts are prepared for any new home construction (in-fill) or service upgrade, commercial or residential, due to the expansions of the loads on existing lots. As indicated by Table #4, the application for new services and service upgrades has been minimal.

Table #4 – Five Year Locates and Connections Summary

	2012	2013	2014	2015
Average Customer Count	2,763	2,765	2,780	2,779
Number of Locates	70	132	110	114
Number of New Connections	27	19	24	25

2.2.2 System Performance

SLHI measures system performance indicators in accordance with the DSC. The following is a summary of the key system performance indicators for the past five years:

Table #5 – Five Year System Performance Summary

	2012	2013	2014	2015
Average Customer Count	2,755	2,767	2,779	2,779
Including loss of service from Hydro One				
Number of Customer Interruptions	3,249	3,535	10,258	6,586
Total Customer Hours of Interruptions	1,476	13,084	17,171	31,255
SAIDI	0.53	4.73	6.18	11.22
SAIFI	1.18	1.28	3.69	2.36
CAIDI	0.45	3.70	n/a	n/a
Excluding loss of service from Hydro One				
Number of Customer Interruptions	466	766	2,055	1,005
Total Customer Hours of Interruptions	1,290	624	3,548	1,899
SAIDI	0.47	0.23	1.28	0.68
SAIFI	0.17	0.28	0.74	0.36
CAIDI	2.77	0.81	n/a	n/a

"n/a" indicates that information was not available

SLHI's true system performance is indicated by removing the effect of the supplier's outages. Since SLHI is an embedded utility, it has no direct control over the supplier's outages. Table #5 shows that SLHI's statistics are significantly better when loss of service from Hydro One is excluded. Generally the numbers are stable; 2014 shows a spike that can be accounted for by the two summer storms that occurred in 2014. One happened at the end of June, the other in the second week of July; the two storms caused a great deal of damage due to high winds, resulting in downed trees. (Note that the OEB stopped reporting on CAIDI in 2014, therefore data in that category is not available thereafter.)

The highest number of unscheduled outages is caused by bird and animal contact with SLHI equipment. Ravens in particular disable many transformers every year. May and June see the largest number of outages, as young ravens attempt to use the tops of transformers as flight platforms. SLHI implemented guards on transformer equipment to mitigate the frequency of these outages and protect wildlife.

Another way to evaluate SLHI's performance is to compare its performances to other utilities of similar geographic region and size. Some of SLHI's comparators include Atikokan Hydro Inc., Fort Frances Power

Corporation, Kenora Hydro Electric Corporation Ltd., Chapleau Public Utilities Corporation, and Espanola Regional Hydro Distribution Corporation. (Note that the 2015 Electricity Distributors Yearbook has not been released as of the date this report is being written, so 2015 figures from other utilities are not yet available.) Tables #6-11 show SLHI's performance against these other utilities and the industry. (For detailed calculations of comparator averages, see Appendix D.)

Table #6 – SLHI SAIDI vs. Industry Average (Including Loss of Supply)

	2012	2013	2014	2015
SLHI SAIDI	0.53	4.73	6.18	11.21
Industry Average	4.00	13.2	3.73	4.64
Comparable LDC Average	1.38	3.92	1.69	6.28

Table #7 – SLHI SAIFI vs. Industry Average (Including Loss of Supply)

	2012	2013	2014	2015
SLHI SAIFI	1.18	1.28	3.69	2.36
Industry Average	2.27	2.99	2.13	2.15
Comparable LDC Average	0.71	1.73	1.21	2.44

Table #8 – SLHI CAIDI vs. Industry Average (Including Loss of Supply)

	2012	2013	2014	2015
SLHI CAIDI	0.45	3.70	-	-
Industry Average	1.76	4.42	-	-
Comparable LDC Average	1.64	2.28	-	-

Table #9 – SLHI SAIDI vs. Industry Average (Excluding Loss of Supply)

	2012	2013	2014	2015
SLHI SAIDI	0.47	0.23	1.28	0.68
Industry Average	1.56	8.42	1.60	1.77
Comparable LDC Average	0.53	1.42	0.53	1.36

Table #10 – SLHI SAIFI vs. Industry Average (Excluding Loss of Supply)

	2012	2013	2014	2015
SLHI SAIFI	0.17	0.28	0.74	0.36
Industry Average	1.80	2.44	1.64	1.65
Comparable LDC Average	0.40	0.87	0.42	0.54

Table #11 – SLHI CAIDI vs. Industry Average (Excluding Loss of Supply)

	2012	2013	2014	2015
SLHI CAIDI	2.77	0.81	-	-
Industry Average	0.87	3.46	-	-
Comparable LDC Average	1.28	2.01	-	-

2.3 Capital

It is important that assets are replaced as close to the end of their useful life as possible. It is generally accepted in industry that, rather than age, the asset 'stress' is a more important factor in determining asset life, and an indicator for the required maintenance or replacement of the asset. It therefore stands to reason that assets under greater stress should be monitored more closely and maintained more than those under less stress. This ensures a wise use of limited capital and maintenance expenditures. The aforementioned asset health index provides an efficient way to assess the health of the assets based on more factors than age alone.

It is important to note that the asset classes have been generalized and do not represent a certain set of identical equipment. Assets such as distribution poles vary in height and class, and transformers vary in manufacturer, types, ratings, installation methods, and locations. Ultimately, these variances may cause differences in replacement costs, but on average, should provide a valid evaluation of the Capital Cost Estimates for replacement or upgrades.

While estimated costs for replacement of individual devices may seem to make replacing many assets of the distribution system very expensive, costs can be reduced by strategically replacing multiple assets on a work site or in a specified area within one project. Costs for mobilizing the crews and equipment and the cost of work site setup can be shared between assets if multiple items are replaced at once. It is therefore recommended that multiple assets be considered simultaneously when planning replacement work.

SLHI has implemented an asset management system, supported by engineering analysis tools, to provide additional information for future asset assessments and determine which assets are under more stress and therefore require replacement or additional maintenance.

3.0 Substations

SLHI does not own any municipal substations (MS). Hydro One Networks Inc. (HONI) owns and operates the Sam Lake Distribution Station (DS), which supplies SLHI with four feeders at 25 kV.

During the site visit, SLHI staff indicated that there have been issues of reliability with some of the line reclosers at the station. The operational events related to these units should be recorded in detail by SLHI. This will allow SLHI to determine their impact on reliability and to provide data for any future discussions with HONI.

3.1 Feeder 1 (F1)

This feeder stretches west from the station to the town of Hudson. Hudson represents most of the load on this feeder. Some additional load exists between the community and the station where small pockets of residences are found. This feeder also supplies a Hydro One transfer to Frenchman's Head, Kejick Bay and Whitefish Bay small communities across the lake from Hudson. Submarine cable is used for this load transfer. This is the most lightly loaded feeder currently in service.

3.2 Feeder 2 (F2)

This feeder extends south-east of the station to provide power for the southern half of Sioux Lookout, including the south shore of Abram lake. The blue phase of this feeder branches south into rural areas on Highway 72. This section consists of a large number of single-phase 25 kVA and 50 kVA transformers. These transformers are lightly loaded. Based on experience, phase balancing and conductor loading are within acceptable levels. This feeder makes up approximately 38% of the system load.

3.3 Feeder 3 (F3)

This feeder travels east of the station to supply the northern part of Sioux Lookout. This stretch includes most of the heavier loads in the municipality, including the airport and hospital. This is shown in Table 12 and Charts 1 and 2. The blue phase of this feeder continues east of the town to supply a rural area on Highway 642. The phase loading on Feeder 3 represents the majority of the entire load at approximately 68%.

3.4 Feeder 4 (F4)

This feeder does not currently carry any load. Previously, it had been a dedicated feeder for the Hudson Saw Mill. With the mill's closure, the load has been removed.

Table #12 – SLHI Installed kvA by Phase by Feeder

Phase	F1	F2	F3	F4	Total
Blue	1,160	5,175	5,299	0	11,634
Red	570	4,425	3,006	0	8,301
White	310	4,509.5	4,203	0	9,022.5
Red/White/Blue	300	2,735	28,245	0	31,280
Total	2,640	16,844.5	40,753	0	60,237.5
% Total	4.38	27.96	67.65	0	100

Table #13 below shows the peak loading on each of the feeders from the Sam Lake DS, as well as the total capacity of each of the feeders. This table is consistent with Table #12 showing that F4 is not currently loaded; the protection study completed by Costello Utility Consultants did not yield any capacity information for F4 because it is not in use. As is common with utilities in northern Ontario, SLHI's four feeders experience peak loading in February because of the use of electrical heat.

Table #13 – SLHI Capacity vs. Load Demand by Feeder

Feeder	Peak (A)	Month	Capacity (A)
F1	80	February	140
F2	125	February	280
F3	325	February	385
F4	N/A	N/A	N/A

Chart #1 – SLHI Installed kVA by Phase by Feeder

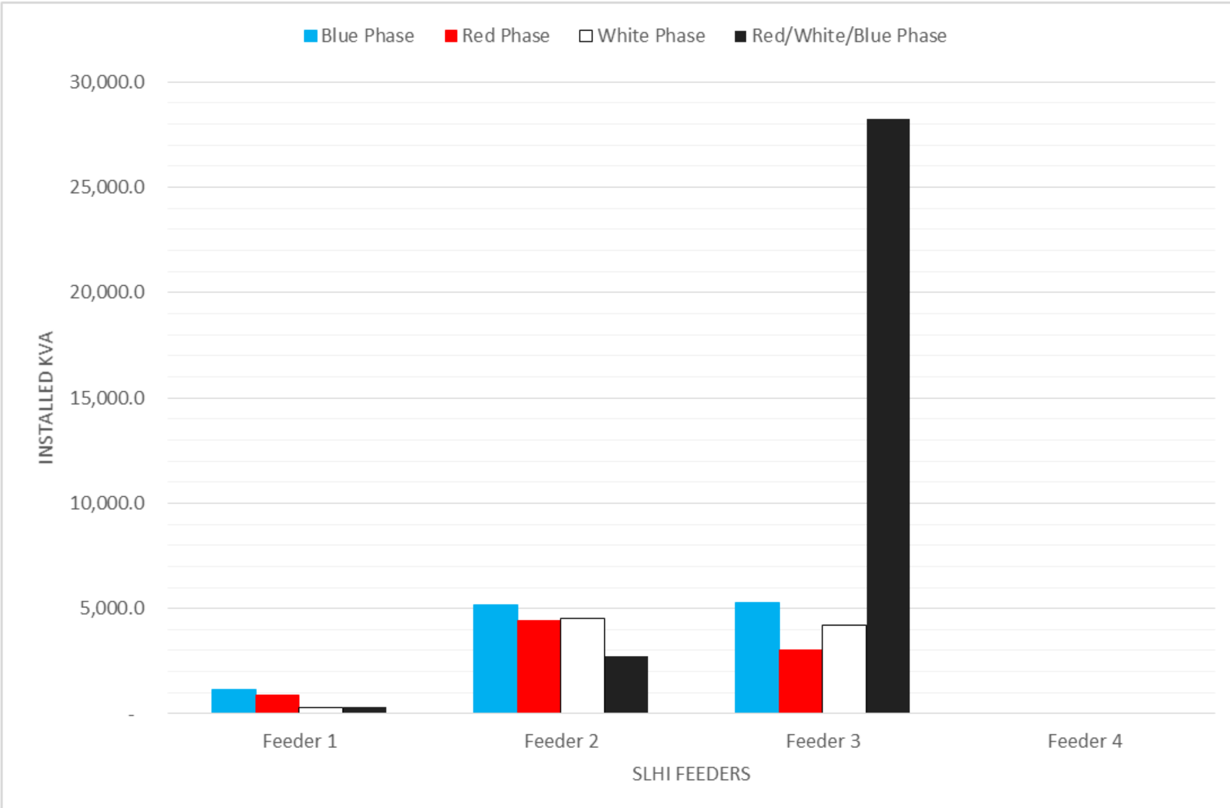
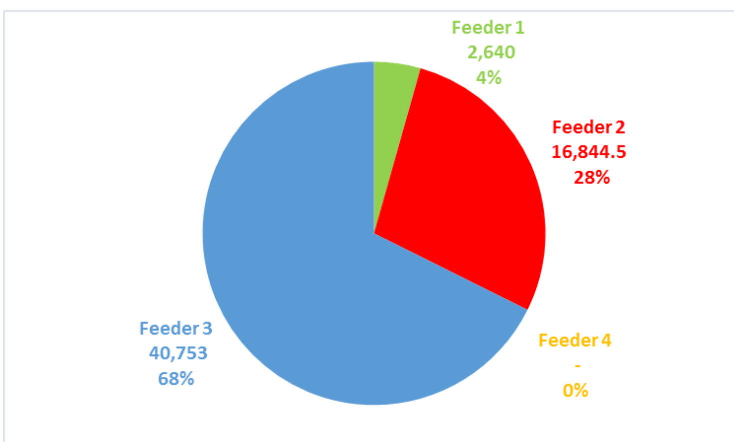


Chart #2 – Connected Transformation (kVA) by Feeder by Percentages of Total



The low population density throughout most of SLHI's distribution system does not allow for effective switching of loads between all three active feeders. F2 and F3 are interconnected in the southern half of the community of Sioux Lookout. This provides switching between feeders in the more densely populated community. In the rural areas, where only a single-phase is required to supply long stretches of light load, it is not practical or cost-effective, at this time, to provide switching between feeders.

4.0 Poles

The SLHI overhead distribution system is supported by 2,427 distribution poles, which are exclusively wood. Distribution poles are also SLHI's single form of support for low- and medium-voltage overhead feeders and distribution equipment. It should be noted that of the poles assessed, there is a wide variation in the height and class.

The SLHI pole database categorized poles into "distribution", "secondary", and "guy poles". A summary and chart of the developed health index for the Sioux Lookout Hydro distribution poles is shown below, while the entire health index along with the condition assessment results can be found in The Asset Condition Assessment (Appendix B).

Table #14 – Wood Pole Health Index

Wood Pole Health Index				
Condition	Expected Life	Distribution Pole Count	Secondary Pole Count	Guy Pole Count
Very Good	More than 15 years	762	85	8
Good	More than 10 years	638	21	0
Fair	From 5-10 years	384	70	0
Poor	less than 5 years	395	29	3
Very Poor	At end of life	248	72	1
	Total	2,427	277	12

Chart #3 – Distribution Pole Health Index

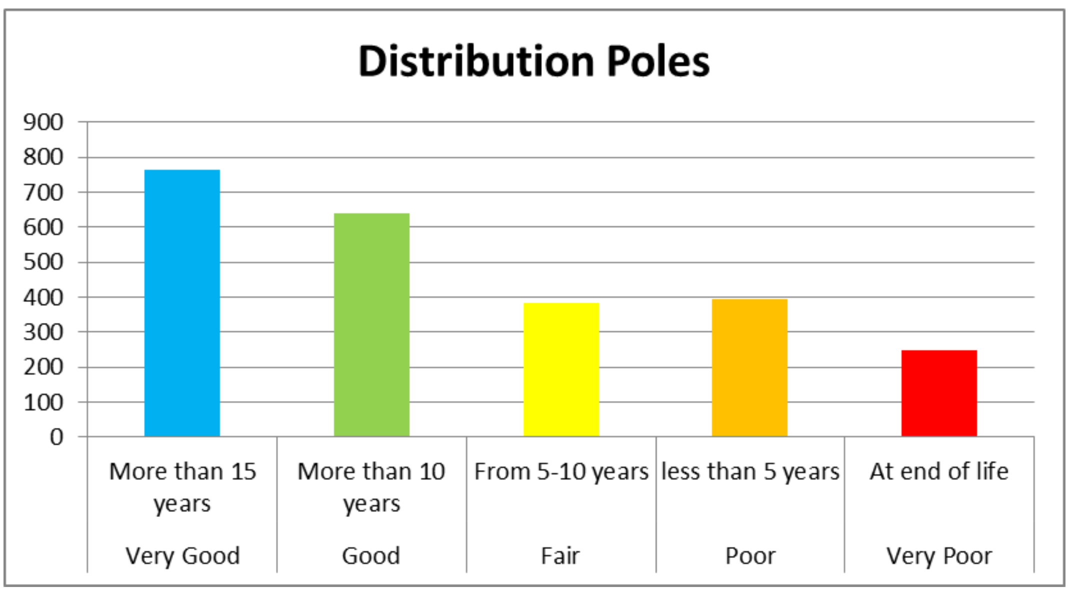


Chart #4 – Secondary Pole Health Index

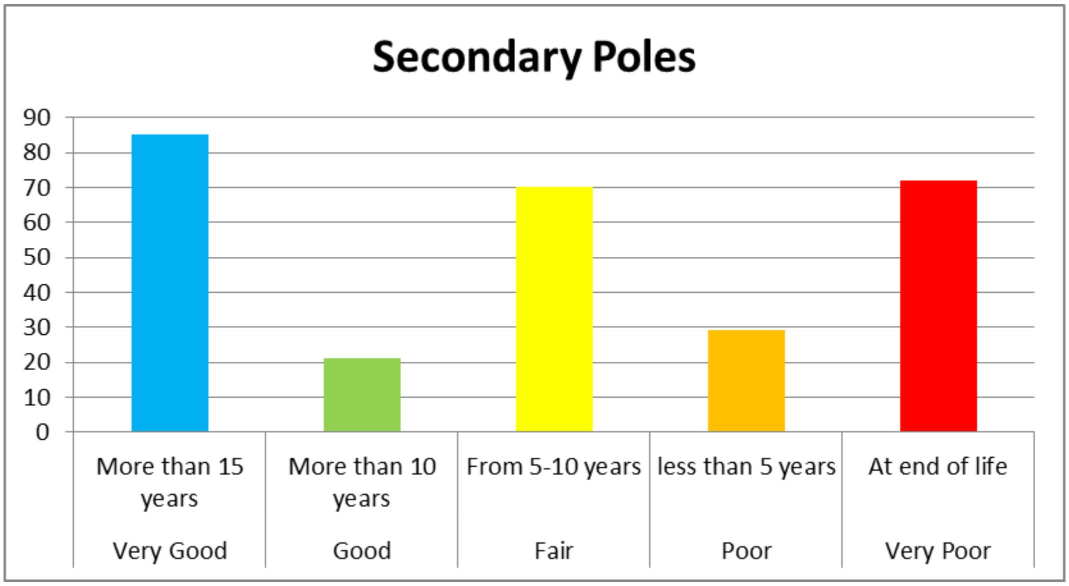
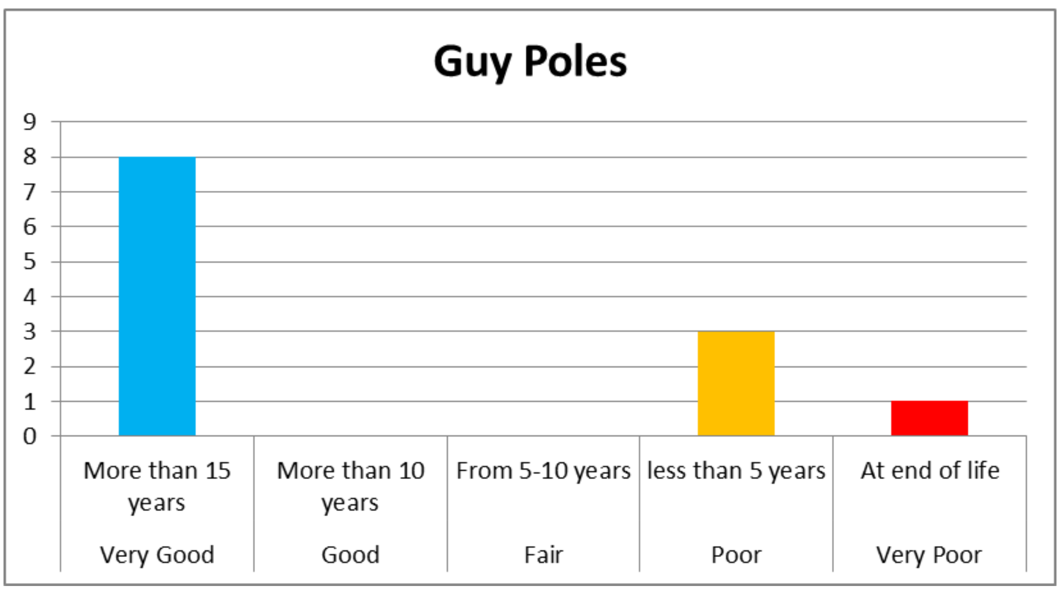


Chart #5 – Guy Pole Health Index



As can be seen from the data above:

- 11.8 % of the poles have been classified as having reached their end-of-life; and
- 32.4% are estimated to have no more than 10 years of useful life remaining.

While older poles may still be in good physical and structural condition, the assessment methods only took into consideration the pole age due to their being no other available data.

With the implementation of the asset management system in 2012, and the asset condition assessment complete in 2016, SLHI has been able to determine which poles are under more stress and therefore require more frequent inspection, testing, maintenance, and ultimately, replacement.

Currently, poles that are identified as potential health and safety hazards to the public and staff are replaced on a high priority basis. Prioritization of pole replacement is based on the number of customers that will be interrupted if a pole fails. This places poles carrying three-phase primary circuits as the highest priority. Also, any road authority or private development projects may require pole replacement not specifically identified by inspection and testing. SLHI is working towards a pole replacement cycle of no less than 40 years, in line with industry norms. Poles older than 40 years that are lightly loaded (low stress) and in good condition will be maintained in service.

SLHI also recognizes that an appropriate replacement program must consider the relationship of the pole asset with other assets in its proximity and within the network system. As mentioned previously, combining refurbishment and replacement efforts across multiple asset classes is more efficient than replacing one-off assets.

4.1 Inspection

Line patrols, conducted in accordance with the requirements of the DSC and SLHI Maintenance Inspection Program, include a visual inspection of poles for the following:

- Bent, cracked, or broken poles;
- Excessive surface wear or scaling;
- Loose, cracked, or broken cross arms and brackets;
- Woodpecker or insect damage, bird nests;
- Loose or unattached guy wires or stubs;
- Guy strain insulators pulled apart or broken;
- Guy guards out of position or missing;
- Grading changes, or washouts; and
- Indications of burning.

Woodpeckers may cause severe damage to poles to the point where the poles must be replaced prior to the end of their expected life. SLHI is aware of this reality in Northern Ontario and identifies woodpecker damage during patrols. Where woodpecker damage is minimal, and may be mitigated by repair procedures, the pole may not be immediately replaced.

SLHI initiated a pole testing program in late 2016. Such a program allows the local distribution company (LDC) to have more specific knowledge of the asset class in order to make more informed and strategic decisions about pole replacements. The program will assess pole strength, relative to new poles, using a percentage. A comparison is then drawn on the remaining strength of the pole versus the actual loading on the pole. If the required structural support of the pole exceeds the Canadian Standards Associates (CSA) standards for allowable safety margins, then the pole is prioritized for replacement. This process gives the LDC the ability to identify the older poles that have not exceeded the safety margins for load and are structurally sound. This way, poles are not replaced based on age alone, but can be left in service until they are deemed inadequate.

4.2 Pole Replacements

Results of the pole testing program will be complied and poles that have failed will be placed on a prioritization spectrum. Replacement is then scheduled in correlation to capital planning, ensuring that the least sound poles are replaced first, and poles that can remain in service longer are left until it is necessary they be replaced. Replacing poles in groups, or clusters, helps to reduce the per-pole cost of replacement. Whenever possible, reusing components such as down guys, metal stand-off brackets, and steel crossarms allows for lowering the cost of pole replacements as well.

Based on the age criteria alone, it is evident that almost half of the wood poles in the system have already reached their industry accepted end of life, or will have reached it within the next 5-10 years. A comprehensive pole testing program targeted at this aged population, as previously explained, helps to further assess the condition of this asset group, and allows capital expenditures related to pole replacements to be smoothed out over the planning period to support efficiency

The pole testing of the oldest group of poles concluded that approximately 51 poles of the group failed based on the strength comparison to new poles. This indicates that roughly 20% of this group is actually a concern and further investigation into the actual loading requirements may reduce this further. This process will prove to be a valuable resource for Sioux Lookout Hydro in order to justify the poles being replaced and reduce unnecessary expenditures by replacing old poles that are still in good condition. This along with regular inspections will allow SLHI to keep more accurate track of the number of poles that should be replaced in any given fiscal year.

5.0 Transformers

Both pole mount and pad mount transformers were assessed based on age alone.

Based on the age data for SLHI transformers, the health index was applied on the same general categories as for distribution poles.

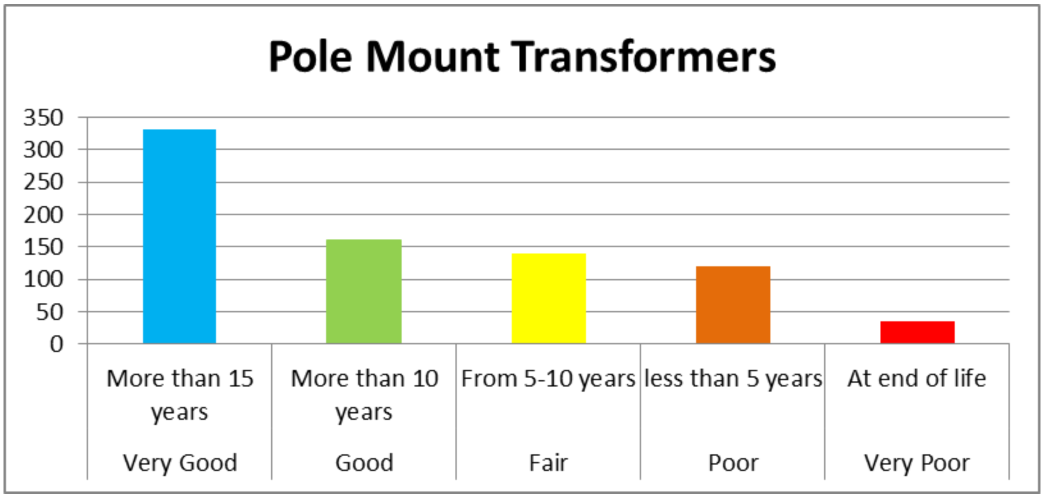
5.1 Pole Mount Transformers

Pole mounted transformers are used to step down voltage from a primary level to a secondary utilization level on the overhead distribution system. These transformers are mounted above ground on poles and are liquid-filled with mineral oil in a sealed tank. An industry standard for the life expectancy for pole mounted transformers is 40 years. The ACA indexed 790 pole mount transformers.

Table #15 – Pole Mount Transformer Health Index

Pole Mount Tx Health Index		
Condition	Expected Life	Tx Count
Very Good	More than 15 years	331
Good	More than 10 years	161
Fair	From 5-10 years	141
Poor	Less than 5 years	121
Very Poor	At end of life	36
	Total	790

Chart #6 – Pole Mount Transformer Health Index



The pole mount transformers classified as being in "very poor" condition are ones that are listed in the database as being 40+ years of age or those that have no age listed in the database.

Of the remaining transformers, the categories of "fair", "good", and "very good" are based on the listed age and the indication of not containing PCBs.

It should be noted that there are a number of inconsistencies found in the transformer database that should be clarified through further investigation. These are:

- Transformer age information is not complete for seven units; and
- The "date" field is assumed to be the manufacture date and is generally populated. However, the "installed date" is not generally filled, and where it has been populated, it is inconsistent with the "date".

Another factor that can be taken into consideration is the "run to failure" option for transformers that serve a low number of customers, and therefore have a much lower impact on the reliability statistics if they fail. The transformer database in the goAsset system has the capability of determining the number of customers on a specific transformer. This information will be used to support the "run to failure" option.

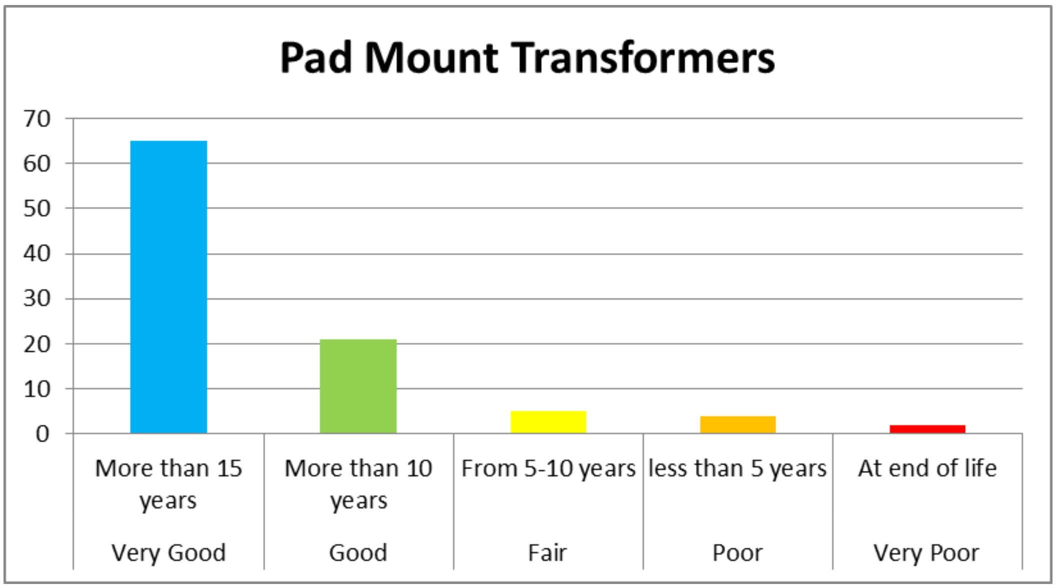
5.2 Pad Mount Transformers

Pad mount transformers are typically used for commercial services in urbanized areas and are also used extensively in residential developments. The ACA counted 97 pad mount transformers.

Table #16 – Pad Mount Transformer Health Index

Pad Mount Tx Health Index		
Condition	Expected Life	Tx Count
Very Good	More than 15 years	65
Good	More than 10 years	21
Fair	From 5-10 years	5
Poor	less than 5 years	4
Very Poor	At end of life	2
	Total	97

Chart #7 – Pad Mount Transformer Health Index



Since the majority of SLHI's underground infrastructure is relatively new, most of the pad mounted transformers were assessed to be in excellent condition.

The same considerations as mentioned above for pole mount transformers related to a "run to failure" replacement plan also apply to pad mount transformers.

5.3 Inspection

SLHI visually inspects transformers every three years under the Maintenance Inspection Program and record and follow up on any complaints received from customers. The inspection of transformers is in accordance with the requirements of the DSC and SLHI Maintenance Inspection Program, and it includes:

- Paint condition and corrosion;
- Placement on pad or vault;
- Check for lock and penta bolt in place;
- Grading changes;

- Access changes (shrubs, trees, etc.);
- Phase indicators and unit numbers match operating map (where used);
- Leaking oil;
- Flashed or cracked insulators;
- Pad mount – lid damage, missing bolts, cabinet damage, public security lock damage;
- Contamination/discoloration of bushings;
- Ground lead attachment;
- Bird or animal nests;
- Vines or brush growth interference;
- Evidence of bushing flashover;
- Accessibility compromised;
- Vegetation right of way;
- Unapproved/unsafe occupation or secondary use;
- Cable connections;
- Ground connections;
- Nomenclature; and
- General condition.

5.4 Transformer Replacement

The health index analysis revealed that almost 37% of the population of pole mount transformers will reach their statistical end of life with in the next 5-10 years; almost 33% of the population of pad mount transformers will reach their statistical end of life with in the next 5-10 years. These analyses could not take into account any “run to failure” transformers within this group due to the lack of customer connection information.

If the additional factor of number of customer connections is added to the assessment criteria, some of the transformers the fell into the “very poor” category could possibly be moved into less urgent levels of the assessment.

6.0 Switches and Protection

Sioux Lookout Hydro’s distribution air break switches are devices that are mounted either on the distribution poles or in line with the conductors and are made to open a circuit, **while not under load**. All of SLHI’s air break switches are manually operated and can only be opened or closed one phase at a time. The air break switches may be either solid blade devices, which offer no protection, or fused to offer a level of overload or fault protection.

6.1 Air Break Switches

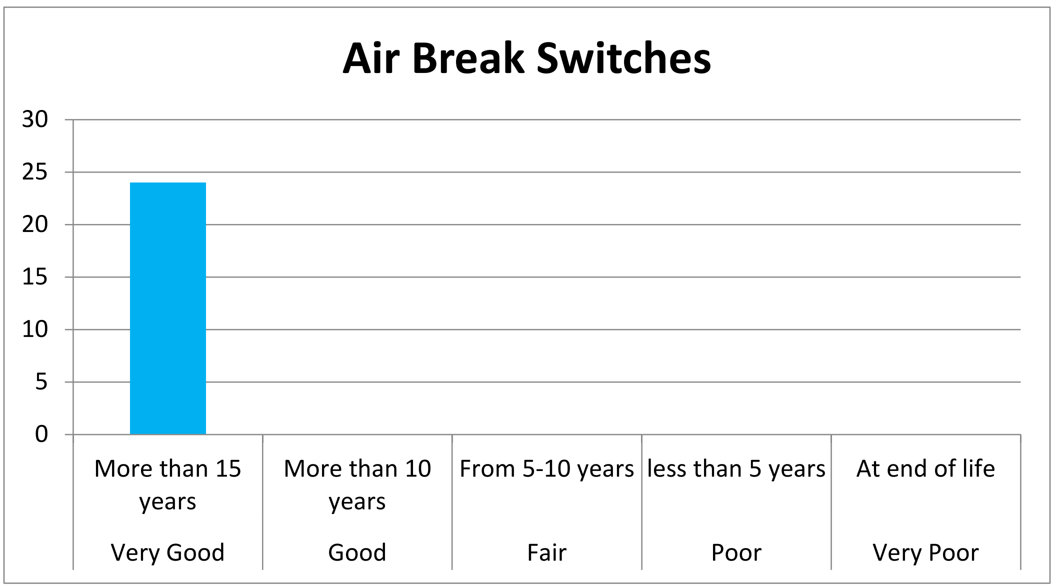
Air break switches are not inventoried in the SLHI database, but a count based on information gathered by SLHI staff and the operating maps indicates that there are 24 in-line switch installations in the SLHI system.

An analysis of this data indicates that the majority of these installations occurred between 1995 and 2000. This places their maximum age at around 21 years and based on a normal life expectancy, this asset can be considered to be in “very good” condition.

Table #17 – Air Break Switch Health Index

Air Break Switch Health Index		
Condition	Expected Life	Count
Very Good	More than 15 years	24
Good	More than 10 years	0
Fair	From 5-10 years	0
Poor	less than 5 years	0
Very Poor	At end of life	0
	Total	24

Chart #8 – Air Break Switch Health Index



6.2 Inspection

Visual inspections are carried out on all switches as part of the Maintenance Inspection Program. These visual inspections occur once every three years in accordance with the requirements of the DSC and SLHI Maintenance Inspection Program, and include:

- Bent, broken bushings and cutouts;
- Damaged lightning arresters; and
- Ground wire on arresters unattached.

A switch that fails the inspection process would be replaced on a priority basis.

6.3 Switches and Protection Replacement

The data indicate that the population of air break switches in the SLHI system is not a concern.

7.0 Distribution Cables

SLHI collected cable information based on staff knowledge and installation records. This age data was used to formulate health index results.

While this is limited information to provide an accurate health index, an attempt to evaluate the general health index was made.

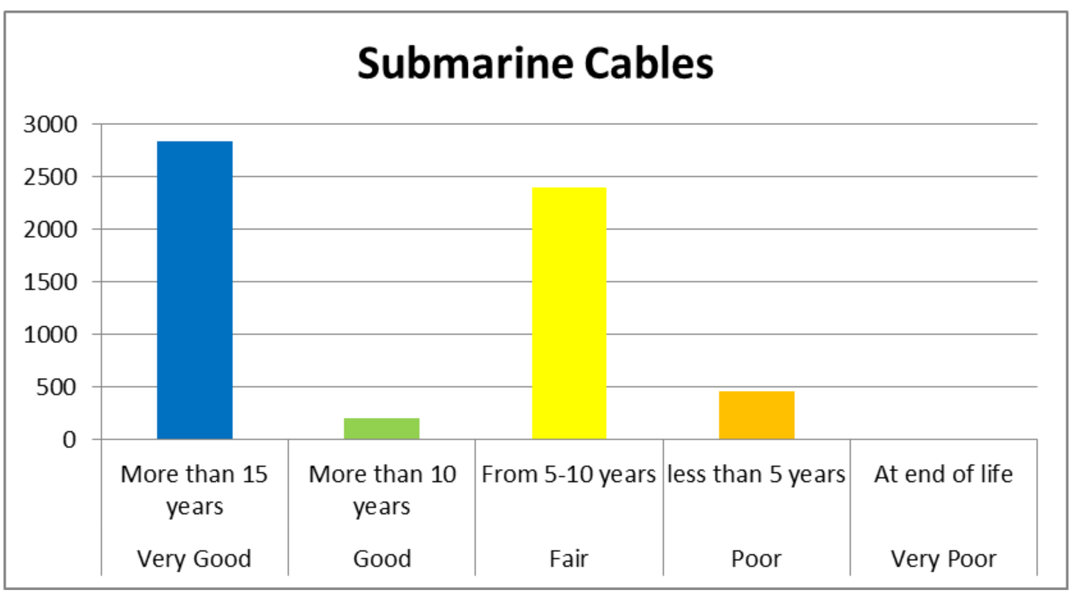
7.1 Submarine Cables

Like many of its neighbouring utilities, SLHI has an inventory of submarine cables in service to provide electrical power to island settlements. These applications often serve a small number of customers, but given the geographical realities of the region, SLHI also operates submarine cables for main feeder applications between Sam Lake DS and the town of Sioux Lookout. There are 5901km of submarine cable accounted for here.

Table #18 – Submarine Cables Health Index

Submarine Cables Health Index		
Condition	Expected Life	km Count
Very Good	More than 15 years	2840
Good	More than 10 years	201
Fair	From 5-10 years	2400
Poor	less than 5 years	460
Very Poor	At end of life	0
	Total	5901

Chart #9 – Submarine Cable Health Index



The information above reveals that nearly 50% of the submarine cables will be at the end of their expected life within 10 years. The largest portion of this is the F3 Main Feeder cable that supplies the Town of Sioux Lookout.

Based on a high level review of the peak feeder loading information for the F2 and F3 feeders, it is evident that the combined loading for the Town of Sioux Lookout would exceed the rating for F2 feeder on its own. A failure of this F3 cable would result in extended or rotating outages until repairs/replacement of the F3 cables could be made.

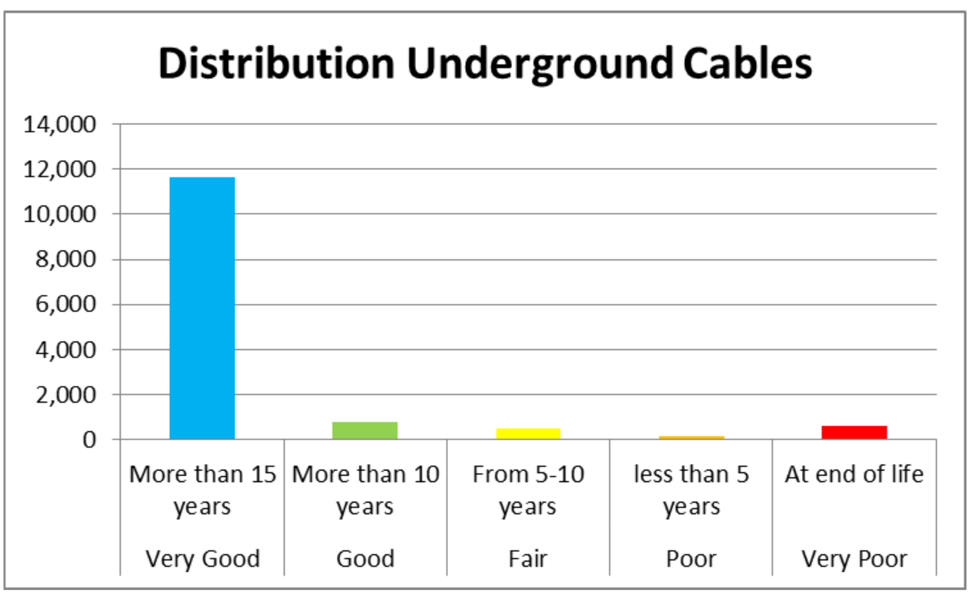
7.2 Underground Cables

An inventory of underground cables and the estimated age were provided by SLHI staff based on staff knowledge and what records could be found. There are 13,684m of underground cable in the distribution system. Based on this information, an assessment was made on age alone. Further evaluation can be made once the number of customers served by each section of cable is determined, which can allow a review of replacement strategies and reliability impacts that can be specific for each section.

Table #19 – Distribution Underground Cable Health Index

Distribution Underground Cable Health Index		
Condition	Expected Life	Length (m)
Very Good	More than 15 years	11,672
Good	More than 10 years	772
Fair	From 5-10 years	518
Poor	less than 5 years	138
Very Poor	At end of life	584
	Total	13,684

Chart #10 – Distribution Underground Cable Health Index



The majority of the underground primary cables have been installed since 1990, and as such are considered to be in very good condition based on age. Approximately 4% of the cables in the SLHI system are currently beyond their expected useful life and are represented by only three older installations. About 5% of the asset will reach its expected life span within the next 5-10 years, and are represented by only three installations.

7.3 Inspection

Typically underground cables for residential subdivisions are loop-fed and therefore isolation for inspection and testing is possible under planned outage conditions. Inspection and testing of radial-supplied underground cables is not possible without a planned outage of more duration. SLHI was part of a pilot project performed in August 2016 by Energy Ottawa where the underground cables were tested for water trees within the polymeric insulation, which have been found to be a major cause of power interruption in these types of cables. The report is attached as Appendix F. Age is an important factor in the life expectancy of a cable, but it is not the only factor. By testing the quality of the cables, SLHI can plan more effectively for its replacement strategy of underground cables, rather than basing this strategy solely on age. Replacing cable based on actual knowledge of health can save money; the alternative – replacing based on age alone – can lead to spending money in advance of when it needs to be spent, replacing assets far before they need replacing, and therefore not extracting the full useful life out of an asset.

By their nature, submarine cables are not able to be inspected. However, the F3 Submarine cables were tested under the pilot project by Energy Ottawa. The results were favorable, and indicated that all four cables (three phases and a backup cable) are in good condition. The backup cable is not energized and is in place should one cable fail. However, the three active cables cannot be taken out of service for testing or replacing in the winter because the customer base it supplies relies on it for electrical heat. It can, however, be out of service in the summer time, when the load is lower.

7.4 Distribution Cable Replacement

The analysis indicates that almost half of the submarine cables in the SLHI system are aging, however the majority of this quantity is the F3 feeder that is one of the two main feeders supplying the Town of Sioux Lookout.

A high level load review of the F2 and F3 feeders reveals that the F2 feeder could not carry all of the winter peak demand on its own. Therefore, a failure of the F3 cables in the winter would result in the need for load shedding or rotating blackouts in the town during the replacement period for the F3 cables.

The F3 submarine cables were tested to provide an assessment of their current status and indicated that they were in good condition. In addition to the cable replacement with a “like for like” strategy, this strategy could also include plans for building a land based feeder from the Sam Lake DS to town. This could ultimately remove the need for the reliance on the submarine feeder. This decision could be supported by the fact that land based feeder repairs can be made much more quickly than a submarine cable. However, due to the high cost of such a project, a feasibility study would have to be performed.

The data suggest that the majority of the underground primary cables are new and expected to be in good condition. The cables needing attention within the next ten years are all represented by only six separate installations. Three of these cables were tested to confirm whether they are in fact a concern, and the results indicated that they were in “Fair” condition which will require additional testing and/or replacement in 3 to 5 years.

8.0 Wood Crossarms

Although crossarms are not tracked in a database at SLHI, it was acknowledged that many of the wood crossarms in the SLHI system appear to have potential moss and mould build up and may be degrading prematurely. Subsequent to the draft report, SLHI staff performed a crossarm count and a visual inspection from the bucket truck and reported the following information:

- 487 wood crossarms in the system; and
- Evidence of moss build up, but no mould present.

The crossarms in the distribution system are assumed to be the same ages as the poles they are on. Therefore, their health is indexed as consistent with their corresponding poles. The health of the wooden crossarms in the system can have a significant impact on the system reliability if crossarm failures occur, and therefore should be monitored during regular inspection cycles.

SLHI staff plan to continue the program to inspect and replace wood crossarms throughout the system, based on the main feeders as first priority. Also any pole slated for replacement will provide for a replacement of any crossarm present. Since SLHI does not have current knowledge on the division of crossarms as single-phase and three-phase, the implementation of the GIS will be specifically helpful here.

The only way to avoid the early degradation of the crossarms is to switch to the use of steel arms in the future.

9.0 Metering and Monitoring

SLHI currently bills all customers monthly on a true monthly schedule. Billing occurs on the third Monday of each month.

9.1 Wholesale

SLHI receives its power from a single DS location in the center of its territory.

SLHI currently possesses six primary metering units, which provide metering to large customers.

9.2 Retail Metering

The SLHI customer information is summarized in Table 1. All smart meter Advanced Metering Infrastructure (AMI) and associated information for SLHI is located within the Thunder Bay Hydro servers, located in Thunder Bay.

9.3 Inspection

All maintenance activities related to meters follow the requirements of Measurement Canada guidelines.

9.4 Implementation

Smart meters were implemented in SLHI territory under the Ontario government mandate to replace the electromechanical billing meters with smart meters and Advanced Meter Infrastructure (AMI) two-way communication systems in 2009.

9.5 Metering Replacement

The Electricity and Gas Inspection Act, enforced by Measurement Canada, requires that meters be re-verified to ensure that all meters meet the operational standards over their lifespans. In order to be re-verified, meters are removed and tested. Meters installed as part of the provincial government's mandate come due for re-verification in 2019, and thus, will need to be accounted for in the asset management and capital expenditure plans of this plan period.

SLHI has allotted capital to plan for the purchasing of new meters in order for the existing meters to be evaluated and resealed within the plan period. SLHI plans to sample test it's R2S meters in order to obtain seal extensions for the majority of its meters. This will require that SLHI purchase an inventory of smart meters to facilitate the meter removal/replacement plans for the sampling program. Pre-sampling will be utilized in order to increase confidence levels when determining the seal extension period applied for in the final testing performed by Measurement Canada. Given that most of the smart meters were installed around the same time, as mandated by the province, the number of meters to be verified will be significant. Sampling will allow SLHI to reduce costs by eliminating the need to re-verify all 2,600 of the R2S meters and thereby reducing costs. SLHI's commercial meters will be re-verified in 2019 as the number of meters is small. This will be done in small groups to eliminate the need to purchase all new meters and will be re-verified on a rotating schedule.

10.0 Conductor

SLHI maintains lightly loaded distribution lines over comparatively long distances throughout its system. Past installation practices have varied, which has resulted in a mixture of different conductor sizes throughout the system. However SLHI replaced six blocks of #2 and #4 copper from First Avenue to Sixth Avenue in the community of Sioux Lookout in 2015 with 1/0 ACSR At this time all conductors installed are capable of carrying the required load and as such will not be replaced until their end of life.

Current practice is to use a more uniform approach to conductor sizing. For primary circuits, SLHI now installs 1/0 ACSR for single phase lines and 3/0 ACSR for three phase lines. Over time these conductors will replace the older, more varied sizes.

10.1 Primary

The majority of the SLHI distribution system is operated at 14.4 kV, and was upgraded in the 1980s from a 4.16 kV system to reduce losses, in line with industry practices.

Some portions of the current system were originally owned by Hydro One Networks Inc. (HONI), or Ontario Hydro at the time. This is the reason for the existence of the 7.2 kV pockets which exist throughout the system. Where economical, these pockets will be replaced or converted over time to 14.4 kV, as other assets in proximity, such as poles, must also be replaced.

10.2 Secondary

The conductor type used for secondary circuits in the past has varied throughout the SLHI system, depending on ownership and year of installation. HONI construction practices for secondary and services are different from current SLHI standards. SLHI now uses NS 750 #2 ACSR for 100A services, and NS 750 1/0 ACSR for 200A services for any new overhead installations. For underground services, 3/0 cable is used for most applications. However, over longer distances, 250 MCM may be substituted.

Although the secondary bus is not always replaced when one customer upgrades their service, should a number of customers supplied by the same transformer upgrade, the secondary would be assessed and replaced based on current standards.

10.3 Inspection

Line patrols are conducted annually in accordance with the requirements of the DSC and the Sioux Lookout Hydro Maintenance Inspection Program (Appendix C). The line patrols include a visual inspection of the following:

- Conductors and Cables
    - Low conductor clearance
    - Broken/frayed conductors or tie wires
    - Exposed broken ground conductors
    - Broken strands, bird caging, and excessive or inadequate sag
    - Insulation fraying on secondary
- Hardware and Attachments
    - Loose or missing hardware
    - Insulators unattached from pines
    - Conductor unattached from insulators
    - Insulators flashed over or obviously contaminated (difficult to see)
    - Tie wires unraveled
    - Ground wire broken or removed
    - Ground wire guards broken or removed
- General Conditions and Vegetation
    - Leaning or broken “danger” trees
    - Growth into line of “climbing” plants
    - Accessibility compromised
    - Vines or bush growth interference (line clearance)
    - Bird or animal nests
- Vegetation and Right of Way
    - Accessibility compromised
    - Grade changes that could expose cable
    - Excessive vegetation on right of way

SLHI patrols its entire distribution system every three years, and are tracked using the “Line Patrol Inspection Checklists” (see SLHI Maintenance Inspection Program, Appendix C).

10.4 Maintenance

Due to the extensive wilderness area covered by SLHI lines, tree trimming is consistently one of the largest costs associated with maintaining system reliability. As part of the regular maintenance plan for the conductor assets, SLHI schedules regular tree-trimming activities, as described below.

Vegetation and Right of Way control is a requirement under the Minimum Inspection Requirements of the DSC and good utility practice. SLHI distribution area includes some tourist areas and therefore can be sensitive to tree trimming activities. SLHI has a relatively heavy mature tree cover where overhead hydro lines are in proximity to trees. Tree contact with energized lines can cause the following:

- Interruption of power due to short circuit to ground or between phases;
- Damage to conductors, hardware, and poles;
- Danger to persons and property within the vicinity due to falling conductors, hardware, poles, and trees; and
- Danger of electric shock potential from electricity energizing vegetation.

Care must be taken to balance the requirements of customers and stakeholders, and the safe and reliable operation of the distribution system. In general, the three-phase circuit sections require higher reliability and are therefore trimmed on a more frequent basis than the single-phase circuit sections.

Tree trimming inspections have been incorporated into the other inspection programs included in this plan, and additional checks will be performed by work crews in the areas in which regular work is performed.

SLHI performs line clearing in accordance with the SLHI Line Clearing Program. Maintenance work orders are issued as a result of field observations and inspections. All work is scheduled accordingly.

To mitigate direct contact between trees and distribution assets, SLHI conducts tree trimming in accordance with the SLHI Procedures. Depending on the size, shape, and growth aspect of each tree species, the tree trimmers remove sufficient material from the tree to limit the possibility of contact during high wind situations.

All debris is removed and the site is returned to as-found condition. Any pole line damage or anomaly noticed by the tree trimming crew is reported to the Operation Manager of SLHI for remedial action.

10.5 Conductor Capital

In a recent report released by ESA, concerns have been raised with the possibility of failure of older small conductors, due to aging, stretching, and a general weakening, under certain installation conditions. The report does not identify these conditions; however, it does recommend the elimination of #6 copper as a primary conductor and suggests replacement of other small conductors, such as #4 ACSR and #2 ACSR.

SLHI does not have any #6 copper, and replaced the small pockets of #2 and #4 copper found, primarily in the Sioux Lookout community.

11.0 Capital Forecast Plan

SLHI recognizes the need to address the aging assets. With intentional asset management planning, a sound capital expenditure plan has been prepared. Close monitoring and coordination with the municipality and local agencies regarding expansion plans has allowed SLHI to effectively track asset replacement requirements.

The capital projects that SLHI has planned for can be categorized into four investment drivers, as mandated by the OEB. They are:

- System access;
- System renewal;
- System service; and
- General plant.

These categories are associated with the purpose of the capital allocation, and as such, allow for sound planning according to the needs of the utility's distribution system. The following tables summarize the previous five years' capital expenditures, comparing budgeted funds and actual expenditures, and the next five years' capital budgets.

Table #20 – SLHI Historical Capital Expenditures (2013-2017) Budget vs. Actual

		Historical Years								Bridging Year
Investment Driver	Project	2013 Budget	2013 Actual	2014 Budget	2014 Actual	2015 Budget	2015 Actual	2016 Budget	2016 Actual	2017 Budget
System Access	New Connections	58,438	85,799	65,000	69,175	87,700	68,629	87,700		140,000
	General Upgrades	39,380	57,585	48,000	61,284	15,000	64,180	15,000		25,000
	LTLT Elimination Activities									147,842
Total:		97,818	143,384	113,000	130,459	102,700	132,809	102,700	-	312,842
System Renewal	Pole Replacement	46,922	66,424	90,325	111,358	25,000	34,940	25,000		105,500
	Winoga Submarine Cable	72,200	-			55,000	33,317			
	Smart Grid (Trip Saver)	-	3,067	-	2,056					
	Smart Meter Upgrade			15,000	12,125					
	Spares				9,823	-	4,025			
	Cross Arm Replacements							25,000		
	Modems for Sam Lake					-	1,118			
	Polemount Transformer Replacements									23,600
	Meter Reverification Program									16,712
Total:		119,122	69,491	105,325	135,362	80,000	73,400	50,000	-	145,812
System Service	Southshore Drive Conversion	-	10,254	12,000	-					
	Highway 72 Primary Underground			25,000	-					
	Rear Front Street					42,140	25,353			
	Hudson Upgrade					16,000	25,108			
	F2 Blue Phase Reconductoring					58,000	45,184	48,126		48,000
Total:		-	10,254	37,000	-	116,140	95,645	48,126	-	48,000
General Plant	Amcorder Recording Meter	7,000	6,145							
	General Small Tools	5,000	1,357	10,000	3,504	10,000	1,005	10,000		5,000
	Office Computer Hardware	3,000	3,155	3,000	1,000	1,500	1,830	1,500		2,000
	Vehicle Replacement	86,000	85,090	55,000	54,539	15,000	14,234			35,000
	Mapping Upgrade			30,000	33,600					
	Web Presentment			8,000	7,250					
	Shop Internet Upgrade			2,500	4,441					
	Sentinel Lights		1,067			-	1,523			
	Office Equipment			-	278	2,000	2,318	2,000		2,000
	Web Site Redevelopment							5,400		
	Phone System Upgrade					10,500	11,167			
	Pole testing equipment							18,000		
Total:		101,000	96,814	108,500	104,612	39,000	32,077	36,900	-	44,000
Totals		317,940	319,943	363,825	370,433	337,840	333,931	237,726	-	550,654

Table #21 – SLHI Historical Operation and Maintenance Expenses

CATEGORY	Historical (previous plan & actual)											
	2013			2014			2015			2016		
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var
	$		%	$		%	$		%	$		%
System Renewal	119,122	69,491	59%	105,325	135,362	129%	80,000	73,400	92%	25,000		
System Service	-	10,254	-	37,000	-	-	116,140	95,645	82%	48,126		
System Access	97,818	143,384	147%	113,000	130,459	115%	102,700	132,809	129%	102,700		
General Plant	101,000	96,814	96%	108,500	104,612	104%	39,000	32,077	82%	13,500		
Total	317,940	319,943	101%	363,825	370,433	102%	337,840	333,931	99%	219,726		
System OM&A		1,752,408			1,902,863			1,687,062		1,866,085		

Table #22 – SLHI Forecasted Capital Expenditures (2018-2022)

			Forecast Years			
Investment Driver	Project	2018	2019	2020	2021	2022
System Access	New Connections	60,000	61,080	62,179	63,299	64,438
	General Upgrades	40,000	40,720	41,453	42,199	42,959
Total:		100,000	101,800	103,632	105,498	107,397
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398
	Planned Secondary Pole Replacements	20,360				
	Unplanned Pole Replacements	18,324	18,654	18,990	19,331	19,679
	Polemount Transformer Replacements	24,025	24,457	24,897	25,346	25,802
	Planned U/G Cable Replacement		62,560			
	Meter Reverifications - New Meters		21,515			
Total:		154,329	220,456	138,836	141,335	143,879
System Service						
Total:		-	-	-	-	-
General Plant	Vehicle Replacement	300,000	60,000	300,000	35,000	
	Office Computer hardware	2,000	2,000	2,000	2,000	2,000
	Office Equipment	2,000	2,000	8,000	2,000	2,000
	General Small Tools	5,000	5,000	5,000	5,000	5,000
	Mapping software conversion	45,000				
	Warehouse - foundation repair		10,000			
Total:		354,000	79,000	315,000	44,000	9,000
Total:		608,329	401,256	557,468	290,833	260,276

Table #23 – SLHI Forecasted Operation and Maintenance Expenses

	Forecast (planned)					
	Bridge 2017	2018	2019	2020	2021	2022
CATEGORY	$	$	$	$	$	$
System Renewal	312,842	100,000	101,800	103,632	105,498	107,397
System Service	145,812	154,329	220,456	138,836	141,335	143,879
System Access	48,000	-	-	-	-	-
General Plant	44,000	354,000	79,000	315,000	44,000	9,000
Total	550,654	608,329	401,256	557,468	290,833	260,276
System OM&A		1,939,207	1,893,002	1,890,434	1,902,896	1,916,794

Table #24 - SLHI Whole Plan Period System Operations and Maintenance Expenses

	Historical (previous plan & actual)												Forecast (planned)					
	2013			2014			2015			2016			Bridge 2017	2018	2019	2020	2021	2022
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var						
CATEGORY	$		%	$		%	$		%	$		%	$	$	$	$	$	$
System Access	97,818	143,384	147%	113,000	130,459	115%	102,700	132,809	129%	102,700			312,842	100,000	101,800	103,632	105,498	107,397
System Renewal	119,122	69,491	59%	105,325	135,362	129%	80,000	73,400	92%	50,000			145,812	154,329	220,456	138,836	141,335	143,879
System Service	-	10,254	-	37,000	-	-	116,140	95,645	82%	48,126			48,000	-	-	-	-	-
General Plant	101,000	96,814	96%	108,500	104,612	104%	39,000	32,077	82%	36,900			44,000	354,000	79,000	315,000	44,000	9,000
Total	317,940	319,943	101%	363,825	370,433	102%	337,840	333,931	99%	237,726			550,654	608,329	401,256	557,468	290,833	260,276
System OM&A		1,752,408			1,902,863			1,687,062		1,815,823				1,939,207	1,893,002	1,890,434	1,902,896	1,916,794

11.0 Capital Expenditure Plan

Table #24 highlights the major capital projects that meet the materiality threshold of $50,000 annually. Any project that meets the materiality threshold in any given year of the plan is discussed in detail here. Each project is associated with one of the four investment drivers and allotted a certain amount of capital in each year of the forecasted plan period (2018-2022). The projects are listed here in descending order of total expenditures over the life of the forecast plan period.

Table #25 – Major Capital Projects: Investment Drivers and Forecasted Capital

Capital Project	Investment Driver	Capital Expenditure ($)
Truck Replacement	General Plant	695,000
Planned Primary Pole Replacements	System Renewal	474,895
New Connections	System Access	310,996
Planned U/G Cable Replacement	System Renewal	62,560

Table #25 below demonstrates how each of these material projects add up over the plan period to total the amounts shown in Table 24 above.

Table #26 – Annual Capital Expenditures for Material Projects (2018-2022)

			Forecast Years				
Investment Driver	**Project**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
System Access	New Connections	60,000	61,080	62,179	63,299	64,438	310,996
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398	474,895
System Renewal	Planned U/G Cable Replacement		62,560				62,560
General Plant	Vehicle Replacement	300,000	60,000	300,000	35,000		695,000

Below in Table #26 is the utility's overall capital expenditure forecast, showing how these material projects are more significant line items than others not highlighted in the material projects discussion.

Table #27 – SLHI Forecasted Capital Expenditures (2018-2022)

			Forecast Years			
Investment Driver	Project	2018	2019	2020	2021	2022
System Access	New Connections	60,000	61,080	62,179	63,299	64,438
	General Upgrades	40,000	40,720	41,453	42,199	42,959
Total:		100,000	101,800	103,632	105,498	107,397
System Renewal	Planned Primary Pole Replacements	91,620	93,270	94,949	96,658	98,398
	Planned Secondary Pole Replacements	20,360				
	Unplanned Pole Replacements	18,324	18,654	18,990	19,331	19,679
	Polemount Transformer Replacements	24,025	24,457	24,897	25,346	25,802
	Planned U/G Cable Replacement		62,560			
	Meter Reverifications - New Meters		21,515			
Total:		154,329	220,456	138,836	141,335	143,879
System Service						
Total:		-	-	-	-	-
General Plant	Vehicle Replacement	300,000	60,000	300,000	35,000	
	Office Computer hardware	2,000	2,000	2,000	2,000	2,000
	Office Equipment	2,000	2,000	8,000	2,000	2,000
	General Small Tools	5,000	5,000	5,000	5,000	5,000
	Mapping software conversion	45,000				
	Warehouse - foundation repair		10,000			
Total:		354,000	79,000	315,000	44,000	9,000
Total:		608,329	401,256	557,468	290,833	260,276

The following sections provide discussions to elaborate on each of the capital projects that meet the materiality threshold in the forecast period.

11.1 Truck Replacement

Project Information

Investment Driver: General Plant
Capital Project Name: Truck Replacement
Drivers: Service Quality, Reliability Safety, End of Life
Asset Type(s): Vehicles
Total Capital Cost (2018-2022): $695,000
Average Annual Capital Cost: $173,750 (4 year project period)
Start Date: January 1, 2018 (on-going, pre-dating this plan period)
End Date: December 31, 2021

A. General information of the project

As part of SLHI's general plant assets, it owns various vehicles, including backhoes, trucks, diggers, and so on. These vehicles are used for servicing the distribution assets and keeping the distribution system in operation. Because some of these vehicles are very costly, this activity meets the materiality threshold in certain years; planning the purchase of one of these trucks is a major line item within the utility's capital expenditure plan. These vehicles are refurbished and maintained, just as the other distribution assets are, in order to extract the maximum useful life from them. Eventually, they do need to be replaced. Appendix E contains the most current fleet inventory and the planned replacements.

As general plant assets, trucks and vehicles are important to maintaining the operation of the distribution system assets. Utility staff refurbish, repair, and replace distribution assets with the help of the general plant vehicles. The trucks are also used to respond to emergencies. These vehicles need to be in good working condition in order to properly, and safely, help the utility to provide reliable service to the customers. The capital expenditures for the forecasted years of this plan include replacing a 2001 freightliner truck in 2018, a 2008 Ford 1 ton truck in 2019, a 2013 Altec bucket truck in 2020, and a 2010 Chevrolet ½ ton truck in 2021. In 2021, this line item does not meet the materiality threshold, but is noteworthy because the threshold is met in the preceding years. There is no budgeted vehicle purchase in 2022. Table #27 below shows the annual expenditures allotted to truck replacement.

Table #28 – Allocated funds for Truck Replacement

Category	Project Activity	Budget 2018	Budget 2019	Budget 2020	Budget 2021	Budget 2022	Totals
General Plant	Truck Replacement	300,000	60,000	300,000	35,000		695,000

B. Evaluation criteria and information requirements for each project

1. Efficiency, Customer Value, Reliability

The replacement of general plant vehicles and trucks is driven by each assets' end of life and its operational effectiveness. Trucks generally have a useful life of ten-to-fifteen years; this useful life is extended by proper maintenance and parts replacement, but at some point, the vehicles need to be replaced in order to ensure proper working condition, as well as safety to employees and customers. SLHI performs regular maintenance inspections on its vehicles to keep them operationally effective. Servicing the distribution assets depends on these trucks working properly. Investing in general plant vehicles is a priority, because the health of all other assets is contingent on the adequate effectiveness of the service trucks.

Table #29 – Annual Vehicle Maintenance Expenses

Vehicle	Hours	Mileage (kms)	2011	2012	2013	2014	2015	2016	Total
2001 Freightliner	2,418	68,209	$6,720.17	$5,642.76	$8,889.81	$10,471.02	$18,485.68	$22,001.24	$72,210.68
2008 Ford F350		122,160	$2,492.03	$3,183.50	$2,058.77	$1,606.12	$3,434.50	$6,525.42	$19,300.34
2010 Chevy Silverado 4x4		104,580	$395.30	$355.58	$361.16	$208.15	$708.39	$2,281.73	$4,310.31
2013 International 7400	1,285	40,836			$5,418.29	$5,662.54	$8,634.88	$13,000.74	$32,716.45
2015 GMC Sierra 4x4		38,946					$530.42	$114.11	$644.53
2012 Bobcat E50					$4,891.57	$3,159.40	$3,312.75	$2,367.79	$13,731.51
2005 Polaris Ranger 6x6			$940.89	$1,574.95				$1,213.75	$3,729.59
2016 Ski-Doo Skandic SWT									$0.00
Annual Expenses			$10,548.39	$10,756.79	$21,619.60	$21,107.23	$35,106.62	$47,504.78	

Table #29 above shows the vehicle maintenance expenses over the past five years. These values are used in the process of deciding when a vehicle should be replaced. The kilometers of usage is not the only factor to consider for large trucks used for overhead electrical work. These units tend to gather many more hours of service than the mileage would otherwise indicate.

2. Safety

Safety is a top priority for SLHI. Ensuring that the trucks and vehicles are in good working condition ensures the safety of the utility staff operating them, as well as the general public and customers who may come into close proximity with the vehicles. Operating the vehicles on the roads and servicing the distribution assets require the trucks to be working safely and effectively. Also, when an emergency, after-hours service call is made, public safety could be at risk, so the safe and reliable service of the trucks in responding to that call is paramount.

3. Cyber-security, Privacy

Not applicable.

4. Co-ordination, Interoperability

SLHI has its trucks and vehicles inspected regularly to ensure they are safe and meet reliability standards.

5. Economic Development

Not applicable.

6. Environmental Benefits

There are environmental benefits to operating newer vehicles, as older vehicles often offer less fuel efficiency and are not equipped with the same emissions controls as newer vehicles.

C. Category-specific requirements for each project

General Plant:

General plant assets work to support the distribution system assets. The decision to purchase new vehicles is important because it allows the daily operations of the utility to continue, efficiently and effectively. Unreliable vehicles contribute to OM&A costs, wasting time and money in unnecessary repairs.

Reliability of distribution service to customers is connected to the reliability of the general plant vehicles in that outage calls and asset failures are mitigated with the use of the service trucks. Worker safety depends on the good working order of the vehicles.

11.2 Planned Primary Pole Replacements

Project Information

Investment Driver: System Renewal
Capital Project Name: Planned Primary Pole Replacements
Drivers: Safety, Reliability, End of Life
Asset Type(s): Distribution Poles (wood)
Total Capital Cost (2018-2022): $474,895
Average Annual Capital Cost: $94,979
Start Date: January 1, 2018 (on-going, pre-dating this plan period)
End Date: December 31, 2022

A. General information of the project

Replacing primary distribution poles is a significant system renewal project for the utility. The primary poles support the distribution equipment that provides service to the customers. All of SLHI's primary poles are wood, and wood poles are subject to rot and decay, animal and pest interference, and deterioration due to the elements. It is important for the safety of the general public and utility staff that poles are replaced before they pose risk of falling down. Additionally, any pole health issues that threaten the maintenance of the equipment they uphold threaten the reliability of the distribution service. A falling pole can cause disturbance in the form of power outage.

The utility has allocated capital in each year of the plan period to replace poles in a proactive manner. The recent Asset Condition Assessment (ACA) demonstrates that 248 primary poles are at their end of life, and another 395 will reach their end of life within the coming five years. SLHI's capital plan shows that in 2019, it will double its expenditures on replacing these poles, which reflects a more aggressive approach. The poles rated "Poor" and "Very Poor" in the ACA will need attention in this plan period. (The ACA can be found in Appendix B.) The budgeted capital for the 2018 primary pole replacements does not meet the materiality threshold of $50,000 within a single year, but the project does meet the threshold in the remaining years of the plan.

Table #30 – Allocated funds for Planned Primary Pole Replacement

Category	Project Activity	Budget 2018	Budget 2019	Budget 2020	Budget 2021	Budget 2022	Totals
System Renewal	Planned Primary Pole Replacement	91,620	93,270	94,949	96,658	98,398	474,895

B. Evaluation criteria and information requirements for each project

1. Efficiency, Customer Value, Reliability

The plan to replace primary poles that are reaching their end of life is driven by concerns for reliability, safety, and the risk of failure. The replacement program will target poles that are at significantly higher risk of failure, since a failed pole poses safety concerns for staff, customers, and the general public; failed poles also lead to power outages, which affect reliability statistics and customer satisfaction. There is a benefit to implementing a planned outage to replace a near-failing pole, rather than allowing the pole to fail in service.

This project is of high priority, which is demonstrated by the capital projections on 2019 onward. The ACA highlighted that SLHI had several poles in need of replacement in the coming years, and this program is aggressively, proactively dealing with that.

The pole testing program allowed SLHI to target failing poles in a more informed manner, rather than simply basing the replacement program on age alone.

2. Safety

Poles that are failing in service pose serious safety threats to the general public and to the workers who are servicing the distribution system. Workers and nearby customers may face electrocution if a pole falls Investing in the proactive replacement of failing poles mitigates these risks.

3. Cyber-security, Privacy

Not applicable.

4. Co-ordination, Interoperability

SLHI’s distribution pole line design meets the Utility Standards Forum (USF) and Ontario Regulations 22/04 requirements. These standards ensure that the hydro pole framing is safely constructed. The utility also takes into account the requirements of existing and potential third-party service providers that may impact the loading of its distribution poles.

5. Economic Development

The materials used in replacing primary distribution poles are supplied from Ontario companies. The additional services needed for pole installation are contracted from local businesses. Using local resources allows the investment to stay within the local economy.

6. Environmental Benefits

There are environmental benefits to removing a primary pole reaching its end of life, including the prevention of forest fires and transformer oil spills that can occur when a pole falls. These types of crises pose environmental consequences, like damage to vegetation and harm to wildlife. The proactive replacement of poles prevents environmental safety hazards.

C. Category-specific requirements for each project

System Renewal:

Investments in the System Renewal category keep the distribution system in working order. Targeting near-failing and failing poles is a strategic move to maintain the condition of all of the other distribution assets. Of the 2427 primary poles, nearly 27% are “Poor” or “Very Poor”, meaning they will reach their end of life within the life of this plan. As SLHI conducts its pole testing program to further assess the poles in these conditions, the utility may determine that some of these poles’ lives can be extended. At this time, SLHI has planned on replacing 20 poles per year, which is more aggressive than in previous years, yet takes into account that some poles may be left in service for some more time.

When a pole fails in service, it can have catastrophic ramifications for a few different reasons. There are safety concerns connected with a pole falling, including safety to the general public, customers, and utility staff who service the assets. There is danger associated with staff working on a failing pole, or in a section of pole line where one or more poles have failed. Inclement weather can also have adverse effects on poles, especially when they are already experiencing rot and compromised structure. Harsh weather can cause failing poles to pose safety risks to workers. When a storm, for example, causes a pole to fail, it can lengthen the unplanned service outage, because it is increasingly difficult for workers to reinstate the service, as working conditions are poor.

Refurbishing primary poles is rare. A pole that is decrepit will need to be inspected, as will all of the equipment on it. Most times, the pole and the equipment are of the same vintage, so most of the equipment will need replacing at the same time. There are some assets, however, like stand-off brackets and down guys, which may be considered for a second lifecycle, or reuse, if they are in good condition, which minimizes replacement costs.

The risk of not replacing near-failing poles is absorbing the replacement costs in OM&A. There is a significant advantage to replace poles through planned outages and within regular working hours, rather than waiting until a failure, which often includes lengthy unplanned outages, after-hours service, and damage to other assets, property, and vegetation. Replacing poles proactively saves the life of the assets on the poles.

11.3 New Connections

Project Information

Investment Driver: System Access
Capital Project Name: New Connections
Drivers: Customer Service Requests
Asset Type(s): Cables, Transformers, Poles, Conductor
Total Capital Cost (2018-2022): $310,996
Average Annual Capital Cost: $62,199
Start Date: January 1, 2018

End Date: December 31, 2022

A. General information of the project

Utility are required to provide service to new customers in their service territories. Residential subdivisions usually have underground cables and pad mount transformers installed to provide service. New development is what drives the design and installation of the assets required for this activity. Despite SLHI's customer growth remaining very stable over the past years, the capital expenditures in the historical period of this plan demonstrate that a significant amount of capital must be allocated to the new connections category; this amount is consistent over the forecasted years of the plan. The reason for the seemingly large amount of capital for such little growth is the geographic nature of the utility, as it spans such large territory. Accommodating new connections general involves installing new poles and transformers, especially in rural areas where the new connection occurs so far away from any neighbouring connections. This often results in a pole and a 25 kVA transformer feeding a single customer. Because this growth is customer-driven, it is difficult for the utility to predict future needs, but based on years past, SLHI has determined that $60,000 annually is required for this activity.

Table #31 – Allocated funds for New Connections

Category	Project Activity	Budget 2018	Budget 2019	Budget 2020	Budget 2021	Budget 2022	Totals
System Access	New Connections	60,000	61,080	62,179	63,299	64,438	310,996

B. Evaluation criteria and information requirements for each project

1. Efficiency, Customer Value, Reliability

Customer service requests drive this project, as the utility must provide service, and therefore distribution system expansion, to accommodate the growth. This item remains a significant line item, as it meets the materiality threshold in every year of the forecasted plan period.

2. Safety

Safety is not a driver for this project, but it is certainly taken into consideration as the project is executed. All new installations and expansions are completed with strict adherence to safety regulations and standards.

3. Cyber-security, Privacy

Not applicable.

4. Co-ordination, Interoperability

All new connections are established consistent with the USF standards, adhering to the Ontario Regulations 22/04.

5. Economic Development

The services associated with accommodating new connections are usually contracted from local businesses. The materials used are procured from local and provincial suppliers, allowing the economic investment to stay within Ontario.

6. Environmental Benefits

This project is not specifically linked to any environmental benefits, however, SLHI maintains environmental standards and follows regulations when providing new connections.

C. Category-specific requirements for each project

System Access:

System access is a small, yet consistent, investment category for SLHI. The utility does not see many new connections, and does not have to provide much expansion to its service territory for development, but it has allotted steady amounts of capital to this category over the forecast period of the plan. The amounts are informed by previous years' needs. New growth can be somewhat unpredictable, and is outside of the utility's control when it occurs.

11.4 U/G Cable Replacement

Project Information

Investment Driver: System Renewal
Capital Project Name: U/G cable replacement
Drivers: Service Quality, Reliability, Power Quality, End of Life, Safety
Asset Type(s): Underground cable
Total Capital Cost (2018-2022): $62,560
Average Annual Capital Cost: $62,560 (One year project)
Start Date: January 1, 2019
End Date: December 31, 2019

A. General information of the project

The underground cable testing identified by the Energy Ottawa report indicates that the F3 submarine cables are in good condition and therefore do not need to be replaced during the plan period. However, other cables tested that supply the Birchwood Cres and Atwood St areas, should be a concern. These cables have been slated for replacement in 2019.

Table #32 – Allocated funds for Replacement of F3 Submarine Cable

Category	Project Activity	Budget 2018	Budget 2019	Budget 2020	Budget 2021	Budget 2022	Totals
System Renewal	Planned U/G Cable Replacement		62,560				62,560

B. Evaluation criteria and information requirements for each project

1. Efficiency, Customer Value, Reliability

As stated above, replacing this cable prior to its failure is paramount for the customers supplied by it, especially if it were to fail in the winter time. Ensuring its good working condition is essential to those customers, as well as to the utility's reliability of service.

2. Safety

If this cable failed in service, especially in the winter months, there would be indirect safety concerns cause by the outage.

3. Cyber-security, Privacy

Not applicable.

4. Co-ordination, Interoperability

Not applicable.

5. Economic Development

The equipment and labour associated with replacing this submarine cable would be procured from local sources, allowing the investment to stay within the local economy.

6. Environmental Benefits

There are no direct environmental benefits to replacing the submarine cable, but the utility always maintains the proper environmental standards in conducting this type of work.

C. Category-specific requirements for each project

System Renewal:

As system renewal is concerned with the operational effectiveness of the distribution system, this activity is important to maintaining the service supplied by F3. The customers on Highway 642 rely on its safe, reliable, and quality service, so the maintenance and eventual replacement of this cable is essential to meeting those needs.

12.0 Information Systems

SLHI is in the process of converting their current GIS system from an AutoCAD platform to an ESRI platform in order to implement a more effective asset management solution to their current system. SLHI plans to add additional functionality to the system in order to perform asset inspections and create a paperless work order system that will satisfy OReg 22/04 requirements. Such a purchase would fall into the System Service investment driver category, and would allow the LDC to collect, record, and manage comprehensive information about its distribution assets. This will increase efficiency and afford SLHI better capital planning strategies based on more inclusive and thorough data about each asset class.

Especially given the size of SLHI's service territory, and how spread out its distribution system is, making use of a GIS to better keep track of its assets makes sense. While a GIS is an expensive purchase up front, and implementing it can take time, it saves utilities money in the long run, and allows them to track, maintain, refurbish, and replace assets much more efficiently than operating without one.

13.0 Summary

A summary of the results of the asset condition assessment and health indices are listed in Table #33 below. The summary lists the estimated total number of each asset class and how many fall into the condition categories varying from "very good" to "very poor". Table #33 also lists the percentages of each asset class which have been estimated to likely require replacement within the next ten years.

Table #33 – Summary of Asset Conditions / Health Indices

Asset Class	Population	Very Good	Good	Fair	Poor	Very Poor	% at End of Life within 10 years
Distribution poles (Wood)	2,427	762	638	384	395	248	42.3%
Secondary Poles (Wood)	277	85	21	70	29	72	61.7%
Guy Poles (Wood)	13	8	0	0	3	1	30.7%
Cross arms	487	153	128	77	79	50	42.3%
Pole mounted transformers	785	331	161	141	121	36	36.8%
Pad mounted transformers	97	65	21	5	4	23	32.9%
Switches – Inline	24	24	0	0	0	0	0%
Primary U/G cables	13,684	11,672	772	518	138	584	9.0%
Primary Submarine Cables	6,201	2840	201	2400	460	0	46.1%
Line Reclosers	4	2	0	2	0	0	50%

Appendix A:
Hydro One Networks Inc. EB-2015-0006 Letter

Hydro One Networks Inc.
7th Floor, South Tower
483 Bay Street
Toronto, Ontario M5G 2P5
www.HydroOne.com

Tel: (416) 345-5393
Fax: (416) 345-6833
Joanne.Richardson@HydroOne.com

Joanne Richardson
Director – Major Projects and Partnerships
Regulatory Affairs

BY COURIER

January 21, 2016

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON, M4P 1E4

Dear Ms. Walli:

EB-2015-0006 – Revised Proposal to Amend the Distribution System Code – Hydro One's Implementation Plan to Eliminate Long-Term Load Transfers

In accordance with the Ontario Energy Board's Notice of Amendments to the Distribution System Code ("DSC"), issued on December 21, 2015 Hydro One is providing its Implementation Plan ("Plan") to Eliminate Long-Term Load Transfers ("LTLTs") as Attachment 1.

The aim of this Plan is to mitigate both geographic and physical distributor costs while maintaining a seamless experience for transferred customers. The Plan segments the 47 LDCs with which Hydro One has LTLT agreements into geographically-zoned sub-groups. As this work will be undertaken by Hydro One crews throughout the province, Hydro One wants to ensure efficient, economical processes while not putting too much burden on crews in one area at any given time. This approach allows Hydro One the ability to concentrate on eliminating small pockets of LTLTs at a time and provides some flexibility in managing schedules if there are delays in LDC negotiations.

Hydro One understands that the Board will be providing streamlined filing guidelines for combined service area amendment and asset transfer applications involving LTLTs. Hydro One has further reviewed the draft application form and would like to propose the following additional changes from what was provided to the working group on July 21, 2015. See Attachment 2.

The attached changes, captured in tracked changes, attempt to streamline the guidelines and eliminate sections of the form that Hydro One believes are no longer required as a result of the

Board's decision in this proceeding. Additionally, Hydro One notes that Hydro One and Hydro Ottawa have jointly been working on a customer and asset data spreadsheet. The current draft of this spreadsheet is attached and Hydro One intends to utilize this spreadsheet throughout its LTLT elimination efforts.

Lastly, Hydro One requests, with respect to customer transfers, that any billing arrears and/or other outstanding costs up until the transition date will be the responsibility of the geographic distributor.

Conclusion

Hydro One is concerned over the LTLT elimination date of June 21, 2017 in section 6.5.3 of the DSC. Currently, there are a number of outstanding requirements (e.g. Application form, consensus on asset valuation) that have to be in place prior to applying to the OEB for the appropriate approval. Hydro One also notes that once the streamlined asset sale and SAA approval is attained there will be a further 1 to 6 weeks to transition the customers to the physical distributor. Achieving the attached implementation schedule will require coordinated efforts by all parties.

Hydro One looks forward to working with all distributors to eliminate the cross-subsidization that currently exists and will ensure that doing so results in no negative impact to the transferred customers.

An electronic copy of this correspondence has been filed using the Board's Regulatory Electronic Submission System.

Sincerely,

ORIGINAL SIGNED BY JOANNE RICHARDSON

Joanne Richardson

Attach.

LTLT Proposed Project Timeline

Zone	Month	LDC	Customer Transfer to HONI (Physical Distributor)	Customer Transfer from HONI (Geographic Distributor)
4	Month 1	Hydro Ottawa	45 + 1 ST	290
4	Month 1	Hydro 2000	1	13
5	Month 2	Wasaga Distribution	3	10
5	Month 2	Orillia Power	1	0
5	Month 2	Collus PowerStream	1	5
1A	Month 3	ELK Energy Inc.	41 + 1 ST	1
1A	Month 3	Entegrus	78	28
1A	Month 3	EnWin	14	0
1B	Month 4	Westario Power Inc.	44 + 3 ST	32
1B	Month 4	Wellington North Power Inc.	2	2
1B	Month 4	Waterloo North Hydro	50	139
1A & 2	Month 5	Brant County Power	25	91
2	Month 5	Cambridge North Dumfries	28	18
2	Month 5	Horizon Utilities	160	117
7	Month 6	Thunder Bay Hydro	55	23
7	Month 6	Sioux Lookout Hydro	0	34
7	Month 6	Atikokan Hydro	1	0
6	Month 7	Espanola Regional Distribution Company	8	20
6	Month 7	Hearst Power Distribution Company	5	9
6	Month 7	Greater Sudbury Power	5 + 1 ST	19
6	Month 7	Chapleau PUC	1 ST	0
4	Month 7	Rideau St. Lawrence	16+7 ST	21
4	Month 7	Hydro Hawkesbury	4 ST	0
2	Month 8	Niagara Peninsula Energy	111	178
2	Month 8	Canadian Niagara Power	0	5
2	Month 8	Centre Wellington Hydro	6	2
2	Month 9	Orangeville Hydro	1	18
2	Month 9	Milton Hydro	103	64
2	Month 9	Welland Hydro-Electric System Corp.	0	3
1A	Month 10	Essex Powerlines	44 + 1 ST	14
1A	Month 10	Festival Hydro	20	18
1A	Month 10	Kitchener Wilmot Hydro	0	81
5	Month 11	Parry Sound Power	31	0
5	Month 11	Midland PUC	6 + 3 ST	4
5	Month 11	Lakeland Power	10 + 8 ST	44
3B	Month 12	Ottawa River Power	11	4
3A & 3B	Month 12	Veridian Connections	50 + 4 ST	14
3A	Month 12	Oshawa PUC	8	0
2	Month 13	Burlington Hydro	32	0
2	Month 13	Hydro One Brampton	7	21
2	Month 13	Halton Hills Hydro	50	77
1A	Month 14	Tilsonburg Hydro	5	8

LTLT Proposed Project Timeline

Zone	Month	LDC	Customer Transfer to HONI (Physical Distributor)	Customer Transfer from HONI (Geographic Distributor)
1A	Month 14	London Hydro	6	6
1A	Month 14	Bluewater Power	16	32
1A	Month 15	St. Thomas Energy	12	3
1A	Month 15	Erie Thames Powerlines	7 + 2 ST	67
2 & 5	Month 16	Innpower	1 ST	62
2 & 5	Month 16	PowerStream	16 + 3 ST	79
3A	Month 17	Newmarket-Tay Power	7	0
3A	Month 17	Lakefront Utilities	10	12
3A	Month 17	Whitby Hydro	1 ST	0

Ontario

Ontario Energy Board

Elimination of Long Term Load Transfers

Between

LDC #1

And

LDC #2

Combined Service Area Amendment and Asset Transfer Application

~~D R A F T~~

~~For Working Group Comment~~

2016

D R A F T

For LDC & Board Staff Comment

PART I: SERVICE AREA AMENDMENT

1.1 Basic Facts

~~Provide a brief description of the service area amendment~~

Hydro One suggests this is a template introduction written by Board Staff that discusses the results of EB-2015-0006. It will be included in every application. Distributors will indicate the number of LTLTs that will be eliminated by this application

1.2 **Identification of the Parties**

1.2.1 Co- Applicant 1 ("LDC#1)

~~Name of Applicant~~ LDC #1	Licence Number
LDC #1 Address ~~of Head Office~~	Telephone Number
	Facsimile Number
	E-mail Address
~~Name of Individual to~~ Contact Person	Telephone Number
	Facsimile Number
	E-mail Address

1.2.2 Co-Applicant 2 ("LDC#2) Applicant

~~Name of Other Party~~LDC #2	Licence Number
LDC #2 Address ~~of Head Office~~	Telephone Number
	Facsimile Number

	E-mail Address
~~Name of Individual to~~ Contact Person	Telephone Number
	Facsimile Number
	E-mail Address

1.3 Description of Proposed Service Area (List of Affected LTLT Customers – –Customer listing to be attached – to include customer address, name, billing address, rate class and meter number)

1.3.1 ~~Provide a detailed service area description to be included in Schedule 1 of each physical distributor's licence.~~Total Number of LTLTs between distributors:

Number of LTLTs eliminated in this application.

Number of customers to be transferred from LDC #1 (Geographical Distributor) to LDC #2(Physical) Distributor) :

Number of customers to be transferred from LDC #2(Geographical Distributor) to LDC #1 (Physical Distributor) :

1.3.2 ~~Provide maps or diagrams of the area(s) that is the subject of the SAA application.~~ LDC #1 as Geographical Distributor is to insert a detailed Excel list of customer info, that will be transferred
{ EMBED HERE }

LDC #1 as Geographical Distributor is to insert detail Word Doc with pictures/Maps of location of customers being transferred { EMBED HERE }

1.3.3 ~~Provide a description of the type of physical connection(s) (i.e., individual customer; residential subdivision, commercial or industrial customer).~~ LDC #2 as Geographical Distributor is to insert a detailed Excel list of customer info, that will be transferred { EMBED HERE }

LDC #2 as Geographical Distributor is to insert detail Word Doc with pictures/Maps of location

1.4 Impacts Arising from the Amendment

~~1.4.1~~	~~Provide a list of affected LTLT customers. Provide written confirmation that all affected persons have been provided with specific and factual information about the service area amendment(s).~~
1.4.~~2~~1	Use the table below to describe the impact on customers' total bill that arises as a result of the service area amendment(s). Exclude any rate riders from the distribution and delivery charges of each distributor as well as from the calculation of the total bill impact (before and after rate mitigation is applied).
~~1.4.3~~	~~Provide a description of any assets which may be stranded or become redundant after completion of the service area amendment(s). Please explain why these assets could not be transferred to the physical distributor.~~

~~1.4.4~~	~~Identify costs for stranded equipment that would need to be de-energized or removed.~~

1.4.~~5~~2 ~~Identify any assets that will be transferred to or from the applicant.~~. If an asset transfer is required, please complete Part II of the application form. See 2.1.1 below.

1.4.~~6~~3	Identify any need for a rate mitigation and describe the rate mitigation being implemented. Please include an estimated total bill rate impact for each customer.

Impacts Resulting ~~From SAA 1~~from customers of LDC #1 (Geographical Distributor) being transferred to LDC #2(Physical Distributor)

	Geographic Distributor	Physical Distributor
Fixed Customer Charge ($ / month)		
Variable Distribution Charge (cents / kWh)		
Delivery Charge (cents / kWh)		
Total annual bill impact ($ / year)	n / a	
Total annual bill impact (during year 1 of mitigation, if applicable)	n / a	
Note: In calculating the total bill impact(s), please assume consumption of 800 kWh / month.		

Impacts Resulting From customers of LDC #2 (Geographical Distributor) being transferred to LDC #1(Physical Distributor)

	Geographic Distributor	Physical Distributor
Fixed Customer Charge ($ / month)		
Variable Distribution Charge (cents / kWh)		
Delivery Charge (cents / kWh)		
Total annual bill impact ($ / year)	n / a	
Total annual bill impact (during year 1 of mitigation, if applicable)	n / a	
Note: In calculating the total bill impact(s), please assume consumption of 800 kWh / month.		

~~**Impacts Resulting From SAA 2**~~

	~~Geographic Distributor~~	~~Physical Distributor~~
~~Fixed Customer Charge ($ / month)~~		
~~Variable Distribution Charge (cents / kWh)~~		
~~Delivery Charge (cents / kWh)~~		
~~Total annual bill impact ($ / year)~~	~~n / a~~	
~~Total annual bill impact (during year 1 of mitigation, if applicable)~~	~~n / a~~	
~~*Note: In calculating the total bill impact(s), please assume consumption of 800 kWh / month.*~~		

PART II: TRANSFER OF ASSETS (S. 86(1)(b))

2.1 Description of the Assets to Be Transferred

2.1.1 Provide a description of the assets that are the subject of the transaction.

LDC #1 as Geographical Distributor is to insert detailed Excel list of asset sale and value of asset info here that will be sold to LDC #2
{ EMBED HERE }

LDC #2 as Geographical Distributor is to insert detail Excel list of asset sale and value of asset info here, that will be sold to LDC #1
{ EMBED HERE }

2.1.2 Indicate where the assets are located – whether in the applicant's service territory or in the recipient's service territory (if applicable). Please include a map of the location.

Refer to 1.3.2 and 1.3.3 above for the maps

2.1.3 Indicate which utility's customers are currently served by the assets.

Refer to 1.3.2 and 1.3.3 above for customer list

2.2 Description of the Sale Transaction

2.2.1	The value of the assets to be transferred shall be determined based on Net Book Value. Attach the details of the associated cash consideration to be given and received by each of the parties to the transaction. Refer to 2.1.1 for the asset values being sold
2.2.2	Will the transfer impact any other parties (e.g. joint users of poles) including any agreements with third parties? If yes, please specify how.

PART III: CERTIFICATION AND ACNOWLEDGEMENT

Co- Applicant: 1 ("LDC#1)

I certify that the information contained in this application and in the documents provided are true and accurate.

Signature of Key Individual example	Name and Title of Key Individual	Date

(Must be signed by a key individual. A key individual is one that is responsible for executing the following functions for the applicant: matters related to regulatory requirements and conduct, financial matters and technical matters. These key individuals may include the chief executive officer, the chief financial officer, other officers, directors or proprietors.)

Co-Applicant 2 (LDC#2)

I certify that the information contained in this application and in the documents provided are true and accurate.

Signature of Key Individual	Name and Title of Key Individual	Date

(Must be signed by a key individual. A key individual is one that is responsible for executing the following functions for the applicant: matters related to regulatory requirements and conduct, financial matters and technical matters. These key individuals may include the chief executive officer, the chief financial officer, other officers, directors or proprietors.)

Geographical Distributor LTLT Customer and Asset Transfer Information

Primary Customer Name	Transfer Effective (Date/Trigger)	Premise Address					Mailing Address if Different				Meter Information			Classification Figure #	Pole Information						
		Number	Street	City	Postal Code	Property Identification No. (PIN), Optional if available	Number	Street	City	Postal Code	Meter ID No.	Meter Type	PT and CT (Y/N)		Road Crossing Pole (Y/N)	Road Crossing Pole for (Primary / Secondary)	Road Crossing Pole ID (if available)	Road Crossing Pole Owner	Road Crossing Pole Height (ft)	Road Crossing Pole Age (years)	Pole Value from Residual Value Table

Geographical Distributor LTLT Customer and Asset Transfer Information

Primary Customer Name	Road Crossing Wire Owner (Physical/Geo)	Private Property Wire Owner (Customer/Physical/Geo)	**Wire Value from "Figure Number"**	Transformer Owner (Customer/Physical/Geo)	Transformer ID Number	Transformer Age (years)	Transformer PCB Allowance (Y/N) Pre 1980	Transformer Size (kVA)	Transformer Phases (1/3)	Transformer secondary voltage (V)	**Transformer Asset Value from table**	Number of Secondary Buss Spans	**Secondary Bus Value ($180/Span)**	Sentinel Light Owner (NA/Customer/Geo)	Sentinel Light-Bulb Wattage (W)	**Sentinel Light Value (Unit price = $150 per light)**	Legal Land Rights on File (Y/N)	Licensed 3rd Party Attacher(s) on Pole(s) (Y/N)	Customer Contract(s), Service Agreement(s), Notice(s), Condition(s) etc. (Y/N)
				Transformer Information								**Secondary Bus**		**Sentinel Light**			**Other Information**		

Geographical Distributor LTLT Customer and Asset Transfer Information

Primary Customer Name	Account No.	Rate Class	DRC/HST Exempt Status	Low Income Status	OESP Status	PAP Status	FN Status	Certificate of Indian Status #	Vital Services/Critical care Designation	Multi-unit designation	# of residential Units	DRC Exemption and # Units	Large Volume farm designation	Retailer Enrolled	Landlord Agreement	ODSP Customer	Active Complaints/Escalations	Language Preference	Epost/eBilling Status	Budget Billing Status	Billing Frequency	Meter Read Type	Head End System	Transformer Allowance	Primary Meter Allowance	Sentinel Light Charge
	Customer care Billing Information																									

Appendix B:
Asset Condition Assessment

Project # 15199

Asset Condition Assessment

Prepared for:

Sioux Lookout Hydro Inc.

costello
Utility Consultants

April 7, 2016

Approved By: ____________________
Ron LaPier. P.Eng

LICENSED PROFESSIONAL ENGINEER
R. E. LAPIER
APR 7/16
PROVINCE OF ONTARIO

Contents

Tables & Charts

Executive Summary

Sioux Lookout Hydro (SLHI) enlisted the assistance of Costello Associates to perform an Asset Condition Assessment of the SLHI distribution system and to render a general "Health Index" for each asset type. This assessment would then be used as the basis for capital planning in future years, and in support of the Distribution System Plan for the Cost of Service application to the Ontario Energy Board (OEB).

Table 1-1 below provides a summary of the findings of the Asset Condition Assessment performed for SLHI.

The assessment indicates that many of wooden distribution poles are aging and will reach their typical end of life within the next 10 years. A pole testing program on this aging population would allow a better assessment of the actual condition and along with a risk assessment based on the number of customers impacted, would reveal the basis for a targeted replacement plan.

The analysis also indicates that approximately 30% of the transformers in the SLHI system will reach their typical end of life within the next ten years. Going forward, tracking the number of customers connected to each unit will allow a better assessment of the impact of a failure on the system reliability statistics. In some cases, a "run to failure" situation may be warranted if the number of customers affected is low.

Submarine cables are shown to be aging, and the largest portion of this is the F3 Main Feeder cable that supplies the Town of Sioux Lookout. Based on a high level review of the peak feeder loading information for the F2 and F3 feeders, it is evident that the combined loading for the Town of Sioux Lookout would exceed the rating for F2 feeder on its own. A failure of this F3 cable would result in extended or rotating outages until repairs/replacement of the F3 cables could be made.

Table 1-1 Summary of Asset Conditions/ Health Indices

Asset Group	Asset Condition					Total Population	EOL within 10 years Units (%)
	Very Good	Good	Fair	Poor	Very Poor		
Distribution Poles	762	638	384	395	248	2427	42.3%
Secondary Poles	85	21	70	29	72	277	61.7%
Guy Poles	8	0	0	3	1	13	30.7%
Pole mount Transformers	331	161	141	121	36	785	36.8%
Pad mount Transformers	65	21	5	4	23	97	32.9%
Switches – 1 Phase Air Break	24	0	0	0	0	24	0%
Primary U/G Cables (m)	11,672	772	518	138	584	13,684	9%
Primary Submarine Cables (m)	2,840	201	2400	460	0	6,201	46.1%
Line Reclosers	2	0	2	0	0	4	50%

Introduction

Costello Associates has been retained by Sioux Lookout Hydro (SLHI) to provide assistance with their Distribution System Plan (DSP). The OEB now requires that asset condition assessments are to be included in local utilities (LDC) Distribution System Plan. Sioux Lookout Hydro requested that Costello Associates complete a report containing an asset condition assessment and asset health index rating for their DSP.

The purpose of the asset condition assessment is to evaluate the current condition of the asset and to assess where the asset lies along the expected useful life cycle. Other factors, such as visual inspections, damage reports, and testing data also contribute to the evaluation of the asset condition in order to properly plan for replacement or refurbishment of the equipment and plan for major capital. All of these factors are important to identify which assets require attention or replacement to improve customer reliability, ensure better public safety, and provide on-going worker and environmental safety.

This report is based on all available information from all sources at Sioux Lookout Hydro's disposal. The methods used in determining the health index for each asset class are detailed in this document, along with a discussion of the findings and appendices containing all the results of the asset condition assessment.

The final section of the report outlines recommendations for the urgency and the recommended rate of replacement for each of the asset types.

Study Methodology

2.0 Data Sources

In order to perform an accurate condition assessment of the Sioux Lookout Hydro system assets, the most up to date information was necessary. Asset information was utilized from an information database, personal knowledge of SLHI staff, and written records. Most asset information at SLHI is currently contained in a custom RAMSYS software system.

This RAMSYS database contains a variety of distribution asset information, such as asset ID's, ages, material types, and asset locations. Unfortunately, not much condition information is contained in the database and therefore assessments were based solely on asset ages.

Costello staff spent one week on site in October 2015 to meet with SLHI staff and to view database information. An escorted tour of the SLHI system was also conducted at that time. Some assumptions had to be made where there was information missing from the database.

2.1 Asset Classes Assessed

Sioux Lookout Hydro's assets are comprised of the distribution systems for the Town of Sioux Lookout and the Town of Hudson. The most critical of the assets, and their approximate population contained in the distribution system are listed below in Table 2-1.

It is important to note that the asset classes have been generalized and do not represent a certain set of identical equipment. Assets such as distribution poles vary in height and class, and transformers vary in manufacturer, types, ratings, installation methods, and locations. Ultimately, these variances may cause differences in replacement costs, but on average, should provide a valid evaluation of the Capital Cost Estimates for replacement or upgrades.

2.2 General Health Index Classifications

In general, the Health Index categories used for this report are as follows:

Table 2-1 General Health Index Categories

Health Index	Condition	Description	Expected Lifetime	Age (yrs)	Requirements
85-100	Very Good	At worse, some aging or deterioration of a limited number of components	15+yrs	25 or younger	Normal inspection and maintenance
70-85	Good	Deteriorating of some components	10-15yrs	25-29	Normal inspection and maintenance
50-70	Fair	Noticeable deterioration or serious deterioration of specific components	5-10yrs	30-34	Increase diagnostic testing, possible replacements needed before 5 years depending on criticality
0-50	Poor	Widespread serious deterioration or significant deterioration of a dominant component	1-5 yrs	35-40	Start planning process to replace, considering risk and consequences of failure
0-30	Very Poor	Extensive serious deterioration or serious deterioration of a dominant component	0-1 yr	41-50+	At end-of –life, immediately assess risk; replace based of assessment

Where data other than age of the asset is available (such as inspection reports, test records) these factors are added to the Health Index evaluation. In the absence of additional supporting data, the Health Index evaluation is based on asset age.

Table 2-2 below lists a general summary of the asset inventory reviewed as part of this Asset Condition Assessment.

Table 2-2 Assets Included in the Condition Assessment (As of 2015)

Asset Class	Population
Distribution poles (Wood)	2427
Distribution Poles (Steel)	0
Secondary Poles (Wood)	277
Guy Poles (Wood)	13
Cross arms	n/a
Pole mounted transformers	785
Pad mounted transformers	97
Switches – 3Ph load break	0
Switches – 3Ph air break	0
Asset Class	Population
Switches – Fused	122
Switches – Inline	24
Switches – Switching Cubicles	0
Primary U/G cables	13684m
Primary Submarine Cables	6,201m
Protective line relays	0
Line circuit breakers/ reclosers	4

“n/a” indicates “Not Available” . “N/A” indicates “Not Applicable”

2.3 Asset Health Index Assessment Methods

2.3.1 Municipal Substations

Sioux Lookout Hydro does not own any Municipal Substations (MS). Hydro One Networks (HONI) owns and operates the Sam Lake Distribution Station, which supplies SLHI with multiple feeders at 25kV.

During the site visit, Sioux Lookout Hydro staff indicated that there have been issues of reliability with some of the line reclosers at the station. The operational events related to these units should be recorded in detail by SLHI. This will allow SLHI to determine their impact on reliability and to provide data for any future discussions with HONI.

2.3.2 Distribution Poles

SLHI’s distribution system contains only wood poles. Data on these poles was extracted from the RAMSYS system and included installation dates.

Even though SLHI had not made its own condition rating of poles in the RAMSYS database, age is one of the most important factors when assessing distribution poles since it gives a good indication of where it lies along its life expectancy. The SLHI distribution poles were assessed based on the following Health Index categories:

2.3.3 Transformers

Both pole mount and pad mount transformers were assessed based on age. While the RAMSYS database did contain a PCB level field for transformers, the majority were populated with a Yes/No response. Those transformers listed as “NO” in the “Non-PCB” were ranked lower on the Health Index Scale.

Based on the age data for SLHI transformers, the Health Index was created on the same general categories as for distribution poles.

2.3.4 Switches

Sioux Lookout Hydro’s distribution system includes only in-line switches. Sioux Lookout Hydro staff performed an assessment of age based on the knowledge of senior staff and also noted the type of insulators used in the units. Other than these chracteristics, very little information was available for these switches, therefore a health index assessment was made based the data available.

2.3.5 Underground and Submarine Cables

Sioux Lookout Hydro collected cable information based on staff knowledge and installation records. This age data was used to formulate health index results.

While this is limited information to provide and accurate health index, an attempt to evaluate the general Health Index was made.

2.3.6 Protective Relays and Line Circuit Reclosers

Sioux Lookout Hydro has four single phase recloser units in its system. Two of these are recently S&C Tripsaver units, and the remaining units are oil filled units.

The S&C units are new and therefore the Health Index is assumed to be excellent. The age information for the oils recloser units was not available.

Analysis and Results

3.1 Distribution System Assets

3.1.1 Distribution Transformers

3.1.1.1 Pole Mounted Transformers

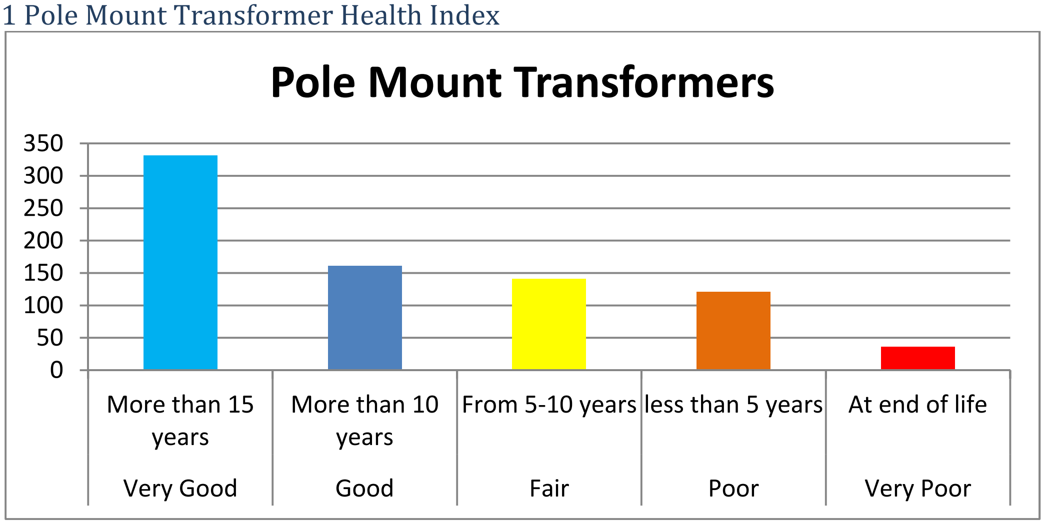
Pole mounted transformers are used to step down voltage from a primary level to a secondary utilization level on the overhead distribution system. These transformers are mounted above ground on a pole and are liquid filled with mineral oil in a sealed tank. An industry standard for the life expectancy for pole mounted transformers is 40 years.

Based on the evaluation criteria described in section 2.3.3 above, a summary and chart of the developed health index for the Sioux Lookout Hydro pole mounted transformers are shown below, while the entire health index evaluation along with the condition assessment results can be found in Appendix A.

Table 3-1 Pole Mount Transformer Health Index

Pole Mount Tx Health Index		
Condition	Expected Life	Tx Count
Very Good	More than 15 years	331
Good	More than 10 years	161
Fair	From 5-10 years	141
Poor	less than 5 years	121
Very Poor	At end of life	36

Chart 3-1 Pole Mount Transformer Health Index



The pole mount transformers classified as being in "very poor" condition are ones that are listed in the database as being 40+ years of age or those that have no age listed in the database.

Those categorized in the “poor” condition are estimated to be between 35-40 years old in the database.

Of the remaining transformers, the categories of Fair, Good, and Very Good are based on the listed age and the indication of not containing PCBs.

It should be noted that there are a number of inconsistencies found in the transformer database that should be clarified through further investigation. These are:

- Transformer age information is not complete for seven units
- The “date” field is assumed to be the manufacture date and is generally populated. However, the “Installed date” is not generally filled, and where it has been populated, it is inconsistent with the “Date”

Another factor that can be taken into consideration is the “Run-To-Failure” option for transformers that serve a low number of customers, and therefore have a much lower impact on the reliability statistics if they fail. The transformer database does not indicate the number of customers connected to each transformer, but this is worthwhile information to consider gathering for future analysis would greatly assist in the development of future replacement strategies.

3.1.1.2 Pad Mounted Transformers

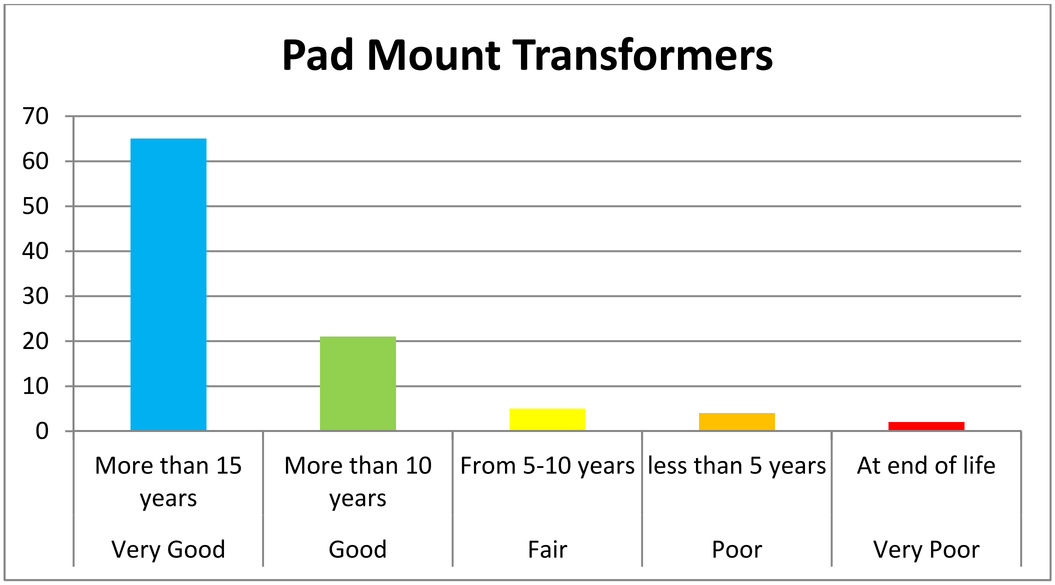
Padmounted transformers are typically used for commercial services in urbanized areas and are also used extensively in residential developments.

A summary and chart of the developed health index for the Sioux Lookout Hydro pad mounted transformers are shown below, while the entire health index along with the condition assessment results can be found in Appendix A.

Table 3-2 Pad Mount Transformer Health Index

Pad Mount Tx Health Index		
Condition	Expected Life	Tx Count
Very Good	More than 15 years	65
Good	More than 10 years	21
Fair	From 5-10 years	5
Poor	less than 5 years	4
Very Poor	At end of life	2

Chart 3-2 Pad Mount Transformer Health Index



Since the majority of Sioux Lookout Hydro's underground infrastructure is relatively new, most of the pad mounted transformers were assessed to be in excellent condition.

The same considerations as mentioned above for pole mount transformers related to a "run to failure" replacement plan also apply to padmounted transformers.

3.1.2 Distribution Switches

3.1.2.1 Air Break Switches (1 Phase)

Sioux Lookout Hydro's distribution air break switches are devices which are mounted either on the distribution poles or in line with the conductors and are made to open a circuit, **while not under load**. All of Sioux Lookout Hydro's air break switches are manually operated and can only be opened or closed one phase at a time. The air break switches may be either solid blade devices, which offer no protection, or fused to offer a level of overload or fault protection.

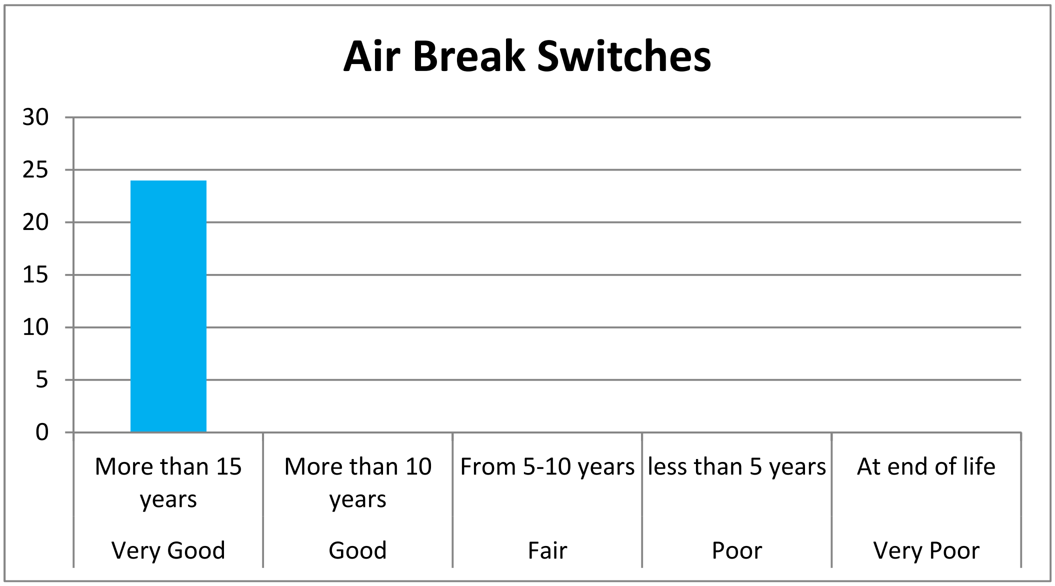
Air break switches are not inventoried in the SLHI database, but a count based on information gathered by SLHI staff and the operating maps indicates that there are 24 in-line switch installations in the SLHI system.

An analysis of this data indicates that the majority of these installations occurred between 1995 and 2000. This places their maximum age at around 21 years and based on a normal life expectancy, this asset can be considered to be in "very good" condition.

Table 3-3 Air Break Switch Health Index

Air Break Switch Health Index		
Condition	Expected Life	Count
Very Good	More than 15 years	24
Good	More than 10 years	0
Fair	From 5-10 years	0
Poor	less than 5 years	0
Very Poor	At end of life	0

Chart 3-4 Air Break Switch Health Index



3.1.3 Distribution Poles

Distribution poles are also Sioux Lookout Hydro's single form of support for low and medium voltage overhead feeders and distribution equipment. It should be noted that of the poles assessed, there is a wide variation in the height and class.

The Sioux Lookout Hydro pole database categorized poles into "Distribution" , "Secondary", and "Guy Poles". A summary and chart of the developed health index for the Sioux Lookout Hydro distribution poles is shown below, while the entire health index along with the condition assessment results can be found in Appendix A.

Table 3-4 Wood Pole Health Index

Wood Pole Health Index				
Condition	Expected Life	Distribution Pole Count	Secondary Pole Count	Guy Pole Count
Very Good	More than 15 years	762	85	8
Good	More than 10 years	638	21	0
Fair	From 5-10 years	384	70	0
Poor	less than 5 years	395	29	3
Very Poor	At end of life	248	72	1

Chart 3-4 Distribution Pole Health Index

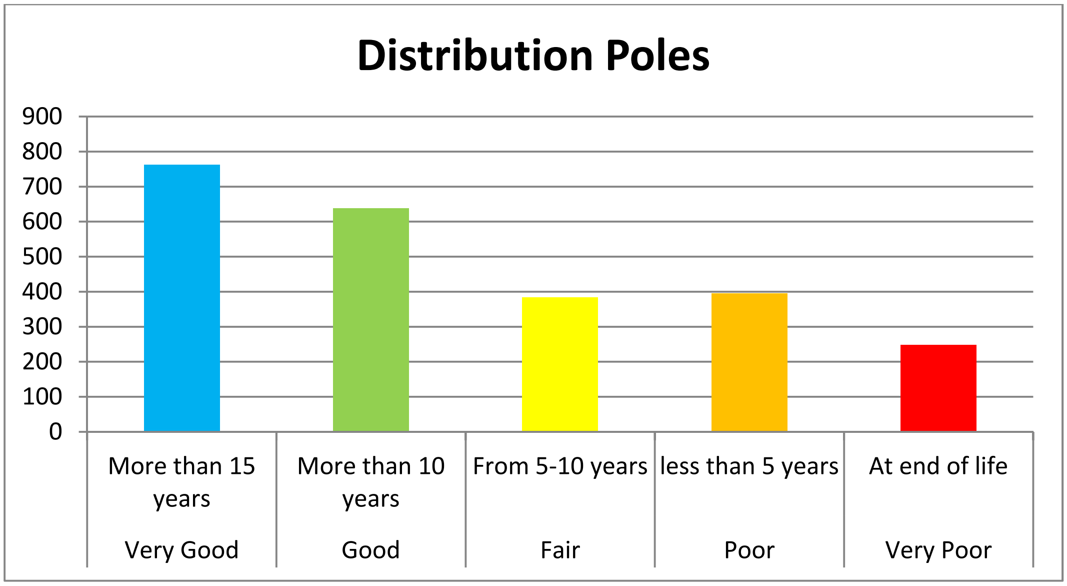


Chart 3-5 Secondary Pole Health Index

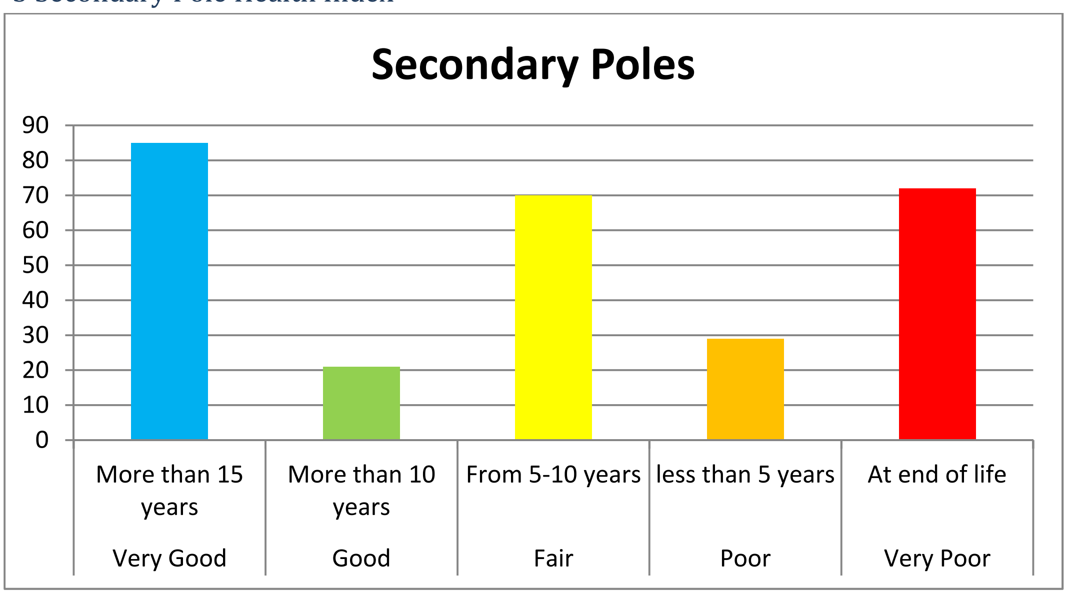
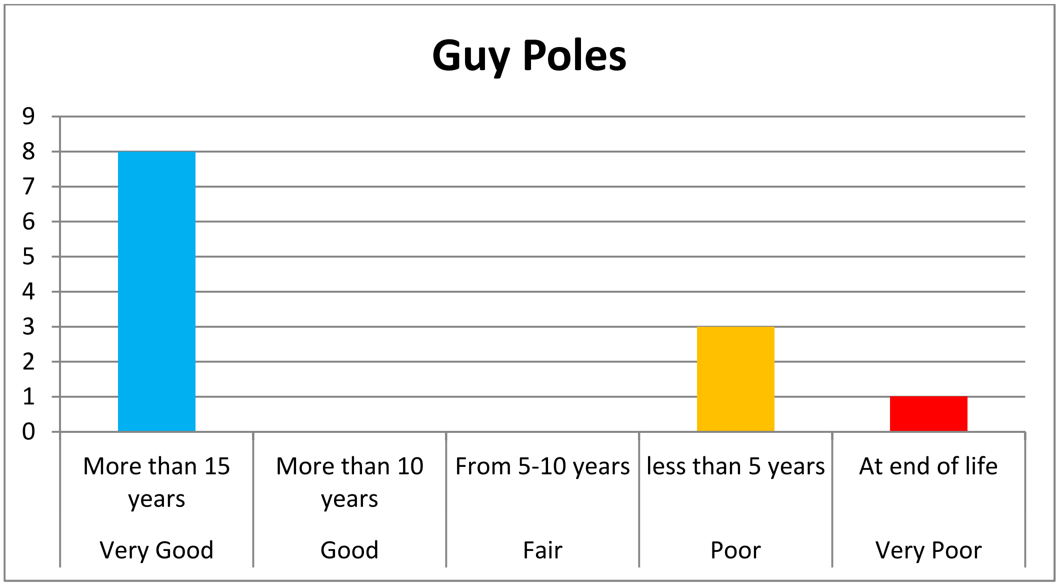


Chart 3-6 Guy Pole Health Index



As can be seen from the data above:

- 11.8 percent of the poles have been classified as having reached their end-of-life.
- 32.4% are estimated to have no more than 10 years of useful life remaining

Although older poles may still be in good physical and structural condition, the assessment methods only took into consideration the pole age due to their being no other available data.

3.1.4 Underground Distribution Cables

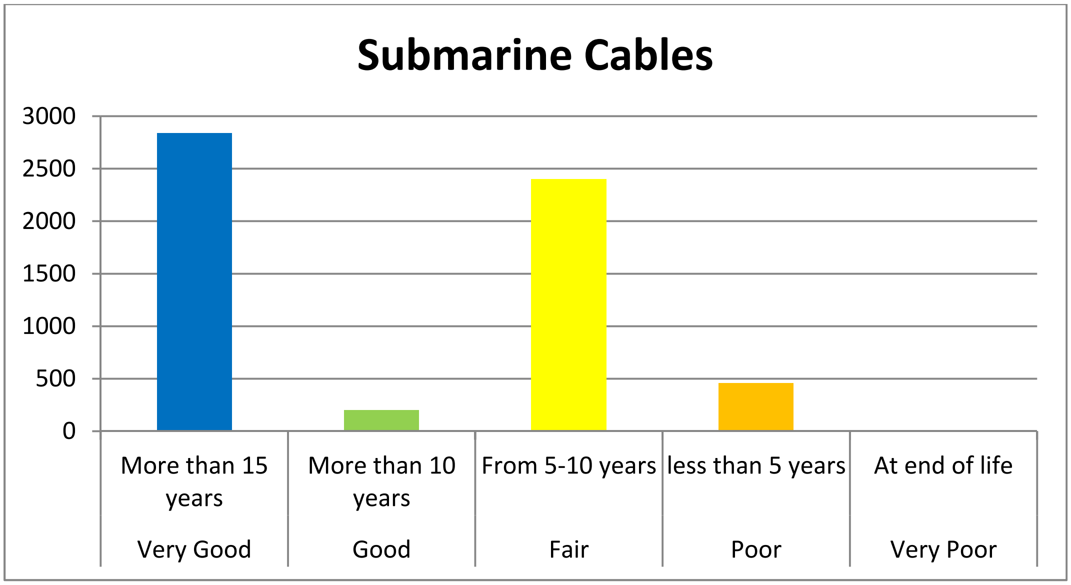
3.1.4.1 Submarine Cables

Like many of its neighbouring utilities, Sioux Lookout Hydro has an inventory of submarine cables in service to provide electrical power to island settlements. These applications often serve a small number of customers, but given the geographical realities of the region, SLHI also operates submarine cables for main feeder applications between Sam Lake DS and the town of Sioux Lookout.

Table 3-5 Submarine Cable Health Index

Submarine Cables Health Index		
Condition	Expected Life	km Count
Very Good	More than 15 years	2840
Good	More than 10 years	201
Fair	From 5-10 years	2400
Poor	less than 5 years	460
Very Poor	At end of life	0

Chart 3-7 Submarine Cable Health Index



The information above reveals that nearly 50% of the submarine cables will be at the end of their expected life within 10 years. The largest portion of this is the F3 Main Feeder cable that supplies the Town of Sioux Lookout.

Based on a high level review of the peak feeder loading information for the F2 and F3 feeders, it is evident that the combined loading for the Town of Sioux Lookout would exceed the rating for F2 feeder on its own. A failure of this F3 cable would result in extended or rotating outages until repairs/replacement of the F3 cables could be made.

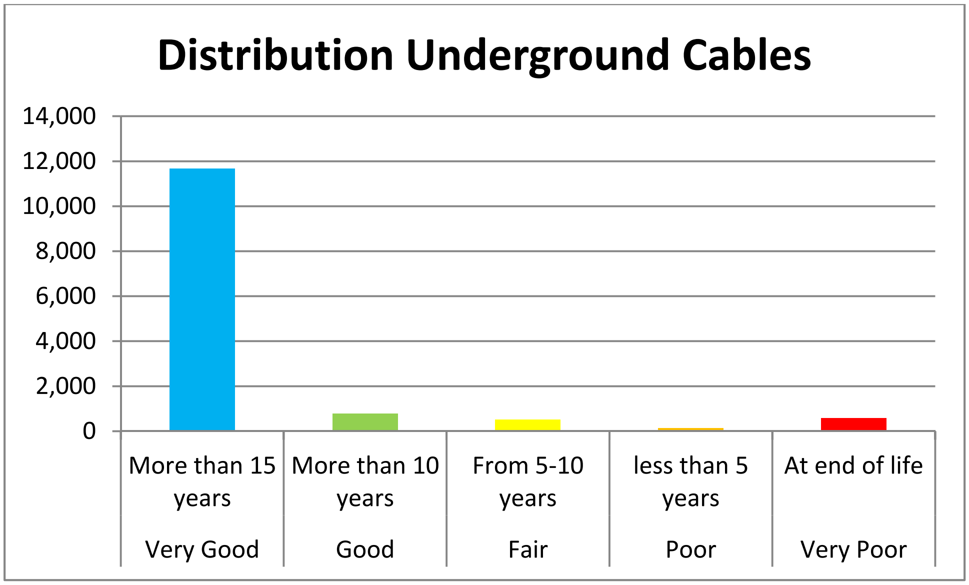
3.1.4.2 Underground Cables

An inventory of underground cables and the estimated age was provided by SLHI staff based on what records could be found and staff knowledge. Based on this information, an assessment was made on age alone. Further evaluation can be made once the number of customers served by each section of cable, which can allow a review of replacement strategies and reliability impacts that can be specific for each section.

Table 3-6 Distribution Underground Cable Health Index

Distribution Underground Cable Health Index		
Condition	Expected Life	Length (m)
Very Good	More than 15 years	11,672
Good	More than 10 years	772
Fair	From 5-10 years	518
Poor	less than 5 years	138
Very Poor	At end of life	584

Chart 3-8 Submarine Cable Health Index



The majority of the underground primary cables have been installed since 1990, and as such are considered to be in very good condition based on age. Approximately 4% of the cables in the Sioux Lookout Hydro system are currently beyond their expected useful life and are represented by only three older installations. About 5% of the asset will reach its expected life span within the next 5-10 years, and are represented by only three installations.

3.1.5 Wood Crossarms

Although crossarms are not tracked in a database at SLHI, it was acknowledged that many of the wood crossarms in the SLHI system appear to have potential moss and mould build up and may be degrading prematurely. Subsequent to the draft report, SLHI staff performed a crossarm count and a visual inspection from the bucket truck and reported the following information:

- 487 wood crossarms in the system
- Evidence of moss build up, but no mould present

The health of the wooden crossarms in the system can have a significant impact on the system reliability if crossarm failures occur, and therefore should be monitored during regular inspection cycles.

SLHI staff plan to continue the program to inspect and replace wood crossarms throughout the system, based on the main feeders as first priority. Also any pole slated for replacement will also provide for a replacement of any crossarm present.

The only way to avoid the early degradation of the crossarms is to switch to the use of steel arms in the future.

3.2 Summary of Results

A summary of the results of the asset condition assessment and health indices are listed in Table 3-7 below. The summary lists the estimated total number of each asset class and how many fall into the condition categories varying from "very good" to "very poor". Table 3-7 also lists the percentages of each asset class which have been estimated to likely require replacement within the next 10 years. The following relates the suggested replacement timeframes to the condition assessment of the asset:

Very Poor = Replacement within the next year
Poor = Replacement within the next 5 years
Fair = Replacement within the next 10 years
Good = Replacement within the 10-15 year period
Very Good = More than 15 years of service life remaining

Table 3-7 Summary of Asset Conditions/ Health Indices

Asset Class	Population	Very Good	Good	Fair	Poor	Very Poor	% at End of Life within 10 years
Distribution poles (Wood)	2427	762	638	384	395	248	42.3%
Secondary Poles (Wood)	277	85	21	70	29	72	61.7%
Guy Poles (Wood)	13	8	0	0	3	1	30.7%
Cross arms	n/a						
Pole mounted transformers	785	331	161	141	121	36	36.8%
Pad mounted transformers	97	65	21	5	4	23	32.9%
Switches – Inline	24	24	0	0	0	0	0%
Primary U/G cables	13,684	11,672	772	518	138	584	9.0%
Primary Submarine Cables	6,201	2840	201	2400	460	0	46.1%
Line Reclosers	4	2	0	2	0	0	50%

3.3 Estimated Cost of Replacement

The following construction cost estimates are based on "one-off" replacements for each asset type. Some effort was made to identify the locations of assets that were recommended for replacement to group them into projects in order to gain efficiencies of scale.

Hourly rates used in the Replacement Cost Estimates:

4 man crew, bucket truck, RBD = $250/hr
Average Cost per Pole= $1,700
Average Cost of Framing Hardware =$500 (three phase construction)
50kVA Pole Mount Transformer =$3,300 each
Three Phase Bank (3x50kVA) =$10,000

1. Wood poles:
   Pole and hardware: $2,200
   Average labour to frame and change a single pole = 8hrs x $287.50/hr
   Total estimated cost per typical pole: **$4,500**

2. Pole Mount Transformer (Single Phase):
   Transformer and hardware: $3,900
   Average labour to frame and change transformer= 8hrs x $250/hr
   Total estimated cost per typical single phase transformer: **$5,900**

3. Pole Mount Transformer (Three Phase):
   Transformer and hardware: $11,800
   Average labour to frame and change transformer= 8hrs x $250/hr
   Total estimated cost per typical three phase transformer: **$13,800**

4. Pad Mount Transformer (Single Phase):
   Transformer, hardware and civil materials: $7,500
   Total estimated cost per typical single phase transformer: **$9,900**

5. Pad Mount Transformer (Three Phase):
   Transformer, hardware and civil materials: $10,500
   Total estimated cost per typical three phase transformer: **$12,900**

6. Three Phase Load Break Switches:
   Switch and hardware: $7,000
   Average labour to frame and change switch= 8hrs x $250/hr
   Total estimated cost per typical single phase transformer: **$9,000**

7. Single Phase Switches:
   Switch and hardware: $1,200
   Average labour to frame and change switch= 4hrs x $250/hr
   Total estimated cost per typical single phase transformer: **$2,200**

8. Crossarms:
   -Expectation to change these with the pole

9. Underground Cable Replacement:
   -Estimated cost per typical meter of underground cable direct buried in duct (per Ø): **$97.50/m**

4.0 Recommendations

4.1 Development of Asset Replacement Plan

Given the above evaluation of the Sioux Lookout Hydro's distribution assets, it is evident that much of the distribution assets are aging, with wood poles, pole mount transformers, and submarine cables indicating the most work.

This knowledge can now be used to develop a detailed asset replacement plan that is targeted at those assets needing the most work.

This replacement strategy needs to take account of the impacts on customer and system reliability from a "run-to-failure" operating strategy for any assets supplying a small number of customers. An example of this is transformers supplying one or two customers, or submarine cables supplying only a single customer. Therefore adding the number of customers served to the databases for an asset would facilitate adding the reliability impact to the decision making process.

4.1.1 Pole Replacements

Based on the age criteria alone, it is evident that almost half of the wood poles in the system have already reached, or will have reached, their "industry accepted" end of life within the next 5-10 years. A comprehensive pole testing program, targeted at this aged population will help to further assess the condition of this asset group.

It can be expected that many of the old poles in the system are still in good condition, but pole testing is the only way to determine the actual extent of the group to be replaced. This along with regular inspections will allow Sioux Lookout Hydro to keep more accurate track of the number of poles that should be replaced in any given fiscal year.

4.1.2 Pole Mount Transformer Replacements

The Health Index analysis also revealed that almost 37% of the population of pole mount transformers will reach their statistical end of life with in the next 5-10 years. This analysis could not take into account any "run-to-failure" transformers within this group due to the lack of customer connection information.

If the additional factor of number of customer connections is added to the assessment criteria, some of the transformers the fell into the "Vary Poor" category could possibly be moved into less urgent levels of the assessment.

4.1.3 Pad Mount Transformer Replacements

The Health Index analysis revealed that almost 33% of the population of pad mount transformers will reach their statistical end of life with in the next 5-10 years. This analysis could not take into account any "run-to-failure" transformers within this group due to the lack of customer connection information. The PCB issue identified for the pole mount transformers was not a factor for the pad mount transformer population.

4.1.4 Air Break Switch Replacements

The data indicates that the population of air break switches in the SLHI system are not a concern.

4.1.5 Submarine Cable Replacements

The analysis indicates that almost half of the submarine cables in the SLHI system are aging, however the majority of this quantity is the F3 feeder that is one of the two main feeders supplying the Town of Sioux Lookout.

A high level load review of the F2 and F3 feeders reveals that the F2 feeder could not carry all of the winter peak demand on its own. Therefore, a failure of the F3 cables in the winter would result in the need for load shedding or rotating blackouts in the town during the replacement period for the F3 cables.

It is suggested that the F3 submarine cables be tested to provide an assessment of their current status and that a replacement strategy be developed for the replacement of these cables at any time of the year. In addition to the cable replacement with a Like-for-Like strategy, this strategy could also include plans for building a land based feeder from the Sam Lake DS to town. This could ultimately remove the need for the reliance on the submarine feeder. This decision could be supported by the fact that land based feeder repairs can be made much quicker than a submarine cable.

4.1.6 Underground Cable Replacements

The data suggests that the majority of the underground primary cables are new and expected to be in good condition. The cables needing attention within the next 10 years are all represented by only six separate installations. These cables might be tested to confirm if they are in fact a concern, and therefore could be moved into a lesser level of urgency.

4.2 Combining Asset Replacement Work to Reduce Costs

While estimated costs for replacement of individual devices may seem to make replacing many assets of the distribution system very expensive, costs can be reduced by strategically replacing multiple assets on a work site or in a specified area within one project. Costs for mobilizing the crews and equipment and the cost of work site setup can be shared between assets if multiple items are replaced at once. It is therefore recommended that multiple assets be considered simultaneously when planning replacement work.

Appendix A - Health Index Results

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
4040	127Abram lake road	1990	25		Yes	Yes	Pole	25	
2005	57 HYW664		25		Yes	Yes	Pole	?	
2261	161 Moosehorn road	???	25dual		Yes	Yes	Pole	?	
8027	6 East road	1970	25		Yes	Yes	pole	45	
8082	24 Wren Way road Big V	1970	15		Yes	Yes	pole	45	
3311	67 Abram lake road	1970	25		Yes	Yes	Pole	45	
987	41 Forest drive	1970	25		Yes	Yes	Pole	45	
3428	651 HYW 72	1970	25		Yes	Yes	Pole	45	
3341	21 Tower Hill road	1971	25		Yes	Yes	Pole	44	
1481	173 Forest drive	1971	25dual		Yes	Yes	Pole	44	
539	80 5th Ave	1972	50		Yes	Yes	Pole	43	
3075	76 Wren Way road Big V	1972	25		Yes	Yes	pole	43	
899	Street Lite TX 651Drayton	1972	10		Yes	Yes	Pole	43	
3076	21 Grand Trunk Pacific tr	1973	25		Yes	Yes	Pole	42	
3501	724 Drayton road	1974	25		Yes	Yes	Pole	41	
751	89 Prince Street	1975	50		Yes	Yes	Pole	40	
477	123-4th Ave	1975	50		Yes	Yes	Pole	40	
608R	Sioux Hydro Shop	1975	50		Yes	Yes	Pole	40	
608W	Sioux Hydro Shop	1975	50		Yes	Yes	Pole	40	
608B	Sioux Hydro Shop	1975	50		Yes	Yes	Pole	40	
979	712 Drayton road	1975	25		Yes	Yes	Pole	40	
3024	15 Ogden drive	1975	25		Yes	Yes	Pole	40	
2491	264 Abram lake road	1975	25dual		Yes	Yes	Pole	40	
3336	21 Sun&Sand road	1975	25		Yes	Yes	Pole	40	
476W	54 Princess Street	1976	25		Yes	Yes	Pole	39	
117	990 Sturgeon river road	1978	25 dual		Yes	Yes	Pole	37	
603	Street lite	1978	10		Yes	Yes	Pole	37	
3487	8 Ogden drive	1978	25		Yes	Yes	Pole	37	
1949	434 HYW 72	1978	50dual		Yes	Yes	Pole	37	
1523	572 HYW 72	1978	25dual		Yes	Yes	Pole	37	
236	Cook's Mile 5	1978	25dual		Yes	Yes	Pole	37	
4056	Pelican School road	1979	25dual		Yes	Yes	Pole	36	
446	Back Lane 5th Ave S	1979	50		Yes	Yes	Pole	36	
440	4 Government Row	1979	50		Yes	Yes	Pole	36	
444 B	5th Ave S Wellington Inn	1979	50		Yes	Yes	Pole	36	
444R	5th Ave S Wellington Inn	1979	50		Yes	Yes	Pole	36	
444W	5th Ave S Wellington Inn	1979	50		Yes	Yes	Pole	36	
467	14 Wellington Street	1979	100 dual		Yes	Yes	Pole	36	
380	17 Westpoint Cove	1979	50dual		Yes	Yes	Pole	36	
483	54 Queen Street	1979	50		Yes	Yes	Pole	36	
418	46-7th Ave	1979	50		Yes	Yes	Pole	36	
420	42 7th Ave	1979	50		Yes	Yes	Pole	36	
501	Rear 76 Front Street	1979	100		Yes	Yes	Pole	36	
1318	2200 HYW 664	1979	10		Yes	Yes	pole	36	
8016	3rd street & 5th ave	1979	50dual		Yes	Yes	pole	36	
8014	6 3rd street	1979	25dual		Yes	Yes	pole	36	
8001	30 3rd street	1979	100		Yes	Yes	pole	36	
3500	909 Drayton road	1979	50dual	Oct-08	Yes	Yes	Pole	36	
1003	691 Drayton road	1979	10dual		Yes	Yes	Pole	36	
984	103 Drayton road	1979	50		Yes	Yes	Pole	36	
924	98 HYW 72	1979	50dual		Yes	Yes	Pole	36	

COMMENTS

281 pole mount units listed as NO or unknown PCB levels

Average Age of this group 32.58 years

Max age of this group 45 years

Data Changed as per Email Confirmation from Tom Sayers

Health Index Ranking By Colour

- Very Poor
- Poor
- Fair
- Good
- Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
1185	3 Loon lake road	1979	25dual		Yes	Yes	Pole	36	
4124	17 Forest drive	1979	50dual		Yes	Yes	Pole	36	
4119	15 Forest drive	1979	25		Yes	Yes	Pole	36	
978	83 Forest drive	1979	10dual		Yes	Yes	Pole	36	
976	157 Forest drive	1979	50dual		Yes	Yes	Pole	36	
3021	166 Forest drive	1979	25dual		Yes	Yes	Pole	36	
2572	141 Forest drive	1979	25dual		Yes	Yes	Pole	36	
1043	626 HYW 72	1979	25dual		Yes	Yes	Pole	36	
1566	74 Cedar Point drive	1979	25dual		Yes	Yes	Pole	36	
1707	139 Cedar Point drive	1979	25dual		Yes	Yes	Pole	36	
1710	55Cedar Point drive West	1979	25dual		Yes	Yes	Pole	36	
992	947 HYW 72	1979	50dual		Yes	Yes	Pole	36	
1479	527 Moosehorn road	1979	25dual		Yes	Yes	Pole	36	
640	471 Moosehorn road	1979	25 Dual		Yes	Yes	Pole	36	
970	1284 HYW 72	1979	25dual		Yes	Yes	Pole	36	
997	2621 HYW 72	1979	25		Yes	Yes	Pole	36	
2240	464 Indian trail	1979	25		Yes	Yes	Pole	36	
2033	3923 Butterfly lake road	1979	25dual		Yes	Yes	Pole	36	
2086	Abram lake street lite	1979	10dual		Yes	Yes	Pole	36	
3079	380 Goretzki drive	1980	25dual		Yes	Yes	Pole	35	
613	CNR East yard bank	1980	25		Yes	Yes	Pole	35	
613	CNR East yard bank	1980	50		Yes	Yes	Pole	35	
612	Bunkhouse HYW642	1980	25		Yes	Yes	Pole	35	
533	May Street	1980	167		Yes	Yes	Pole	35	
535	33 May Street	1980	50		Yes	Yes	Pole	35	
532 B	Forrest Inn May Street	1980	50		Yes	Yes	Pole	35	
532 W	Forrest Inn May Street	1980	50		Yes	Yes	Pole	35	
532 R	Forrest Inn May Street	1980	50		Yes	Yes	Pole	35	
531	Hill Crest Cemetery RD	1980	25		Yes	Yes	Pole	35	
468	6 Wellington ST backlane	1980	50		Yes	Yes	Pole	35	
453 W	60 4th Ave S Lift Station	1980	50		Yes	Yes	Pole	35	
453 B	60 4th Ave S Lift Station	1980	50		Yes	Yes	Pole	35	
453 R	60 4th Ave S Lift Station	1980	50		Yes	Yes	Pole	35	
485	56 Rear King Street	1980	50		Yes	Yes	Pole	35	
398	132 Front Street	1980	50		Yes	Yes	Pole	35	
424	8-7th Ave	1980	50		Yes	Yes	Pole	35	
421	11-7th Ave	1980	100		Yes	Yes	Pole	35	
580	Bumper to Bumper	1980	50		Yes	Yes	Pole	35	
581	Black Bear drive	1980	25		Yes	Yes	Pole	35	
579	101 Alcona Drive	1980	25		Yes	Yes	Pole	35	
586R	Buchanan Garage	1980	50		Yes	Yes	Pole	35	
586W	Buchanan Garage	1980	50		Yes	Yes	Pole	35	
586B	Buchanan Garage	1980	50		Yes	Yes	Pole	35	
609	Hoey's CM service	1980	25		Yes	Yes	Pole	35	
604	21 Airport Road	1980	25		Yes	Yes	Pole	35	
602	Allan Airways	1980	25		Yes	Yes	Pole	35	
590	Old Airport Fuel Office	1980	25		Yes	Yes	Pole	35	
1327	2195 HYW 664	1980	50dual		Yes	Yes	pole	35	
8022	13 4th street	1980	50dual		Yes	Yes	pole	35	
8019	15 4th street	1980	10dual		Yes	Yes	pole	35	
3377	8 Wren Way road Big V	1980	25dual		Yes	Yes	pole	35	
3474	613 Sturgeon river road	1980	10 dual		Yes	Yes	Pole	35	
927	98 Boy Scout Road	1980	25 dual		Yes	Yes	Pole	35	

COMMENTS

Health Index Ranking By Colour

(red)	Very Poor
(orange)	Poor
(yellow)	Fair
(green)	Good
(blue)	Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
3502	601 Drayton road	1980	25dual		Yes	Yes	Pole	35	
85	478 Drayton road	1980	25dual		Yes	Yes	Pole	35	
2149	9 Delseg drive	1980	50dual		Yes	Yes	Pole	35	
945	170MoonShadow Drive	1980	25dual		Yes	Yes	Pole	35	
903	50 Drayton road	1980	25dual		Yes	Yes	Pole	35	
578	26 Drayton road	1980	25		Yes	Yes	Pole	35	
3239	8 Fanning ave	1980	50dual		Yes	Yes	Pole	35	
1019	238 Abram lake road	1980	50		Yes	Yes	Pole	35	
2166	36 Horizon drive	1980	10		Yes	Yes	Pole	35	
2111	112 Forest drive	1980	25dual		Yes	Yes	Pole	35	
1692	326 HYW 72 Lamplighter	1980	167		Yes	Yes	Pole	35	
921	525 HYW 72	1980	100		Yes	Yes	Pole	35	
1791	537 HYW 72	1980	50dual		Yes	Yes	Pole	35	
926	641 HYW 72	1980	25dual		Yes	Yes	Pole	35	
3522	16 Whispering Pines	1980	25		Yes	Yes	Pole	35	
4079	888 Hyw 72 G Bower	1980	25	2009	Yes	Yes	Pole	35	
2762	2547 HYW 72	1980	10dual		Yes	Yes	Pole	35	
2180	143 Voyageur's North rd	1980	25dual		Yes	Yes	Pole	35	
2098	Voyageur's N Street lite	1980	10		Yes	Yes	Pole	35	
2233	3951 Butterfly lake road	1980	10dual		Yes	Yes	Pole	35	
1396	4103 Timber Edge road	1980	25dual		Yes	Yes	Pole	35	
4137	12 Queen Street	1981	50		Yes	Yes	Pole	34	
511	38 Prince Street	1981	50		Yes	Yes	Pole	34	
510 B	40 Prince Street	1981	50		Yes	Yes	Pole	34	
510 W	40 Prince Street	1981	50		Yes	Yes	Pole	34	
510 R	40 Prince Street	1981	50		Yes	Yes	Pole	34	
526	11 Prince Street	1981	100		Yes	Yes	Pole	34	
472	35 5th Ave	1981	50		Yes	Yes	Pole	34	
545	17 Rear Cenntenial	1981	50dual		Yes	Yes	Pole	34	
584	Buchanan Office	1981	25		Yes	Yes	Pole	34	
2247	2000 HYW 664	1981	25dual		Yes	Yes	pole	34	
931	812 Sturgeon river road	1981	25dual		Yes	Yes	Pole	34	
2215	576 Sturgeon river road	1981	25dual		Yes	Yes	Pole	34	
929	36 Penny Lane	1981	50 dual		Yes	Yes	Pole	34	
2218	10 Penny Lane	1981	25 dual		Yes	Yes	Pole	34	
2928	385 Sturgeon river road	1981	50tri		Yes	Yes	Pole	34	
953	771Drayton road	1981	25dual		Yes	Yes	Pole	34	
2236	286 Abram lake road	1981	25dual		Yes	Yes	Pole	34	
2207	14 Cedar Point drive W	1981	50dual		Yes	Yes	Pole	34	
3520	12 Whispering Pines	1981	50		Yes	Yes	Pole	34	
2584	707 HYW 72	1981	25		Yes	Yes	Pole	34	
430	103 Moosehorn road	1981	25dual		Yes	Yes	Pole	34	
8043	Bell Tower HYW 664	1982	25tri		Yes	Yes	pole	33	
8009	3302 HYW 664	1982	100tri		Yes	Yes	pole	33	
8006	1st Street	1982	10		Yes	Yes	pole	33	
8011	4th & Mill road	1982	50tri		Yes	Yes	pole	33	
8023	7 Bernier Cres.	1982	50tri		Yes	Yes	pole	33	
934	660 Sturgeon river road	1982	25 tri		Yes	Yes	Pole	33	
1592	603 Drayton road	1982	50tri		Yes	Yes	Pole	33	
1361	600 Drayton road	1982	50tri		Yes	Yes	Pole	33	
2402	532 Drayton road	1982	25tri		Yes	Yes	Pole	33	
999	503 Drayton road	1982	50tri		Yes	Yes	Pole	33	
1636	93 Sturgeon Meadows	1982	50tri		Yes	Yes	Pole	33	

COMMENTS

Health Index Ranking By Colour

- Very Poor
- Poor
- Fair
- Good
- Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
940	365 Drayton road	1982	100tri		Yes	Yes	Pole	33	
2113	304 Drayton road	1982	50		Yes	Yes	Pole	33	
2026	224 Drayton road	1982	50tri		Yes	Yes	Pole	33	
4125	20 Fanning ave	1982	50tri		Yes	Yes	Pole	33	
717	92 Abram lake road	1982	10tri		Yes	Yes	Pole	33	
48	52 Loon lake road	1982	10tri		Yes	Yes	Pole	33	
2421	55 Sun&Sand road	1982	50tri		Yes	Yes	Pole	33	
2473	91 Cedar Point drive	1982	25tri		Yes	Yes	Pole	33	
1818	127 Cedar Point drive	1982	50tri		Yes	Yes	Pole	33	
1434	401 Moosehorn road	1982	25tri		Yes	Yes	Pole	33	
998	225 Moosehorn road	1982	25dual		Yes	Yes	Pole	33	
2357	183? Moosehorn road	1982	25tri		Yes	Yes	Pole	33	
918	135 Moosehorn road	1982	50tri		Yes	Yes	Pole	33	
2140	62 Moosehorn road	1982	50		Yes	Yes	Pole	33	
2461	42 Moosehorn road	1982	25tri		Yes	Yes	Pole	33	
973	2099 HYW 72	1982	50tri		Yes	Yes	Pole	33	
2458	2236 HYW 72	1982	25tri		Yes	Yes	Pole	33	
965	2385 HYW 72	1982	50tri		Yes	Yes	Pole	33	
4045	3951Butterfly lake road	1982	25tri		Yes	Yes	Pole	33	
2224	311 HYW 664 MTO	1982	50tri		Yes	Yes	Pole	33	
2479	2004 HYW664	1983	25dual		Yes	Yes	pole	32	
8015	4th ave	1983	50tri		Yes	Yes	pole	32	
8007	53 West street	1983	25tri		Yes	Yes	pole	32	
8012	52 3rd street	1983	50tri		Yes	Yes	pole	32	
8013	12 Mill road	1983	50tri		Yes	Yes	pole	32	
8024	13 Bernier Cres.	1983	50tri		Yes	Yes	pole	32	
8032	19 Bernier Cres	1983	25tri		Yes	Yes	pole	32	
1616	976 Sturgeon river road	1983	50 tri		Yes	Yes	Pole	32	
982	406 Sturgeon river road	1983	50tri		Yes	Yes	Pole	32	
4140	798 Drayton road	1983	25tri		Yes	Yes	Pole	32	
1798	38 Fanning ave	1983	50tri		Yes	Yes	Pole	32	
2452	402 HYW 72	1983	50tri		Yes	Yes	Pole	32	
2167	299 Ogemah road	1983	25tri		Yes	Yes	Pole	32	
1324	458 Indian trail	1983	25tri		Yes	Yes	Pole	32	
2014	97 Hyw 664	1983	25		Yes	Yes	Pole	32	
611	9 Creosote road	1984	50		Yes	Yes	Pole	31	
954	778 Drayton road	1984	25tri		Yes	Yes	Pole	31	
2573	246 Abram lake road	1984	25tri		Yes	Yes	Pole	31	
2566	1800 South Shore Drive	1984	25tri		Yes	Yes	Pole	31	
454	4th Ave S Carroll's car	1985	50		Yes	Yes	Pole	30	
457	48 Wellington Street	1985	50		Yes	Yes	Pole	30	
451	67 Wellington Street	1985	50		Yes	Yes	Pole	30	
4053	Rear 49 5th	1985	50		Yes	Yes	Pole	30	
417	41-7th Ave	1985	75	2009	Yes	Yes	Pole	30	
2759	3312 HYW 664	1985	50tri		Yes	Yes	pole	30	
2759	3312 HYW 664	1985	50tri		Yes	Yes	pole	30	
8003	6th ave Hudson	1985	100tri		Yes	Yes	pole	30	
8017	Fire Hall	1985	50tri		Yes	Yes	pole	30	
8028	Strarratt road	1985	50tri		Yes	Yes	pole	30	
8020	Strarratt road	1985	50tri		Yes	Yes	pole	30	
939	478 Sturgeon river road	1985	50tri		Yes	Yes	Pole	30	
106	171 Sturgeon river road	1985	25tri		Yes	Yes	Pole	30	
2459	653 Drayton road	1985	50 tri		Yes	Yes	Pole	30	

COMMENTS

Health Index Ranking By Colour

- Very Poor
- Poor
- Fair
- Good
- Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
3504	262 Drayton road	1985	50tri		Yes	Yes	Pole	30	
3425	69 Abram lake road	1985	50tri		Yes	Yes	Pole	30	
2422	91 Sun&Sand road	1985	50tri		Yes	Yes	Pole	30	
690	624 HYW 72	1985	50tri		Yes	Yes	Pole	30	
2742	1077 HYW 72	1985	50tri		Yes	Yes	Pole	30	
2758	317 Moosehorn road	1985	25tri		Yes	Yes	Pole	30	
2361	81 Moosehorn road	1985	50tri		Yes	Yes	Pole	30	
767	231 Ogemah road	1985	50tri		Yes	Yes	Pole	30	
2595	331 Ogemah road	1985	25tri		Yes	Yes	Pole	30	
969	1997 HYW 72	1985	25tri		Yes	Yes	Pole	30	
2184	2201 HYW 72	1985	25dual		Yes	Yes	Pole	30	
2577	169 Voyageur's North rd	1985	25tri		Yes	Yes	Pole	30	
390B	Sacred Heart Church	1986	25		Yes	Yes	Pole	29	
390R	Sacred Heart Church	1986	25		Yes	Yes	Pole	29	
390W	Sacred Heart Church	1986	25		Yes	Yes	Pole	29	
547R	Moran Lift Station	1986	25		Yes	Yes	Pole	29	
2759	3312 HYW 664	1986	50tri		Yes	Yes	pole	29	
8021	15- 5th ave	1986	50tri		Yes	Yes	pole	29	
8002	24 2nd street	1986	100tri		Yes	Yes	pole	29	
8008	100 3rd street	1986	100tri		Yes	Yes	pole	29	
2037	835 Drayton road	1986	25tri		Yes	Yes	Pole	29	
4123	364 Abram lake road	1986	50tri		Yes	Yes	Pole	29	
1009	1041 HYW72	1986	100tri		Yes	Yes	Pole	29	
1497	2025 HYW72	1986	25tri		Yes	Yes	Pole	29	
975	Pelican School road	1987	100tri		Yes	Yes	Pole	28	
384	144 Queen Street	1987	100tri		Yes	Yes	Pole	28	
403	116 Queen Street	1987	100tri		Yes	Yes	Pole	28	
470	80 Queen Street	1987	100tri		Yes	Yes	Pole	28	
386	123 Prince Street	1987	100tri		Yes	Yes	Pole	28	
387	105 Prince Street	1987	100tri		Yes	Yes	Pole	28	
576	Rear 12 Meadwell	1987	100tri		Yes	Yes	Pole	28	
392	123 King Street	1987	100tri		Yes	Yes	Pole	28	
575	37 2nd Ave N	1987	100tri		Yes	Yes	Pole	28	
478	110 Meadwell	1987	100		Yes	Yes	Pole	28	
409	81-7th Ave	1987	100tri		Yes	Yes	Pole	28	
497	Rear Front & 5th Ave	1987	50		Yes	Yes	Pole	28	
8004	Post Office 2nd ave	1987	100tri		Yes	Yes	pole	28	
956	856 Drayton road	1987	25tri		Yes	Yes	Pole	28	
925	62 Fanning ave	1987	100tri		Yes	Yes	Pole	28	
1454	429 Moosehorn road	1987	25 Dual		Yes	Yes	Pole	28	
2963	Moon Shadow drive	1987	25tri		Yes	Yes	Pole	28	
4139	774 Sturgeon river road	1988	25 tri		Yes	Yes	Pole	27	
1276	885 Drayton road	1988	10tri		Yes	Yes	Pole	27	
449	8 - 6 th Ave S	1989	100tri		Yes	Yes	Pole	26	
448	71 Ethel Street	1989	100tri		Yes	Yes	Pole	26	
447	61 Ethel Street	1989	100tri		Yes	Yes	Pole	26	
445	64 Bay Street	1989	100tri		Yes	Yes	Pole	26	
3162	Bell Site HYW72 mile 11	1990	25tri		Yes	Yes	Pole	25	
1461	1044 Sturgeon river road	1991	50 tri		Yes	Yes	Pole	24	
935	560 Sturgeon river road	1991	25tri		Yes	Yes	Pole	24	
1574	497 Moosehorn road	1993	25dual		Yes	Yes	Pole	22	
4132	10 Corner Stone road	1996	25		Yes	Yes	Pole	19	
4121	43 Mill road	1998	25		Yes	Yes	Pole	17	

COMMENTS

Health Index Ranking By Colour

(red)	Very Poor
(orange)	Poor
(yellow)	Fair
(green)	Good
(blue)	Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
972	Forest drive street lite	1998	10		Yes	Yes	Pole	17	
950	8 Cedar Point drive	2001	25		Yes	Yes	Pole	14	
4063	*415 Sturgeon River road*	*2007*	*25*	*2008*	Yes	Yes	Pole	8	
4095	20 Autumwood drive	2011	25	11-Jul	Yes	Yes	Pole	4	
3521	14 Whispering Pines	2011	25		Yes	Yes	Pole	4	
4111	97 Frieson Blvd	2011	25	2012	Yes	Yes	Pole	4	
4110	109 Frieson Blvd	2011	25	2012	Yes	Yes	Pole	4	
4129	564 drayton road	2012	25		Yes	Yes	Pole	3	
2169	417 Moosehorn road				Yes	Yes		?	
2764	1408 HYW 664 Deer path	1972	25		Yes	Yes	pole	43	
8025	3260 HYW 664	1979	10		Yes	Yes	pole	36	
4165	10 1st Ave	1979	50	2014	Yes	Yes	pole	36	
4115	pole F2/BRD02 Boat Lauch	1980	10	2012	Yes	Yes	Pole	35	
1006	1900 South Shore Drive	1980	10dual		Yes	Yes	Pole	35	
959	1920 South Shore Drive	1980	10	2012	Yes	Yes	Pole	35	
1321	2100 HYW 664	1982	10		Yes	Yes	pole	33	
4045	3951 Butterfly lake road	1982	25tri		Yes	Yes	Pole	33	
4167	HYW664	1984	25	2014	Yes	Yes	Pole	31	
980	351 Moosenorn road	1987	25		Yes	Yes	Pole	28	
4047	Boulder drive street lite	1987	25		Yes	Yes	Pole	28	
4112	Goretzki drive	1988	10		Yes	Yes	Pole	27	
527	3 Queen Street	1991	100		Yes	Yes	Pole	24	
546	Rear 21 Centennial Dr	2011	50	Jun-11	Yes	Yes	Pole	4	
4071	Airport Right- Away	1980	10	July/19/11	Yes	Yes	Pole	35	
547W	Moran Lift Station	1984	25		Yes	Yes	Pole	31	
2865	32 Cedar Point drive W	1988	50		Yes	Yes	Pole	27	
464 R	Wellington Street	1990	25		Yes	Yes	Pole	25	
464 W	Wellington Street	1990	25		Yes	Yes	Pole	25	
464 B	Wellington Street	1990	25		Yes	Yes	Pole	25	
431 R	80 Front Street	1990	50		Yes	Yes	Pole	25	
431W	80 Front Street	1990	50		Yes	Yes	Pole	25	
431B	80 Front Street	1990	50		Yes	Yes	Pole	25	
502B	Rear 46 Front Street	1990	167		Yes	Yes	Pole	25	
502R	Rear 46 Front Street	1990	167		Yes	Yes	Pole	25	
502W	Rear 46 Front Street	1991	167		Yes	Yes	Pole	24	
3355	Pelican School road	1992	25		Yes	Yes	Pole	23	
458 W	Robin's Donuts	1995	25		Yes	Yes	Pole	20	
458 R	Robin's Donuts	1995	25		Yes	Yes	Pole	20	
458 B	Robin's Donuts	1995	25		Yes	Yes	Pole	20	
2777	Horizon Drive	1995	25		Yes	Yes	Pole	20	
8044	15 Mill road	1996	25 dual		Yes	Yes	pole	19	
3432	832 HYW664	1996	25		Yes	Yes	Pole	19	
3432	832 HYW664	1996	25		Yes	Yes	Pole	19	
4057W	HYW 72& Beech ave	1998	15	2008	Yes	Yes	Pole	17	
4057R	HYW72 & Beech ave	1998	15	2008	Yes	Yes	Pole	17	
9025	17 Bernier Cres	1998	25		Yes	Yes	pole	17	
3155	16 Wren Way road Big V	1998	25	Dec-19/11	Yes	Yes	pole	17	
4073	810 Sturgeon river road	1998	25	9-Jul	Yes	Yes	Pole	17	
1794	161 Cedar Point drive	1998	25		Yes	Yes	Pole	17	
4057B	HYW 72& Beech ave	1998	15	2008	Yes	Yes	Pole	17	
4096	111 Prince Str	2004	50	May-11	Yes	Yes	Pole	11	
4060	2-1st Ave South	2007	50	Aug 1-2008	Yes	Yes	Pole	8	
520	24 Front Street	2007	50	Aug 17-2008	Yes	Yes	Pole	8	

COMMENTS

Health Index Ranking By Colour

	Very Poor
	Poor
	Fair
	Good
	Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
415	61-7th Ave	2007	50	Jan-28/09	Yes	Yes	Pole	8	
4061	26 Drayton Road	2007	25	2008	Yes	Yes	Pole	8	
4065	16 Horizon Drive	2007	25	2008	Yes	Yes	Pole	8	
2427	83 Sun&Sand road	2007	50	2008	Yes	Yes	Pole	8	
4135	143 Cedar Point drive	2007	50	2008	Yes	Yes	Pole	8	
4062	35 Frieson Blvd	2007	25	2008	Yes	Yes	Pole	8	
4059	43 Friesen Blvd	2007	25	2008	Yes	Yes	Pole	8	
4086	Goverment Row	2008	25	April-21/10	Yes	Yes	Pole	7	
4127	22-Wellington Street	2008	50	Oct-20/08	Yes	Yes	Pole	7	
4109	118 Front Street	2008	50	Jul-12	Yes	Yes	Pole	7	
4018	860 Drayton road	2008	25		Yes	Yes	Pole	7	
4085	11 Autumwood drive	2008	25	10-Apr	Yes	Yes	Pole	7	
4074	4 Aspen drive	2008	25	2009/Jul	Yes	Yes	Pole	7	
4087	Evergreen Drive	2008	25	06/16/10	Yes	Yes	Pole	7	
766	131 Ogemah road	2008	50	Oct-08	Yes	Yes	Pole	7	
1607	379 Ogemah road	2008	50		Yes	Yes	Pole	7	
1771	1324 HYW 72	2008	25	10/5/2010	Yes	Yes	Pole	7	
4105	34 Front Street	2008	50	Nov-29/11 <2PPM	Yes	Yes	Pole	7	
2990	715 Drayton road	2010	25		Yes	Yes	Pole	5	
4088	Blue Heron Drive	2010	25	6/24/2010	Yes	Yes	Pole	5	
2112	Step down Fireside	2010	167	2010	Yes	Yes	Pole	5	
4102	Timber Edge Road	2010	250	2011	Yes	Yes	Pole	5	
4101	463 Legros road	2011	25	2011	Yes	Yes	Pole	4	
4103	40 Goretzki drive	2011	25	2011	Yes	Yes	Pole	4	
4038	Boat Launch	2011	25	June-16/12	Yes	Yes	Pole	4	
3188	66 Forest drive	2011	25	2012	Yes	Yes	Pole	4	
1565	9 Cedar Point drive	2011	25	2011	Yes	Yes	Pole	4	
4107	45 Blue Heron Drive	2011	25	2011	Yes	Yes	Pole	4	
4098	Boat Lanch Rd	2011	25	2011	Yes	Yes	Pole	4	
4130	10 Aspen drive	2012	25		Yes	Yes	Pole	3	
4072	130 Prince street	2013	167	Nov,18.2013	Yes	Yes	Pole	2	
459	32 Robert St	19??	50tri	2014	Yes	Yes	Pole	?	
603R	21 Airport Road	19??	25		y	yes	Pole	?	
603W	21 Airport Road	19??	25		y	yes	Pole	?	
603B	21 Airport Road	19??	25		y	yes	Pole	?	
4036					y	yes	Pole	?	
4078	Indian Trail collector		3	2009	y	yes	Pole	?	
2535	319 Abram lake road	1970	37		y	yes	Pole	45	
461	41 York Back Lane	1973	100		y	yes	Pole	42	
396	110 Front Street	1974	100		y	yes	Pole	41	
3310	283 Abram lake road	1975	25		y	yes	Pole	40	
2143	330 Abram lake road	1975	25		y	yes	Pole	40	
406W	97 Front Street	1979	50		y	yes	Pole	36	
577	3 Hannah Cres.	1979	50tri		y	yes	Pole	36	
991	911Drayton road	1979	50dual		y	yes	Pole	36	
610	HYW 642	1980	10		non	yes	Pole	35	
4022	8th Ave School Portable	1980	25	July,15.2013	non	yes	Pole	35	
463	34 Wellington Street	1980	25		y	yes	Pole	35	
463	34 Wellington Street	1980	25		y	yes	Pole	35	
512	3rd Ave	1980	50		y	yes	Pole	35	
516	2nd Ave	1980	25		y	yes	Pole	35	
552	10 Rear Fair Street	1980	100		y	yes	Pole	35	
528	1st Ave	1980	100		y	yes	Pole	35	

COMMENTS

Health Index Ranking By Colour

- Very Poor
- Poor
- Fair
- Good
- Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
600	Airport Office	1980	50		y	yes	Pole	35	
4077	63 Autumwood drive	1980	25	9-Aug	y	yes	Pole	35	
4089	Fireside road street lite	1980	10		y	yes	Pole	35	
495R	Rear 61 Front Street	1981	100		y	yes	Pole	34	
495W	Rear 61 Front Street	1981	100		y	yes	Pole	34	
495B	Rear 61 Front Street	1981	100		y	yes	Pole	34	
2981	277 Sturgeon river road	1981	50		y	yes	Pole	34	
4041	Airport Tower	1982	10tri		y	yes	Pole	33	
902	172 Sturgeon river road	1982	50		y	yes	Pole	33	
907	634 Drayton road	1982	50 tri		y	yes	Pole	33	
1202	39 Cedar Point drive	1982	50tri		y	yes	Pole	33	
1559	549 Moosehorn road	1982	50		y	yes	Pole	33	
4052	1742 South Shore Drive	1982	25tri		y	yes	Pole	33	
429	Rear 90 Front Street	1983	50		y	yes	Pole	32	
496R	Rear 62 Front Street	1983	100		y	yes	Pole	32	
496B	Rear 62 Front Street	1983	100		y	yes	Pole	32	
496W	Rear 62 Front Street	1983	100		y	yes	Pole	32	
2569	1856 South Shore Drive	1983	25tri		y	yes	Pole	32	
4126	68 Lakeshore Drive	1984	50		y	yes	Pole	31	
521	Rear 18 Prince Street	1985	50		non	yes	Pole	30	
427R	Legion	1985	100	12/7/2010	y	yes	Pole	30	
3006	121 Legros road	1985	25dual		y	yes	Pole	30	
3252	1st tower HYW 642	1985	25tri		y	yes	Pole	30	
452 R	4th Ave S Custom Collision	1985	50		y	yes	Pole	30	
452	4th Ave S Custom Collision	1985	50		y	yes	Pole	30	
452	4th Ave S Custom Collision	1985	50		y	yes	Pole	30	
549R	52 King Strreet	1985	50		y	yes	Pole	30	
549B	52 King Strreet	1985	50		y	yes	Pole	30	
549W	52 King Strreet	1985	50		y	yes	Pole	30	
517	16 King Street	1985	75		y	yes	Pole	30	
518	20 King Street	1985	75		y	yes	Pole	30	
490	54 King Street	1985	50		y	yes	Pole	30	
519	14 Front Street	1985	50		y	yes	Pole	30	
473	5th Ave Fire Hall	1985	50		y	yes	Pole	30	
541	54-5th Ave	1985	75		y	yes	Pole	30	
540	70 5th Ave	1985	75		y	yes	Pole	30	
430	Rear 80 Front Street	1985	50		y	yes	Pole	30	
427W	Legion	1985	100	12/7/2010	y	yes	Pole	30	
427B	Legion	1985	100	12/7/2010	y	yes	Pole	30	
4044	22 Aspen drive	1985	75		y	yes	Pole	30	
3401	148 Abram lake road	1985	50		y	yes	Pole	30	
2799	2201 HYW 72	1985	25tri		y	yes	Pole	30	
4064	1780 South Shore Drive	1985	50tri	2008	y	yes	Pole	30	
466	17 2nd Ave S	1986	75		y	yes	Pole	29	
383	162 Queen Street	1986	167		y	yes	Pole	29	
484	50 Queen Street	1986	75		y	yes	Pole	29	
547B	Moran Lift Station	1986	25		y	yes	Pole	29	
968	2401 HYW 72	1986	25tri		y	yes	Pole	29	
2692	1700 South Shore Drive	1986	25tri		y	yes	Pole	29	
524	Rear 38 3rd Ave	1987	50		non	yes	Pole	28	
422	36-7th Ave	1987	100		non	yes	Pole	28	
465	Wellington Street	1987	75		y	yes	Pole	28	
385	134 Queen Street	1987	50		y	yes	Pole	28	

COMMENTS

Health Index Ranking By Colour

	Very Poor
	Poor
	Fair
	Good
	Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
514	32 Queen Street	1987	100	2011	y	yes	Pole	28	
513	27 Prince Street	1987	75tri		y	yes	Pole	28	
523	38 3rd Ave	1987	100		y	yes	Pole	28	
523	38 3rd Ave	1987	100		y	yes	Pole	28	
523	38 3rd Ave	1987	100		y	yes	Pole	28	
474B	5th Ave Town Garage	1987	100		y	yes	Pole	28	
474W	5th Ave Town Garage	1987	100		y	yes	Pole	28	
474R	5th Ave Town Garage	1987	100		y	yes	Pole	28	
572	80 Rear 2nd Ave N	1987	100tri		y	yes	Pole	28	
538	15 Rear Meadwell	1987	100		y	yes	Pole	28	
500R	Rear 68 Front Street	1987	75		y	yes	Pole	28	
500W	Rear 68 Front Street	1987	75		y	yes	Pole	28	
500B	Rear 68 Front Street	1987	75		y	yes	Pole	28	
493	Rear 56 Front Street	1987	75		y	yes	Pole	28	
508	Rear 2 Front Street	1987	50		y	yes	Pole	28	
583R	Windigo First Nation 642	1987	50		y	yes	Pole	28	
583W	Windigo First Nation 642	1987	50		y	yes	Pole	28	
583B	Windigo First Nation 642	1987	50		y	yes	Pole	28	
585	Buchanan Plugs	1987	50		y	yes	Pole	28	
556	84-1st Ave	1987	75		y	yes	Pole	28	
557	90 1st Ave	1987	75		y	yes	Pole	28	
435W	CNR 3 Phase bank	1987	100		y	yes	Pole	28	
8005	21 1st ave	1987	100tri		y	yes	pole	28	
1244	144 Tower Hill road	1987	50		y	yes	Pole	28	
4134	330 Sanders road w	1987	50		y	yes	Pole	28	
296	62 Cedar Point drive	1987	25tri		y	yes	Pole	28	
3296	362 Boulder drive	1987	25tri		y	yes	Pole	28	
2986	60 Legros road	1988	25tri		non	yes	Pole	27	
3001	83 Goretzki drive	1988	25tri		non	yes	Pole	27	
2942	556 Sturgeon river road	1988	50tri		non	yes	Pole	27	
3114	3965 Butterfly lake road	1988	25tri		non	yes	Pole	27	
2565	1786 South Shore Drive	1988	25tri		non	yes	Pole	27	
3113	185 Legros road	1988	25tri		y	yes	Pole	27	
3010	383 Legros road	1988	25tri		y	yes	Pole	27	
2998	62 Goretzki drive	1988	25tri		y	yes	Pole	27	
3002	58 Goretzki drive	1988	50tri		y	yes	Pole	27	
455	52 Bay Street	1988	50tri		y	yes	Pole	27	
456	40 Bay Street	1988	50tri		y	yes	Pole	27	
476R	54 Princess Street	1988	25		y	yes	Pole	27	
476B	54 Princess Street	1988	25		y	yes	Pole	27	
410R	75- 7th Ave	1988	50tri		y	yes	Pole	27	
410W	75- 7th Ave	1988	50tri		y	yes	Pole	27	
410B	75- 7th Ave	1988	50tri		y	yes	Pole	27	
548R	3rd Ave Golf Course	1988	50		y	yes	Pole	27	
548W	3rd Ave Golf Course	1988	50		y	yes	Pole	27	
548B	3rd Ave Golf Course	1988	50		y	yes	Pole	27	
543	1 Rear Cenntenial	1988	50tri		y	yes	Pole	27	
558	73 Atwood	1988	50tri		y	yes	Pole	27	
435R	CNR 3 Phase bank	1988	100		y	yes	Pole	27	
435B	CNR 3 Phase bank	1988	100		y	yes	Pole	27	
2936	40 Mill road	1988	25tri		y	yes	pole	27	
3228	54 Wren Way road Big V	1988	10		y	yes	pole	27	
3147	30 Wren Way road Big V	1988	10tri		y	yes	pole	27	

COMMENTS

Health Index Ranking By Colour

- Very Poor
- Poor
- Fair
- Good
- Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
3149	20 Sunrise Drive Big V	1988	25tri		y	yes	pole	27	
1907	46 Sunrise Drive Big V	1988	25		y	yes	pole	27	
1372	960 Sturgeon river road	1988	25 tri		y	yes	Pole	27	
2972	12 Sturgeon Meadows N	1988	25tri		y	yes	Pole	27	
1021	651 Drayton road	1988	25tri		y	yes	Pole	27	
915	23 BoyScout road	1988	25tri		y	yes	Pole	27	
2933	93 Mill road	1988	50tri		y	yes	Pole	27	
2087	48 Abram lake road	1988	50tri		y	yes	Pole	27	
947	308 Abram lake road	1988	50tri		y	yes	Pole	27	
949	414 HYW 72	1988	25tri		y	yes	Pole	27	
1061	317 Moosehorn road	1988	50tri		y	yes	Pole	27	
4020	346 Boulder drive	1988	25tri		y	yes	Pole	27	
1242	2565 HYW 72	1988	25tri		y	yes	Pole	27	
1142	2401 HYW 72	1988	25tri		y	yes	Pole	27	
2142	2740 HYW72	1988	25tri		y	yes	Pole	27	
4012	3913 HYW72	1988	25		y	yes	Pole	27	
2132	3939 Butterfly lake road	1988	25tri		y	yes	Pole	27	
2567	1844 South Shore Drive	1988	25tri		y	yes	Pole	27	
4069	South Shore Drive	1988	25 tri	2008	y	yes	Pole	27	
184	Palmer's Island	1988	25tri	2008	y	yes	Pole	27	
3081	3485 HYW642	1989	25tri		non	yes	Pole	26	
3026	3464 HYW 642	1989	25tri		non	yes	Pole	26	
345	924 Sturgeon river road	1989	25tri		non	yes	Pole	26	
3193	28 Penny Lane	1989	25tri		non	yes	Pole	26	
2997	285 Legros road	1989	25tri		y	yes	Pole	26	
3074	281 Legros road	1989	25		y	yes	Pole	26	
3133	48 Legros road	1989	25tri		y	yes	Pole	26	
3103	3561 HYW642	1989	25tri		y	yes	Pole	26	
3052	3480 HYW642	1989	25tri		y	yes	Pole	26	
450	78 Lake Street	1989	100tri		y	yes	Pole	26	
382	3 Love Cove	1989	50tri		y	yes	Pole	26	
407	92 Prince Street	1989	50tri		y	yes	Pole	26	
393	134 King Street	1989	50tri		y	yes	Pole	26	
404	85 King Street	1989	50tri		y	yes	Pole	26	
426	70 King Street	1989	100tri		y	yes	Pole	26	
488	42 Rear King Street	1989	50		y	yes	Pole	26	
574	72-2nd Ave N	1989	100tri		y	yes	Pole	26	
405	96 Front Street	1989	50tri		y	yes	Pole	26	
412	73- 7th Ave	1989	50tri		y	yes	Pole	26	
414R	71-7th Ave Nurses Res.	1989	50tri		y	yes	Pole	26	
414W	71-7th Ave Nurses Res.	1989	50tri		y	yes	Pole	26	
414B	71-7th Ave Nurses Res.	1989	50tri		y	yes	Pole	26	
419	25 7th Ave	1989	50 dual		y	yes	Pole	26	
573	Curtis Street mail boxes	1989	100tri		y	yes	Pole	26	
494R	Rear 58 Front Street	1989	100		y	yes	Pole	26	
494W	Rear 58 Front Street	1989	100		y	yes	Pole	26	
494B	Rear 58 Front Street	1989	100		y	yes	Pole	26	
504	Rear 38 Front Street	1989	50tri		y	yes	Pole	26	
504	Rear 38 Front Street	1989	50tri		y	yes	Pole	26	
3061	70 Wren Way road Big V	1989	25tri		y	yes	pole	26	
4017	651 Drayton road	1989	250		y	yes	Pole	26	
3094	42 Desson road	1989	25tri		y	yes	Pole	26	
2542	113Mill road	1989	25tri		y	yes	Pole	26	

COMMENTS

Health Index Ranking By Colour

(red)	Very Poor
(orange)	Poor
(yellow)	Fair
(green)	Good
(blue)	Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
1085	226 Abram lake road	1989	50tri		y	yes	Pole	26	
944	458 HYW 72	1989	50tri		y	yes	Pole	26	
1941	161 Cedar Point drive	1989	25tri		y	yes	Pole	26	
1591	109 Moosehorn road	1989	25tri		y	yes	Pole	26	
4046	109 Moosehorn road	1989	25tri		y	yes	Pole	26	
3194	3995 Butterfly lake road	1989	50dual		y	yes	Pole	26	
3066	280 Goretzki drive	1990	25tri		non	yes	Pole	25	
4166	140 Queen Str	1990	50	Jul-14	non	yes	Pole	25	
480	Sioux Towers 3rd Ave	1990	100		non	yes	Pole	25	
480	Sioux Towers 3rd Ave	1990	100		non	yes	Pole	25	
480	Sioux Towers 3rd Ave	1990	100		non	yes	Pole	25	
3356	Pelican School road	1990	100tri		y	yes	Pole	25	
2987	40 Legros road	1990	25tri		y	yes	Pole	25	
3151	3224 HYW642	1990	25tri		y	yes	Pole	25	
460	42 Robert St	1990	100tri		y	yes	Pole	25	
462	31 York St	1990	100tri		y	yes	Pole	25	
443	5th Ave S	1990	50tri		y	yes	Pole	25	
438	Honey Drive	1990	50tri		y	yes	Pole	25	
437	22 Lakeshore Drive	1990	50tri		y	yes	Pole	25	
401	60 Lakeshore Drive	1990	50tri		y	yes	Pole	25	
3187	47 Grand Trunk Pacific TR	1990	25tri		y	yes	Pole	25	
381	4 Westpoint Cove	1990	50tri		y	yes	Pole	25	
408	82 Prince Street	1990	167	2010	y	yes	Pole	25	
425 R	21 6th Ave Church	1990	25		y	yes	Pole	25	
425 B	21 6th Ave Church	1990	25		y	yes	Pole	25	
425W	21 6th Ave Church	1990	25		y	yes	Pole	25	
479	57 Prince Street	1990	100		y	yes	Pole	25	
486R	55 Queen Street back lane	1990	50		y	yes	Pole	25	
486W	55 Queen Street back lane	1990	50		y	yes	Pole	25	
486B	55 Queen Street back lane	1990	50		y	yes	Pole	25	
433R	81 Front Sreet	1990	50tri		y	yes	Pole	25	
433B	81 Front Sreet	1990	50tri		y	yes	Pole	25	
433W	81 Front Sreet	1990	50tri		y	yes	Pole	25	
432	4th Ave Al's Sports	1990	50tri		y	yes	Pole	25	
2810	4th street	1990	50tri		y	yes	pole	25	
923	130 Sturgeon river road	1990	25tri		y	yes	Pole	25	
3271	689 drayton road	1990	50tri		y	yes	Pole	25	
1020	44 Boy Scout Road	1990	25 tri		y	yes	Pole	25	
2846	117 Tower Hill road	1990	25tri		y	yes	Pole	25	
4117	55 Sturgeon Meadows	1990	50tri		y	yes	Pole	25	
4138	46Sturgeon Meadows	1990	25		y	yes	Pole	25	
894	70 Drayton road	1990	50tri		y	yes	Pole	25	
3217	9 Forest drive	1990	50tri		y	yes	Pole	25	
1184	Bell Site HYW72	1990	10dual		y	yes	Pole	25	
916	183 Moosehorn road	1990	50tri		y	yes	Pole	25	
1297	371 Moosehorn road	1990	25tri		y	yes	Pole	25	
996	343 Fireside road	1990	50tri		y	yes	Pole	25	
4118	433.5 Sturgeon river road	1991	25		non	yes	Pole	24	
3347	3581 HYW642	1991	25tri		y	yes	Pole	24	
3313	3461 HYW642	1991	25tri		y	yes	Pole	24	
197	320 Goretzki drive	1991	25		y	yes	Pole	24	
402	54 Lakeshore Drive	1991	50		y	yes	Pole	24	
481	Rear 38 Prince	1991	50		y	yes	Pole	24	

COMMENTS

Health Index Ranking By Colour

Red	Very Poor
Orange	Poor
Yellow	Fair
Green	Good
Blue	Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
487R	50 King Street	1991	25		y	yes	Pole	24	
487W	50 King Street	1991	25		y	yes	Pole	24	
487B	50 King Street	1991	25		y	yes	Pole	24	
397	124 Front Street	1991	50		y	yes	Pole	24	
3034	Bernier's Camp Big V	1991	25		y	yes	pole	24	
930	610 Sturgeon river road	1991	25tri		y	yes	Pole	24	
3244	517 Sturgeon river road	1991	25tri		y	yes	Pole	24	
1004	432 Drayton road	1991	50tri		y	yes	Pole	24	
3337	419 Drayton road	1991	25		y	yes	Pole	24	
3343	5 Ogden drive	1991	25		y	yes	Pole	24	
1463	332 Drayton road	1991	50		y	yes	Pole	24	
3290	114 Mill road	1991	25		y	yes	Pole	24	
952	35 Mill road	1991	25		y	yes	Pole	24	
942	168 Drayon road	1991	50tri		y	yes	Pole	24	
2755	10 Drayton road	1991	50dual		y	yes	Pole	24	
2329	188 Abram lake road	1991	25		y	yes	Pole	24	
4015	29 Evergreen drive	1991	25		y	yes	Pole	24	
3444	71 Sun&Sand Road	1991	25	1994	y	yes	Pole	24	
3346	31 Sun &Sand road	1991	25tri		y	yes	Pole	24	
1671	41 Forest drive	1991	25		y	yes	Pole	24	
909	556 HYW 72	1991	50tri		y	yes	Pole	24	
4116	636 HYW 72	1991	25		y	yes	Pole	24	
3526	29 Whispering Pines	1991	50tri		y	yes	Pole	24	
3294	314 Boulder drive	1991	25tri		y	yes	Pole	24	
966	89 Voyageur's North rd	1991	50	2010	y	yes	Pole	24	
4067	2547 HYW 72	1991	25tri	2008	y	yes	Pole	24	
2560	Cook;s Cement Plant	1991	25		y	yes	Pole	24	
3325	1760 South Shore Drive	1991	50tri		y	yes	Pole	24	
933	776 Sturgeon river road	1992	10 tri		non	yes	Pole	23	
613	CNR East yard bank	1992	50		y	yes	Pole	23	
491	14 -4th Ave	1992	167		y	yes	Pole	23	
607	33 Airport Road	1992	25		y	yes	Pole	23	
1001	331 Sturgeon river road	1992	25tri		y	yes	Pole	23	
3399	17 Moosehorn road	1992	25tri		y	yes	Pole	23	
4008	364 Fireside road	1992	25tri		y	yes	Pole	23	
1480	373 Fireside road	1992	25tri		y	yes	Pole	23	
989	379 Fireside road	1992	10tri		y	yes	Pole	23	
2005	57 HYW664	1992	25		y	yes	Pole	23	
937	348 Sturgeon river road	1993	25tri		y	yes	Pole	22	
3403	37 Tower Hill road	1993	10tri		y	yes	Pole	22	
3455	188 Drayton road	1993	25		y	yes	Pole	22	
3531	326 HYW 72 streetlite	1993	10tri		y	yes	Pole	22	
4037	2029 HYW 72	1993	10		y	yes	Pole	22	
170	604 Sturgeon river road	1994	25		y	yes	Pole	21	
3443	1624 HYW 72	1994	10tri		y	yes	Pole	21	
4120	Pelican School road	1995	15	July-15/10	y	yes	Pole	20	
4010B	5th Ave Booster Pump	1995	15		y	yes	Pole	20	
505W	Rear 38 Front & 3rd Ave	1995	25		y	yes	Pole	20	
505B	Rear 38 Front & 3rd Ave	1995	25		y	yes	Pole	20	
505R	Rear 38 Front & 3rd Ave	1995	25		y	yes	Pole	20	
1525	942 Sturgeon river road	1995	10 tri		y	yes	Pole	20	
938	410 Sturgeon river road	1995	10tri		y	yes	Pole	20	
1282	905 Drayton road	1995	25		y	yes	Pole	20	

COMMENTS

Health Index Ranking By Colour

	Very Poor
	Poor
	Fair
	Good
	Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
2581	3979 Butterfly lake road	1995	25		y	yes	Pole	20	
4136	39 Lakeshore Drive	1996	50		y	yes	Pole	19	
423	106 Queen Street	1996	167	2007	y	yes	Pole	19	
394	140 King Street	1996	50		y	yes	Pole	19	
391	110 King Strreet	1996	167		y	yes	Pole	19	
489	32 Rear King Street	1996	50		y	yes	Pole	19	
571	56 Rear 2nd Ave N	1996	167		y	yes	Pole	19	
4050	16 4th Ave	1996	50		y	yes	Pole	19	
582R	Esso Bulk Plant	1996	25		y	yes	Pole	19	
582W	Esso Bulk Plant	1996	25		y	yes	Pole	19	
582B	Esso Bulk Plant	1996	25		y	yes	Pole	19	
703	1st ave	1996	25		y	yes	pole	19	
2628	57 Millroad	1996	25		y	yes	Pole	19	
4083	68 Autumwood	1996	50		y	yes	Pole	19	
4028	1624 HYW72	1996	15		y	yes	Pole	19	
2005	57 HYW664	1996	25		y	yes	Pole	19	
3432	832 HYW664	1996	25		y	yes	Pole	19	
4010R	5th Ave Booster Pump	1997	15		y	yes	Pole	18	
4010W	5th Ave Booster Pump	1997	15		y	yes	Pole	18	
2950	353 Sturgeon river road	1997	25		y	yes	Pole	18	
2902	80 Sturgeon Meadows N	1997	25		y	yes	Pole	18	
946	59 Horizon drive	1997	50		y	yes	Pole	18	
1393	121Forest drive	1997	25		y	yes	Pole	18	
4120	Pelican School road	1998	15		y	yes	Pole	17	
4120	Pelican School road	1998	15		y	yes	Pole	17	
4091	Pelican School road	1998	10	Oct-19/10	y	yes	Pole	17	
2999	301 Legros road	1998	25		y	yes	Pole	17	
3533	Goretzki drive street lite	1998	10		y	yes	Pole	17	
4006	Landfill Site street lite	1998	10		y	yes	Pole	17	
463	34 Wellington Street	1998	10		y	yes	Pole	17	
506	35 Front Street	1998	50		y	yes	Pole	17	
1014	902 Sturgeon river road	1998	25		y	yes	Pole	17	
1205	442 Sturgeon river road	1998	25		y	yes	Pole	17	
1024	89 Mill road	1998	25		y	yes	Pole	17	
3506	318 Sanders road w	1998	25		y	yes	Pole	17	
4009	MTO Street lite	1998	10		y	yes	Pole	17	
2570	1860 South Shore Drive	1998	25tri		y	yes	Pole	17	
4122	Alcona Drive	1999	50		non	yes	Pole	16	
4122	20 Alcona Drive	1999	50		y	yes	Pole	16	
752	47 Front Street	1999	50		y	yes	Pole	16	
752	47 Front Street	1999	50		y	yes	Pole	16	
752	47 Front Street	1999	50		y	yes	Pole	16	
750	Rear 46 5th	1999	50		y	yes	Pole	16	
416	52 7th Ave	1999	100		y	yes	Pole	16	
555	12 Fuller Street	1999	100		y	yes	Pole	16	
615R	HomeHardware	1999	25		y	yes	Pole	16	
615W	HomeHardware	1999	25		y	yes	Pole	16	
615B	HomeHardware	1999	25		y	yes	Pole	16	
8033	Water Front	1999	25		y	yes	pole	16	
2925	34 Sturgeon meadows N	1999	50		y	yes	Pole	16	
3185	48 Sturgeon Meadows N	1999	25		y	yes	Pole	16	
2862	62 Sturgeon Meadows N	1999	25		y	yes	Pole	16	
981	255 Sturgeon river road	1999	50		y	yes	Pole	16	

COMMENTS

Health Index Ranking By Colour

- Very Poor
- Poor
- Fair
- Good
- Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
1002	151 Sturgeon river road	1999	25		y	yes	Pole	16	
3514	Step Down Moosehorn	1999	250		y	yes	Pole	16	
3357	Pelican School road	2000	75		y	yes	Pole	15	
3357	Pelican School road	2000	75		y	yes	Pole	15	
3357	Pelican School road	2000	75		y	yes	Pole	15	
4054	Rear 44 5th	2000	50		y	yes	Pole	15	
1206	488 Sturgeon river road	2000	25		y	yes	Pole	15	
3503	570 Drayton road	2000	25		y	yes	Pole	15	
4133	148 Sturgeon Meadows	2000	25		y	yes	Pole	15	
2107	924 Sturgeon river road	2001	100stepdn		non	yes	Pole	14	
4025	31 5th Ave	2001	50		y	yes	Pole	14	
4048R	Rear 42 Front Street	2001	50		y	yes	Pole	14	
2543	442 Drayton road	2001	25		y	yes	Pole	14	
1444	648 HYW 72	2001	50		y	yes	Pole	14	
4090	Step Down Ojibway Park	2001	100	2011	y	yes	Pole	14	
441 R	5th Ave S Con College	2002	25		y	yes	Pole	13	
441 B	5th Ave S Con College	2002	25		y	yes	Pole	13	
441 W	5th Ave S Con College	2002	25		y	yes	Pole	13	
503R	Rear 40 Front Street	2002	50		y	yes	Pole	13	
503W	Rear 40 Front Street	2002	50		y	yes	Pole	13	
503B	Rear 40 Front Street	2002	50		y	yes	Pole	13	
1443	880 Sturgeon river road	2002	25		y	yes	Pole	13	
986	373 Drayton road	2002	25		y	yes	Pole	13	
2464	65 Mill road	2002	25		y	yes	Pole	13	
3508	47 Autumwood drive	2002	25		y	yes	Pole	13	
914	101 Forest drive	2002	25		y	yes	Pole	13	
3530	1441 HYW 72	2002	25		y	yes	Pole	13	
4039	532 Drayton road	2002	25	2007	y	yes	Pole	13	
3535	311 Goretzki drive	2003	25		non	yes	Pole	12	
4005	Landfill Site TX	2003	25		non	yes	Pole	12	
3534	T Bay Tel tower HYW642	2003	25		y	yes	Pole	12	
4004	1380 HYW 642	2003	25		y	yes	Pole	12	
4023	147 King Street	2003	50		y	yes	Pole	12	
4024	1st Ave	2003	50		y	yes	Pole	12	
4024	1st Ave	2003	50		y	yes	Pole	12	
4024	1st Ave	2003	50		y	yes	Pole	12	
4048W	Rear 42 Front Street	2003	50		y	yes	Pole	12	
4048B	Rear 42 Front Street	2003	50		y	yes	Pole	12	
8018	Grants Store 2nd ave	2003	50		y	yes	pole	12	
3499	626 Sturgeon river road	2003	50		y	yes	Pole	12	
1200	433 Sturgeon river road	2003	25		y	yes	Pole	12	
3334	434 Sturgeon river road	2003	25		y	yes	Pole	12	
3046	202 Sturgeon river road	2003	25		y	yes	Pole	12	
3439	36 Mennonite road	2003	50		y	yes	Pole	12	
3498	Town Lift Station	2003	25dual		y	yes	Pole	12	
3498	Town Lift Station	2003	25dual		y	yes	Pole	12	
3498	Town Lift Station	2003	25dual		y	yes	Pole	12	
1847	856 Drayton road	2003	25	2010	y	yes	Pole	12	
904	30 Desson road	2003	50		y	yes	Pole	12	
3512	82 Evergreen drive	2003	25		y	yes	Pole	12	
3510	8 Evergreen drive	2003	25		y	yes	Pole	12	
4131	40 Sun &Sand road	2003	25		y	yes	Pole	12	
3525	18 Whispering Pines	2003	50		y	yes	Pole	12	

COMMENTS

Health Index Ranking By Colour

- Very Poor
- Poor
- Fair
- Good
- Very Good

SIOUX LOOKOUT HYDRO Pole Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)	Health Index Ranking
3515	2 Whispering Pines	2003	25		y	yes	Pole	12	
2432	1423 HYW 72	2003	25		y	yes	Pole	12	
3529	40 Frieson's Blvd	2003	25		y	yes	Pole	12	
4001	305 Goretzki drive	2004	25		y	yes	Pole	11	
4002	295 Goretzki drive	2004	25		y	yes	Pole	11	
400	78 Lakeshore Drive	2004	50		y	yes	Pole	11	
389	Cedar Bay Riding Compx	2004	25		y	yes	Pole	11	
4026	Water Tower hill	2004	50		y	yes	Pole	11	
428R	Rec Center Bank	2004	167		y	yes	Pole	11	
428B	Rec Center Bank	2004	167		y	yes	Pole	11	
428W	Rec Center Bank	2004	167		y	yes	Pole	11	
3511	64 Evergreen drive	2004	25		y	yes	Pole	11	
4014	30 Evergreen drive	2004	25		y	yes	Pole	11	
3524	21 Whispering Pines	2004	25		y	yes	Pole	11	
3523	19 Whispering Pines	2004	25		y	yes	Pole	11	
3516	4 Whispering Pines	2004	25		y	yes	Pole	11	
3517	9 Whispering Pines	2004	25		y	yes	Pole	11	
4019	728 HYW 72	2004	50		y	yes	Pole	11	
4034	331 Goretzki drive	2005	25		non	yes	Pole	10	
406R	97 Front Street	2005	50		y	yes	Pole	10	
406B	97 Front Street	2005	50		y	yes	Pole	10	
3505	297 Sanders road w	2005	50	2007	y	yes	Pole	10	
2890	108 Abram lake road	2005	50		y	yes	Pole	10	
4031	21 Evergreen drive	2005	25		y	yes	Pole	10	
4016	73 Evergreen drive	2005	25		y	yes	Pole	10	
3190	16 Birch ave	2005	25		y	yes	Pole	10	
3519	10 Whispering Pines	2005	50		y	yes	Pole	10	
3528	23 Frieson's Blvd	2005	50	2007	y	yes	Pole	10	
3527	3 Frieson's Blvd	2005	50	2007	y	yes	Pole	10	
4042R	Northern Airborne Hanger	2006	25	2007	y	yes	Pole	9	
4042B	Northern Airborne Hanger	2006	25	2007	y	yes	Pole	9	
4042W	Northern Airborne Hanger	2006	25	2007	y	yes	Pole	9	
4043	Rear 46 Prince	2007	50		y	yes	pole	8	
1005	856 Sturgeon river road	2007	50	nov,15/07	y	yes	Pole	8	
3497	816 Sturgeon river road	2007	25		y	yes	Pole	8	
1893	247Drayton road	2008	50	April-4/11	y	yes	Pole	7	
4092	458 Drayton Road	2010	25	8/29/2010	y	yes	Pole	5	
4099	21 Autumwood drive	2011	25	2011/Jul	y	yes	Pole	4	
4027R	Bearskin's Bank	2011	50	2011	y	yes	Pole	4	
4027W	Bearskin's Bank	2011	50	2011	y	yes	Pole	4	
4027B	Bearskin's Bank	2011	50	2011	y	yes	Pole	4	
4097	604 Sturgeon river road	2011	25	2012	y	yes	Pole	4	
3461	80 Sturgeon Meadows N	2011	25	Feb-14/12	y	yes	Pole	4	
2462	82 Sturgeon Meadows	2011	25	Mar-12	y	yes	Pole	4	
3509	21 Autumwood drive	2011	25		y	yes	Pole	4	
2385	102 Moosehorn road	2011	25	Aug-9/12	y	yes	Pole	4	
4114	3180 HWY 642	2012	25		non	yes	Pole	3	
4076	18 Aspen drive	2012	50	Nov,18.2013	y	yes	Pole	3	
3040	Bernier's Beach Road	2012	25	Aug-25/10	y	yes	pole	3	
1844	202 Tower Hill road	2014	25	Oct-14	non	yes	Pole	1	

COMMENTS

Health Index Ranking By Colour

- Very Poor
- Poor
- Fair
- Good
- Very Good

SIOUX LOOKOUT HYDRO Pad Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)
4164	Days Inn- Strugeon River	2014	500	2014	>2PPM	no	Pad	1
509	49 Prince Street	1984	300		2PPM	2PPM	Pad	31
542	Extended Care 5th Ave	1990	750		2PPM	2PPM	Pad	25
601	Air Ambulance Hanger	1991	75		2PPM	2PPM	Pad	24
522	40 &42 3rd Ave PLAZA	1993	500		2PPM	2PPM	Pad	22
	10&20 unit Finway sub	2012	300	2013	2PPM	2PPM	Pad	3
4100	High Landpark	2009	37.5	2011	<2PPM	<2PPM	Pad	6
515	Pelican School	2010	50	2011	<2PPM	<2PPM	Pad	5
2635	614 Drayton Road	1974	50		y	yes	pad	41
3373	Abram Lake Park	1975	50		y	yes	pad	40
498	C.N.R.Bunkhouse Front St	1978	300		y	yes	Pad	37
475	62 Princess Street	1979	50		y	yes	Pad	36
1323	2395 Hyw 664	1979	50		y	yes	Pad	36
4174	Dairy Cow Road	1979	50		y	yes	pad	36
561	82 Atwood Street	1981	100		y	yes	Pad	34
537	6 Mitchell Drive	1982	50		y	yes	Pad	33
3479	2385 Anderson Camp	1982	50		y	yes	pad	33
471	25 5th Ave Town Office	1984	150	2008	y	yes	Pad	31
2633	1024 Sturgeon River rd	1985	25		y	yes	pad	30
2724	137 Forrest Drive	1985	25		y	yes	pad	30
554	72 1st Ave	1986	75		y	yes	Pad	29
4032	Water Treatment Plant	1986	300		y	yes	Pad	29
2735	1640 South Shore Drive	1986	25dual		y	yes	pad	29
529	Sunset Hotel	1986	300		y	yes	pad	29
550	58 1st Ave	1987	50		y	yes	Pad	28
553	70 1st Ave	1987	75		y	yes	Pad	28
560	29 Cedar Cres.	1987	75		y	yes	Pad	28
525	High School Fair Street	1987	750		y	yes	Pad	28
2977	South Shore Drive	1987	25		y	yes	pad	28
2916	913 Drayton Road	1987	25dual		y	yes	pad	28
2841	37 Dalseg Drive	1987	25		y	yes	pad	28
3116	13 Abram Lake Road	1987	25dual		y	yes	pad	28
3435	Abram Lake Park	1987	100		y	yes	pad	28
507	21 King Street NNEC	1988	75		y	yes	Pad	27
3044	North Land Lodge	1988	25		y	yes	Pad	27
3048	North Land Lodge	1988	25		y	yes	Pad	27
2956	108 Tower Hill Road	1988	25dual		y	yes	pad	27
3176	Selby's Island	1988	25dual		y	yes	pad	27
2934	135 Voyaguer North Road	1988	50		y	yes	pad	27
413	70.5 7th Ave	1989	167		y	yes	Pad	26
3242	420 Pelican Road	1990	25		y	yes	Pad	25
551	64 1st Ave	1990	100		y	yes	Pad	25
566	6 Montello	1990	100		y	yes	Pad	25
411	7th Ave Zone Hosp.	1990	300		y	yes	Pad	25
3374	6 Pelto Road	1990	50dual		y	yes	pad	25
3345	488 Indian Trail	1990	25dual		y	yes	pad	25
3400	13 Pelto Road	1991	25dual		y	yes	pad	24
3421	1 Pelto Road	1991	25dual		y	yes	pad	24
3413	682 Drayton Road	1991	25		y	yes	pad	24
1922	Lincoin Trialer Park	1991	50		y	yes	pad	24
1635	Lincoin Trialer Park	1991	100		y	yes	pad	24

Health Index Ranking By Colour

(red)	Very Poor
(orange)	Poor
(yellow)	Fair
(green)	Good
(blue)	Very Good

SIOUX LOOKOUT HYDRO Pad Mount Transformers Health Index Ranking

Location	Street Address	Year	K.V.A	Install Date	Non-Pcb	NON-PCB	Pole/Pad	Age (yrs)
3398	623 HYW 72	1991	25dual		y	yes	pad	24
3416	145 Cedar Point Drive	1991	25dual		y	yes	pad	24
350	200 Boat Launch Road	1991	25		y	yes	pad	24
559	15 Cedar Cres.	1992	75	Aug-25/10	y	yes	Pad	23
606	NAPS Police Airport	1992	225		y	yes	Pad	23
395	S.T.PLANT King Street	1993	500		y	yes	Pad	22
3462	9 Pelto Road	1993	25dual		y	yes	pad	22
492	54 Front Str Youth Center	1994	300		y	yes	Pad	21
833	41-8th Ave Sacred Heart	1994	225		y	yes	Pad	21
3363	1000 Sturgeon River rd	1994	25		y	yes	pad	21
2300	789 Drayton Road	1994	25		y	yes	pad	21
315	222 Sturgeon Meadows	1994	25		y	yes	pad	21
564	23 Montello Pl	1995	75		y	yes	Pad	20
3375	4 Pelto Road	1995	50		y	yes	pad	20
1425	51 Boy Scout Road	1995	75dual		y	yes	pad	20
3293	60 Desson Road	1995	25		y	yes	pad	20
536	9 Mitchell Drive	1996	100		y	yes	Pad	19
8067	28 Mill Road	1996	25		y	yes	Pad	19
563	92 Atwood Street	1997	100		y	yes	Pad	18
1174	176 Sturgoen River Rd	1997	50		y	yes	pad	18
2606	93 Moosehorn Road	1997	50		y	yes	pad	18
565	18 Montello	1998	167		y	yes	Pad	17
439	79 Wellington water plant	1998	300		y	yes	Pad	17
2734	1730 South Shore Drive	1998	50	2014	y	yes	pad	17
4030	33 Cedar Cres.	1999	25		y	yes	Pad	16
4066	31 Boy Scout Road	1999	25	Sep-08	y	yes	pad	16
2690	618 HYW 72	1999	25		y	yes	pad	16
3011	460 Legros Road	2000	25		y	yes	Pad	15
3358	Pelican School	2000	1000		y	yes	Pad	15
4081	Court House	2000	300	2009	y	yes	Pad	15
955	555HYW 72	2000	25		y	yes	pad	15
2526	May Street Hoey's Sub.	2001	75		y	yes	Pad	14
4051	1st Ave Sioux Mountain	2001	750		y	yes	Pad	14
996	300 Boulder Drive	2001	75		y	yes	pad	14
4035	79-5th Ave Clinic	2002	300		y	yes	Pad	13
482	O.P.P Station Queen St	2003	300		y	yes	Pad	12
469	57-King Str Johnnys	2003	750		y	yes	Pad	12
530	Dick&Nellies	2003	75		y	yes	pad	12
5021	Sunset Suites	2003	500		y	yes	pad	12
5031	Best Western Sturgeon	2003	300		y	yes	pad	12
588	Airport Terminal	2004	300		y	yes	Pad	11
4011	12-5th Ave S Rona	2004	300		y	yes	Pad	11
4093	Ball Diamonds	2006	37.5	Nov-2/10	y	yes	Pad	9
960	Riss's island	2006	37.5	July 2oo7	y	yes	pad	9
4070	Hostel	2008	500	2008	y	yes	Pad	7
4106	Train Station	2012	225	2012	y	yes	Pad	3
4128	Tim Horton-5th ave s	2013	225	2013	y	yes	Pad	2
562	7 Birchwood Cres.	2014	75	Sep-14	non	yes	Pad	1

Health Index Ranking By Colour

	Very Poor
	Poor
	Fair
	Good
	Very Good

SIOUX LOOKOUT HYDRO Submarine Cable Health Index Assessment

SUBMARINE PRIMARY CABLES

Address/Location	Phase	Year of Install	Length(m)	Total Installed Length	# of Customers	Age (2015)	
Frying Pan Island	1	1979	460	460	1	36	460
F3 Feeder	3	1981	900	2700	Town of Sioux Lookout	34	2700
Salby's Island	1	1988	201	201		27	201
South Shore Drive	1	1990	720	720	30	25	
Sturgeon River Crossing	1	1991	200	200	30	24	
Habinski	1	2000	350	350	1	15	
Bernier Beach	1	2000	570	570	3	15	
Maxwell Island	1	2010	300	300	1	5	
Winoga Lodge	1	2015	700	700	1	0	2840
				0			
				0			
				0			
				0			
				6201			

SIOUX LOOKOUT HYDRO Underground Primary Cable Health Index Assessment

UNDERGROUND PRIMARY CABLES					Health Index
Address/Location	Phase	Year of Install	Length(m)	Total Installed Length	Age (2015)
High School Fair St.	3	1973	100	300	42
614 Drayton Road	1	1974	192	192	41
31 Boy Scout Road	1	1974	92	92	41
Town of SLKT Airport	3	1980	46	138	35
Atwood-Biechwood-Atwood	1	1981	422	422	34
2385 HWY 72 (Andersons Lodge)	1	1982	96	96	33
1024 Sturgeons River Road	1	1985	90	90	30
121 Forest Drive	1	1985	68	68	30
911 Drayton Road	1	1987	136	136	28
13 Abram Lake Road	1	1987	74	74	28
29 Dalseg Road	1	1987	98	98	28
115 Voyageur North Road	1	1988	55	55	27
445 Berniers Beach (161,90)	1	1988	251	251	27
72-74 1st Ave (Hakala Place)	1	1990	38	38	25
70 1st Ave Apartments	1	1990	50	50	25
64 1st Ave	1	1990	32	32	25
50 1st Ave	1	1990	8	8	25
Zadanac CV Front St.	3	1990	66	198	25
NNEC King St.	3	1990	30	90	25
Mitchell Drive	1	1990	245	245	25
1730 South Shore Drive	1	1990	76	76	25
1680 South Shore Drive	1	1990	67	67	25
1660 South Shore Drive	1	1990	51	51	25

SIOUX LOOKOUT HYDRO Underground Primary Cable Health Index Assessment

UNDERGROUND PRIMARY CABLES					Health Index
488 Indian Trail Road	1	1990	102	102	25
419 Pelican Falls School Road	1	1990	119	119	25
2395 HWY 664 (Wildcat Lodge)	1	1990	286	286	25
Atwood-Cedar Cres	1	1990	456	456	25
Ornge Airport Hanger	3	1991	62	186	24
145 Cedar Point Drive	1	1991	92	92	24
Boat Launch Road	1	1991	455	455	24
NAPS Airport Hanger	3	1992	62	186	23
40 & 42 Third Ave Apartments	3	1993	54	162	22
Sewage Plant King St.	3	1993	107	321	22
Pelto Road (103,257,179,73,72)	1	1993	684	684	22
998 Sturgeon River Road	1	1994	74	74	21
___Drayton Road (Raricks Old House)	1	1994	92	92	21
789 Drayton Road	1	1994	74	74	21
Town Office/Library	3	1995	123	369	20
51 Boy Scout Road	1	1995	107	107	20
698 Drayton Road	1	1995	144	144	20
60 Dessen Road	1	1995	124	124	20
Ball Diamond	1	1995	354	354	20
Atwood-Highland Park	1	1995	816	816	20
103 Moosehorn Road	1	1997	110	110	18
SLKT Water Treatment Plant	3	1998	34	102	17
672 HWY 72	1	1999	206	206	16
600 HWY 72	1	1999	253	253	16
555 HWY 72	1	2000	138	138	15
650 Pelican Falls Road (School)	3	2000	71	213	15
Noey Drive	1	2001	43	43	14

SIOUX LOOKOUT HYDRO Underground Primary Cable Health Index Assessment

UNDERGROUND PRIMARY CABLES					Health Index
300 Boulder Drive	1	2001	183	183	14
Sioux Mountain	3	2001	192	576	14
Hugh Allen Clinic	3	2002	48	144	13
Fresh Market Foods	3	2003	40	120	12
Sunset Suites	3	2003	74	222	12
Dick/Nellie Sunset Inn	3	2003	193	579	12
Best Western	3	2003	85	255	12
Giant Tiger	3	2004	27	81	11
86 Fanning Drive	1	2008	63	63	7
Hostel	3	2008	121	363	7
Fairview Subdivision	1	2011	1242	1242	4
Tim Hortons	3	2013	70	210	2
Days Inn	3	2014	11	33	1
Abram Lake Park	1	2014	420	420	1
4 Fuller St (4 Plex)	1	2015	58	58	0
		Total Length of U/G Primary Cable		13684	

SIOUX LOOKOUT HYDRO - Poles Health Index Assessment

-Pole Number:	-Wood Type:	-Height:	-Class:	-Pole Usage:	-Pole Treatment:	-Manufacturer:	-Pole Year:	Pole Age (2015)
F2/72-059		45	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/72-060		35	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/72-061		35	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/72-228		40	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/72-246		35	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/72-251		40	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/72-252		40	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/SR-008		40	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/SR-009		40	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/FD-18		35	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/SM-01		40	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/SM-02		35	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/SM-14		40	4	DISTRIBUTION	PCP	North West Pine	1948	67
F2/SM-54	EASTERN WHITE	40	5	DISTRIBUTION	PCP	North West Pine	1948	67
F2/FS-34		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/SM-24		45	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/SR-023		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/72-272		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/72-275		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/FD-17		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/72-292		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/72-293		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/72-294		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/72-296		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F4-017		40	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/D-151		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/D-152		35	4	DISTRIBUTION	PCP	North West Pine	1949	66
F2/72-276		35	H5	DISTRIBUTION	PCP	North West Pine	1949	66
4TH.AVE-01		35	4	DISTRIBUTION	PCP		1950	65
4TH.AVE-02		35	4	DISTRIBUTION	PCP	North West Pine	1950	65
4TH.AVE-03		35	4	DISTRIBUTION	CREOSOTE		1952	63
F4-082		50	4	DISTRIBUTION	PCP	North West Pine	1953	62
F4-083		40	4	DISTRIBUTION	PCP	North West Pine	1953	62
F4-084		40	4	DISTRIBUTION	PCP	North West Pine	1953	62
F4-085		45	4	DISTRIBUTION	CREOSOTE	North West Pine	1953	62
F4-086		50	4	DISTRIBUTION	PCP	North West Pine	1953	62
1ST.ST-04		35	4	DISTRIBUTION	PCP	North West Pine	1954	61
1ST.ST-08		35	4	DISTRIBUTION	PCP	North West Pine	1954	61
W.LANE-01		35	4	DISTRIBUTION	PCP	North West Pine	1954	61
W.LANE-02		35	4	DISTRIBUTION	PCP	North West Pine	1954	61

SIOUX LOOKOUT HYDRO - Poles Health Index Assessment

3RD.ST-17	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
3RD.ST-18	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F4/F1-07	35	4	DISTRIBUTION	CREOSOTE		1954	61
F2/FS-10	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-11	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-03	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-04	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-12	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-13	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-07	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-08	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-09	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-15	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-16	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-17	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-18	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-19	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-21	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-22	35	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1954	61
F2/FS-23	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/FS-26	35	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/SR-089	40	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/SR-094	40	4	DISTRIBUTION	PCP	North West Pine	1954	61
F4-003	40	4	DISTRIBUTION	PCP	North West Pine	1954	61
F2/D-161	35	H5	DISTRIBUTION	PCP	North West Pine	1954	61
F2/SM-10	40	4	DISTRIBUTION	PCP	North West Pine	1955	60
F2/72-230	40	4	DISTRIBUTION	PCP	North West Pine	1957	58
F2/72-312	45	H5	DISTRIBUTION	PCP	North West Pine	1957	58
F2/72-231	35	4	DISTRIBUTION	PCP	North West Pine	1958	57
F2/72-250	40	4	DISTRIBUTION	PCP	North West Pine	1958	57
F3-261	40	4	DISTRIBUTION	PCP	North West Pine	1958	57
F1-145	45	4	DISTRIBUTION	PCP	North West Pine	1959	56
F3-390	45	4	DISTRIBUTION	CREOSOTE	Carney	1959	56
F3-392	45	4	DISTRIBUTION	CREOSOTE	Carney	1959	56
F3-393	45	4	DISTRIBUTION	CREOSOTE	Carney	1959	56
F3-395	45	4	DISTRIBUTION	CREOSOTE	Carney	1959	56
F3-396	45	4	DISTRIBUTION	CREOSOTE	Carney	1959	56
F1-147	45	4	DISTRIBUTION	PCP	North West Pine	1959	56
F4-088	45	4	DISTRIBUTION	PCP	North West Pine	1959	56
F4-089	40	4	DISTRIBUTION	PCP	North West Pine	1959	56
F4-094	45	4	DISTRIBUTION	PCP	North West Pine	1959	56

SIOUX LOOKOUT HYDRO - Poles Health Index Assessment

F4-097	45	4	DISTRIBUTION	PCP	North West Pine	1959	56
F4-087	50	4	DISTRIBUTION	PCP	North West Pine	1959	56
F4-098	55	4	DISTRIBUTION	PCP	North West Pine	1959	56
F2/72-234	35	4	DISTRIBUTION	PCP	North West Pine	1960	55
F4-010	40	4	DISTRIBUTION	CREOSOTE		1960	55
F4-011	40	4	DISTRIBUTION	PCP	North West Pine	1960	55
F4-020	50	4	DISTRIBUTION	CREOSOTE	Carney	1960	55
F4-008	40	4	DISTRIBUTION	PCP	North West Pine	1963	52
F4-012	40	4	DISTRIBUTION	PCP	North West Pine	1963	52
F4-013	40	4	DISTRIBUTION	PCP	North West Pine	1963	52
F4-014	40	4	DISTRIBUTION	PCP	North West Pine	1963	52
F4/F1-08	40	4	DISTRIBUTION	PCP	North West Pine	1965	50
F2/MH-39	35	4	DISTRIBUTION	PCP	North West Pine	1965	50
F4-004	40	4	DISTRIBUTION	PCP	North West Pine	1965	50
W.LANE-03	40	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-232	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-233	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-235	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-236	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-237	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-238	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-239	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-240	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-241	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-242	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-243	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-244	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-245	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-249	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-253	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-257	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-259	35	4	DISTRIBUTION	PCP	North West Pine	1966	49
F2/SR-133	35	H5	DISTRIBUTION	PCP	North West Pine	1966	49
F2/72-225	40	4	DISTRIBUTION	PCP	North West Pine	1967	48
F2/72-226	40	4	DISTRIBUTION	PCP	North West Pine	1967	48
F2/FAN-02	35	4	DISTRIBUTION	PCP	North West Pine	1967	48
F2/AL-76	35	4	DISTRIBUTION	PCP	North West Pine	1967	48
F2/AL-77	35	4	DISTRIBUTION	PCP	North West Pine	1967	48
F2/MH-24	40	4	DISTRIBUTION	CREOSOTE		1968	47
F4-005	40	4	DISTRIBUTION	PCP	North West Pine	1968	47
F4-006	40	4	DISTRIBUTION	PCP	North West Pine	1968	47

SIOUX LOOKOUT HYDRO - Poles Health Index Assessment

1ST.ST-07		35	4	DISTRIBUTION	PCP	North West Pine	1969	46
F4-13		45	4	DISTRIBUTION	PCP	North West Pine	1969	46
F1-141		50	4	DISTRIBUTION	PCP	North West Pine	1969	46
F1-142		50	4	DISTRIBUTION	PCP	North West Pine	1969	46
F1-146		45	4	DISTRIBUTION	PCP	North West Pine	1969	46
F1-148		40	4	DISTRIBUTION	PCP	North West Pine	1969	46
F1-149		45	4	DISTRIBUTION	PCP	North West Pine	1969	46
F1-150		45	4	DISTRIBUTION	PCP	North West Pine	1969	46
F2/D-222	EASTERN WHITE	35	5	DISTRIBUTION	PCP	North West Pine	1969	46
F4/F1-03		35	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4/F1-05		35	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4/F1-11		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4-15		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4-16		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4-20		45	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4/F1-04		35	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4/F1-06		35	4	DISTRIBUTION	CREOSOTE		1970	45
F2/72-254		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F3-608		35	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F3-647		45	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F2/AL-41		35	4	DISTRIBUTION	PCP	North West Pine	1970	45
F2/AL-43		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-176		40	4	DISTRIBUTION	CREOSOTE		1970	45
F1-177		45	4	DISTRIBUTION	CREOSOTE		1970	45
F1-178		45	4	DISTRIBUTION	CREOSOTE		1970	45
F1-181		40	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F3-887		45	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F1-184		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-185		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-186		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-188		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-189		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-190		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-191		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-192		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-194		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-195		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-196		40	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F1-197		40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4-007		50	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F4-022		50	4	DISTRIBUTION	CREOSOTE	Carney	1970	45

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F4-024	45	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F4-026	55	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F4-027	50	4	DISTRIBUTION	CREOSOTE	Carney	1970	45
F4-028	40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4-029	40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4-030	40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F4-031	45	4	DISTRIBUTION	CREOSOTE	North West Pine	1970	45
F4-034	50	4	DISTRIBUTION	CREOSOTE		1970	45
F1-208	45	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-210	45	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-216	45	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-217	45	4	DISTRIBUTION	PCP	North West Pine	1970	45
F1-218	45	4	DISTRIBUTION	PCP	North West Pine	1970	45
F2/D-143	40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F2/D-142	40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F2/D-144	40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F2/D-145	40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F2/72-315	40	4	DISTRIBUTION	PCP	North West Pine	1970	45
F2/FD-10	35	4	DISTRIBUTION	PCP	North West Pine	1971	44
F2/AL-39	35	4	DISTRIBUTION	PCP	North West Pine	1971	44
F4-021	50	4	DISTRIBUTION	PCP	North West Pine	1971	44
F4-032	45	4	DISTRIBUTION	PCP	North West Pine	1971	44
F4-033	45	4	DISTRIBUTION	CREOSOTE	North West Pine	1971	44
F4-035	45	4	DISTRIBUTION	PCP	North West Pine	1971	44
F4-036	40	4	DISTRIBUTION	PCP	North West Pine	1971	44
F4-037	45	4	DISTRIBUTION	CREOSOTE	Carney	1971	44
F4-038	40	4	DISTRIBUTION	CREOSOTE		1971	44
F4-039	40	4	DISTRIBUTION	CREOSOTE		1971	44
F4-040	40	4	DISTRIBUTION	CREOSOTE		1971	44
F4-078	45	4	DISTRIBUTION	CREOSOTE	North West Pine	1971	44
F4-079	45	4	DISTRIBUTION	PCP	North West Pine	1971	44
F4-076	50	4	DISTRIBUTION	PCP	North West Pine	1971	44
F4-077	50	4	DISTRIBUTION	PCP	North West Pine	1971	44
F4-081	45	4	DISTRIBUTION	PCP	North West Pine	1971	44
F2/O.RD-01	35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-02	35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-03	35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-04	35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-05	35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-08	35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-10	35	4	DISTRIBUTION	PCP	North West Pine	1972	43

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F2/O.RD-16		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-17		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-18		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-19		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-22		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-23		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/O.RD-24		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/CP-06		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/CP-08		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/CP-11		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-565		35	4	DISTRIBUTION	CREOSOTE	North West Pine	1972	43
F3-609		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-610		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-612		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-614		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-671		40	4	DISTRIBUTION	CREOSOTE	Carney	1972	43
F3-672		40	4	DISTRIBUTION	CREOSOTE	Carney	1972	43
F3-675		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-676		40	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-677		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-678		35	4	DISTRIBUTION	CREOSOTE	North West Pine	1972	43
F3-679		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-680		35	4	DISTRIBUTION	PCP		1972	43
F3-682		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-683		35	4	DISTRIBUTION	CREOSOTE	North West Pine	1972	43
F3-685		35	4	DISTRIBUTION	CREOSOTE	North West Pine	1972	43
F3-684		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-686		35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F2/D-205	EASTERN WHITE	40		DISTRIBUTION	PCP	North West Pine	1972	43
F2/D-196	EASTERN WHITE	35	4	DISTRIBUTION	PCP	North West Pine	1972	43
F3-633		45	4	DISTRIBUTION	CREOSOTE	Carney	1973	42
F3-872		45	4	DISTRIBUTION	CREOSOTE	North West Pine	1973	42
F3-908		45	H5	DISTRIBUTION	PCP	North West Pine	1973	42
F1/EAST-1		35	4	DISTRIBUTION	PCP	North West Pine	1974	41
F1/EAST-2		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1974	41
F1/EAST-3		35	4	DISTRIBUTION	PCP	North West Pine	1974	41
F1-136		45	4	DISTRIBUTION	PCP	North West Pine	1974	41
B.CRES-01		35	4	DISTRIBUTION	PCP	North West Pine	1974	41
B.CRES-03		35	4	DISTRIBUTION	PCP	North West Pine	1974	41
STAR.RD-01		40	4	DISTRIBUTION	PCP	North West Pine	1974	41
STAR.RD-02		40	4	DISTRIBUTION	PCP	North West Pine	1974	41

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STAR.RD-03	40	4	DISTRIBUTION	PCP	North West Pine	1974	41
1ST.ST-03	40	4	DISTRIBUTION	PCP	North West Pine	1974	41
1ST.ST-05	35	4	DISTRIBUTION	PCP	North West Pine	1974	41
F2/SM-28	40	4	DISTRIBUTION	PCP	North West Pine	1974	41
F2-01	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-02	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-03	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-04	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-05	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-06	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-07	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-09	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-10	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-11	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-12	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-13	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-14	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-15	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-16	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-17	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-19	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-18	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-20	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-21	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-22	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-23	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-24	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-25	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-26	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-27	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-28	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-29	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-30	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-31	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-32	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-33	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-34	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-35	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-36	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-37	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-38	40	4	DISTRIBUTION	PCP	North West Pine	1975	40

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F2-39	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-41	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-42	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-43	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-44	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-45	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-46	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-47	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2-48	50	4	DISTRIBUTION	CREOSOTE	North West Pine	1975	40
F1-19	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-20	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-21	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-22	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-23	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-24	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-25	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-26	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-31	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-32	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-33	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-34	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-35	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-36	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-37	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-38	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-55	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-56	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-57	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-58	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-59	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-60	40	4	DISTRIBUTION	CREOSOTE		1975	40
F1-61	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-62	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-63	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-64	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-65	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-66	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-67	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-68	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-07	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-08	40	4	DISTRIBUTION	PCP	North West Pine	1975	40

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F1-09	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-10	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-11	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-12	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-13	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-14	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-15	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-16	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-17	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-18	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-39	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-40	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-41	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-42	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-43	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-44	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-45	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-46	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-47	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-48	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-49	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-50	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-51	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-53	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-54	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-69	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-70	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-71	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-72	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-73	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-74	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-75	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-76	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-77	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-78	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-79	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-80	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-81	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-82	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-84	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-85	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40

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F1-86	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-87	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-88	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-89	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-90	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-91	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-92	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-93	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-94	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-95	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-107	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-109	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-110	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
2960-01	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
2960-02	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-111	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-112	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-113	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-114	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-116	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-115	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-117	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-118	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-119	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-120	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-121	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-122	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-123	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-124	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-125	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-126	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-96	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-97	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-98	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-99	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-100	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1975	40
F1-101	40	4	DISTRIBUTION	CREOSOTE	North West Pine	1975	40
F1-102	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-104	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-105	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-106	40	4	DISTRIBUTION	PCP	North West Pine	1975	40

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F1-127	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-128	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-129	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-130	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-133	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-134	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1-135	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/2-02	45	4	DISTRIBUTION	CREOSOTE		1975	40
F1/2-09	45	4	DISTRIBUTION	CREOSOTE		1975	40
F1/1-002	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/1-003	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/1-004	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/1-005	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/1-006	45	4	DISTRIBUTION	CREOSOTE		1975	40
F1/1-007	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/1-008	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/1-009	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/2-11	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
4TH.ST-01	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/1-010	40	4	DISTRIBUTION	CREOSOTE		1975	40
F1/1-011	40	4	DISTRIBUTION	CREOSOTE		1975	40
F1/1-012	35	4	DISTRIBUTION	CREOSOTE		1975	40
F1/1-013	35	4	DISTRIBUTION	CREOSOTE		1975	40
F1/1-015	45	4	DISTRIBUTION	PCP	North West Pine	1975	40
F1/1-016	40	4	DISTRIBUTION	CREOSOTE		1975	40
F1/1-017	40	4	DISTRIBUTION	CREOSOTE		1975	40
F1/1-018	45	4	DISTRIBUTION	CREOSOTE		1975	40
1ST.ST-06	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
3RD.ST-03	40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2/SR-112	40	4	DISTRIBUTION	CREOSOTE		1975	40
F2-50	50	4	DISTRIBUTION	PCP	North West Pine	1975	40
F3-743	40	4	DISTRIBUTION	CREOSOTE	Carney	1975	40
F3-747	45	4	DISTRIBUTION	CREOSOTE	Carney	1975	40
F3-775	35	4	DISTRIBUTION	PCP	North West Pine	1975	40
F2/D-094	40	4	DISTRIBUTION	CREOSOTE		1975	40
F2/D-095	40	4	DISTRIBUTION	CREOSOTE	North West Pine	1975	40
F3/WP-020	40	4	DISTRIBUTION	CREOSOTE	Carney	1975	40
F3/WP-021	35	4	DISTRIBUTION	CREOSOTE	Carney	1975	40
F3-280	40	4	DISTRIBUTION	CREOSOTE	Carney	1975	40
F3-281	40	4	DISTRIBUTION	CREOSOTE	Carney	1975	40
F2-40	40	4	DISTRIBUTION	PCP	North West Pine	1975	40

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F1-41		40	4	DISTRIBUTION	PCP	North West Pine	1975	40
F3-909		45	H5	DISTRIBUTION	CREOSOTE	Carney	1975	40
F3-801		45	4	DISTRIBUTION	CREOSOTE	Carney	1976	39
F3-438		40	4	DISTRIBUTION	PCP	North West Pine	1976	39
F3-446		45	4	DISTRIBUTION	CREOSOTE	Carney	1976	39
F2/D-149		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1976	39
F2/D-204	EASTERN WHITE	35		DISTRIBUTION	BUTT ONLY	Bell Lumber & Pole	1976	39
F3-669		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3-670		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3-871		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-065		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-066		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-067		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-068		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-069		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-070		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-072		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-073		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-075		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-077		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-078		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-080		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-081		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-082		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-084		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-086		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-090		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3-103		40	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3/WP-013		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3/WP-014		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3/WP-015		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3/WP-017		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3/WP-018		35	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3/WP-019		35	4	DISTRIBUTION	PCP	North West Pine	1977	38
F3/WP-024		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3/WP-025		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3/WP-026		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3-380		45	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3-382		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3-457		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3-458		40	4	DISTRIBUTION	CREOSOTE	Carney	1977	38

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F3-459		45	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3-459		45	4	DISTRIBUTION	CREOSOTE	Carney	1977	38
F3/WP-016		40	H5	DISTRIBUTION	CREOSOTE	Carney	1977	38
F2/72-220		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1978	37
F2/72-224		40	4	DISTRIBUTION	CREOSOTE	North West Pine	1978	37
F2/72-227		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1978	37
F2/72-229		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/72-255		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1978	37
F2/72-261		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/72-274		45	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/72-287		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/72-288		35	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/72-289		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/72-290		35	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/72-291		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/72-277		35	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/AL-07		45	4	DISTRIBUTION	CREOSOTE		1978	37
F2/AL-44		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F2/AL-47		45	4	DISTRIBUTION	CREOSOTE		1978	37
F2/AL-48		45	4	DISTRIBUTION	CREOSOTE		1978	37
F2/SR-116	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1978	37
F3-254		50	4	DISTRIBUTION	CREOSOTE	Carney	1978	37
F3-255		45	4	DISTRIBUTION	CREOSOTE	Carney	1978	37
F3-437		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F3-427		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1978	37
F3-428		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1978	37
F3-449		40	4	DISTRIBUTION	CREOSOTE	Carney	1978	37
F3-450		40	4	DISTRIBUTION	CREOSOTE	Carney	1978	37
F3-453		40	4	DISTRIBUTION	CREOSOTE	Carney	1978	37
F1-204		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F1-206		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F1-209		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F1-212		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F1-214		45	4	DISTRIBUTION	PCP	North West Pine	1978	37
F1-215		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F1-219		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F1-220		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F1-221		40	4	DISTRIBUTION	PCP	North West Pine	1978	37
F3-901		40	H5	DISTRIBUTION	PCP	North West Pine	1978	37
F3-640		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F2/72-247		40	4	DISTRIBUTION	CREOSOTE		1979	36

F2/72-260		45	4	DISTRIBUTION	CREOSOTE		1979	36
F2/CP-05		45	4	DISTRIBUTION	CREOSOTE		1979	36
F2/CP-07		45	4	DISTRIBUTION	PCP	North West Pine	1979	36
F2/CP-10		45	4	DISTRIBUTION	CREOSOTE		1979	36
F2/CP-13		40	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F2/CP-14		35	4	DISTRIBUTION	PCP	North West Pine	1979	36
F2/CP-15		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F2/CP-19		45	4	DISTRIBUTION	CREOSOTE		1979	36
F2/CP-21		40	4	DISTRIBUTION	PCP		1979	36
F2/CP-22		35	4	DISTRIBUTION	PCP		1979	36
F2/CP-23		35	4	DISTRIBUTION	PCP		1979	36
F2/72-262		40	4	DISTRIBUTION	PCP	North West Pine	1979	36
F2/72-264		40	4	DISTRIBUTION	PCP	North West Pine	1979	36
F2/72-267		40	4	DISTRIBUTION	PCP	North West Pine	1979	36
F2/72-268		40	4	DISTRIBUTION	CREOSOTE		1979	36
F2/72-269		40	4	DISTRIBUTION	PCP	North West Pine	1979	36
F2/SM-37		40	4	DISTRIBUTION	PCP	North West Pine	1979	36
F2/SM-38		40	4	DISTRIBUTION	PCP	North West Pine	1979	36
F2/SM-39		40	4	DISTRIBUTION	CREOSOTE		1979	36
F2/SR-069		45	4	DISTRIBUTION	PCP		1979	36
F2/72-311		45	4	DISTRIBUTION	CREOSOTE		1979	36
F3-001		45	4	DISTRIBUTION	PCP	Carney	1979	36
F3-002	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-003	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-004	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-005	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-006	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-007	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-638		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-639		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-641		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-642		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-643		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-765		50	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-691		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-692		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-693		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-694		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-695		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-697		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36
F3-698		45	4	DISTRIBUTION	CREOSOTE	Carney	1979	36

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F3-696		45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-724		55	4	DISTRIBUTION	PCP	North West Pine	1979		36
F3-727		50	4	DISTRIBUTION	PCP	North West Pine	1979		36
F3-728		50	4	DISTRIBUTION	PCP	North West Pine	1979		36
F3-730		50	4	DISTRIBUTION	PCP	North West Pine	1979		36
F3-780		45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-781		45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-782		45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F2/72-270		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/72-273		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/72-284		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/72-285		45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F2/FD-03		40	4	DISTRIBUTION	PCP		1979		36
F2/FD-05		35	4	DISTRIBUTION	CREOSOTE		1979		36
F2/72-302		45	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/FAN-01	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1979		36
F2/FAN-03	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE		1979		36
F2/72-278		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/72-279		45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F2/72-280		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/72-281		40	4	DISTRIBUTION	CREOSOTE		1979		36
F2/72-282		40	4	DISTRIBUTION	CREOSOTE		1979		36
F2/72-283		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/FD-09		45	4	DISTRIBUTION	CREOSOTE		1979		36
F2/FD-12		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/FD-15		45	4	DISTRIBUTION	CREOSOTE		1979		36
F2/FD-19		45	4	DISTRIBUTION	CREOSOTE		1979		36
F2/72-295		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F2/AL-02		45	4	DISTRIBUTION	CREOSOTE		1979		36
F2/AL-05		45	4	DISTRIBUTION	CREOSOTE		1979		36
F2/AL-08	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F2/D-011		40	4	DISTRIBUTION	PCP		1979		36
F2/72-305		45	4	DISTRIBUTION	CREOSOTE		1979		36
F3-014	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-015	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-016	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-017	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-018	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-052	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-051	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-053	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36

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F3-009	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-048	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-049	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-050	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-183		50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-185		50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-187		50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-010	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-011	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-012	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-013	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-019	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-020		50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-022		50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-023		50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-208		50	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-818		40	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F3-283		45	4	DISTRIBUTION	CREOSOTE	Carney	1979		36
F4-069		55	4	DISTRIBUTION	CREOSOTE		1979		36
F4-070		55	4	DISTRIBUTION	CREOSOTE		1979		36
F4-099		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F4-100		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F4-101		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F4-102		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F4-103		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F4-104		40	4	DISTRIBUTION	PCP	North West Pine	1979		36
F4-105		35	4	DISTRIBUTION	PCP	North West Pine	1979		36
F1/F2-2		45	4	DISTRIBUTION	CREOSOTE		1979		36
F2/FD-02		45	H5	DISTRIBUTION	CREOSOTE		1979		36
F1/F2-10		40	H5	DISTRIBUTION	PCP	North West Pine	1979		36
F1/F3-3		45	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1/F2-15		45	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1/F2-16		45	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1/F2-17		45	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1/F2-18		45	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1/F2-19		45	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1/F2-20		55	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1-01		40	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1-02		40	4	DISTRIBUTION	PCP	North West Pine	1980		35
F1-03		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980		35
F1-04		40	4	DISTRIBUTION	PCP	North West Pine	1980		35

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F1-05	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F1-06	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F1/2-01	45	4	DISTRIBUTION	CREOSOTE		1980	35
F1/2-03	45	4	DISTRIBUTION	CREOSOTE		1980	35
F1/2-04	45	4	DISTRIBUTION	CREOSOTE		1980	35
F1/2-05	45	4	DISTRIBUTION	CREOSOTE		1980	35
F1/2-06	45	4	DISTRIBUTION	CREOSOTE		1980	35
F1/2-07	45	4	DISTRIBUTION	CREOSOTE		1980	35
F1/2-08	45	4	DISTRIBUTION	CREOSOTE		1980	35
B.CRES-05	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F4-14	40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/72-062	35	4	DISTRIBUTION	CREOSOTE		1980	35
F2/72-063	35	4	DISTRIBUTION	CREOSOTE		1980	35
F2/72-064	40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F2/72-096	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F2/72-097	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F2/VN.RD-3	40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/72-104	40	4	DISTRIBUTION	PCP		1980	35
F2/FS-01	40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/FS-31	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F2/FS-32	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F2/FS-36	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F2/MH-07	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F2/CP-01	35	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/CP-02	45	4	DISTRIBUTION	CREOSOTE		1980	35
F2/CP-03	45	4	DISTRIBUTION	CREOSOTE		1980	35
F2/SR-045	45	4	DISTRIBUTION	CREOSOTE		1980	35
F2/SR-056	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F3-486	50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-498	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-553	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-554	45	4	DISTRIBUTION	CREOSOTE		1980	35
F3-557	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-626	35	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-627	40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-628	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-629	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-632	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F3-635	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-636	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-645	50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35

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F3-673		40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-674		40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-646		40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-656		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-761		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-762		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-763		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-764		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-766		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-767		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-770		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-771		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-772		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-699		40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-700		40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-702		40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-707		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-733		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-735		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-739		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-741		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-742		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-746		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-749		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-753		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-754		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-755		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-756		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-773		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-774		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-785		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-800		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F2/FD-04		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/72-297		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/AL-09		45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/AL-10		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/AL-37	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F2/AL-38		45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/AL-69		45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/AL-70		45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/AL-71		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1980	35

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F2/AL-74		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1980	35
F2/AL-78		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1980	35
F2/AL-79		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-001		45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-002		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-004		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1980	35
F2/D-012		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1980	35
F2/D-017		45	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1980	35
F2/D-024		45	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1980	35
F2/D-027		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-042		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-043		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-044		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-045		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-048		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F2/D-007	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F2/D-008		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1980	35
F2/D-010		40	4	DISTRIBUTION	PCP		1980	35
F2/D-028	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1980	35
F3-076	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-079		40	4	DISTRIBUTION	PCP	North West Pine	1980	35
F3-088	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-089	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-091	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-195		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-197		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-201		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-202		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-204		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-206		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-284		45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-213		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-214		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-215		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-216		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-226		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-228		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-232		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-236		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-244		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-248		50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35

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F3-249	50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-250	50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-251	50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-253	50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-260	35	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-265	40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-266	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-267	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F3-268	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F3-269	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-425	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-433	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-462	50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F1-193	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F4-009	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F4-015	45	4	DISTRIBUTION	CREOSOTE		1980	35
F4-016	45	4	DISTRIBUTION	CREOSOTE		1980	35
F4-018	45	4	DISTRIBUTION	CREOSOTE		1980	35
F4-023	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1980	35
F4-025	45	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F4-042	55	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F4-045	55	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-155	35	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-14	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-13	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-12	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-11	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-9	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-7	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-8	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-3	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-4	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F1/F2-5	45	4	DISTRIBUTION	PCP	North West Pine	1980	35
F2/D-156	40	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F3-230	50	4	DISTRIBUTION	CREOSOTE	Carney	1980	35
F1/F2-6	45	H5	DISTRIBUTION	PCP	North West Pine	1980	35
MILL.RD-02	45	4	DISTRIBUTION	CREOSOTE		1981	34
MILL.RD-04	45	4	DISTRIBUTION	CREOSOTE		1981	34
4TH.AVE-04	35	4	DISTRIBUTION	PCP	North West Pine	1981	34
1ST.ST-10	40	4	DISTRIBUTION	PCP	North West Pine	1981	34
3RD.ST-14	40	4	DISTRIBUTION	PCP	North West Pine	1981	34

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1ST.ST-11		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
3RD.ST-19		45	4	DISTRIBUTION	PCP	North West Pine	1981	34
3RD.ST-13		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
2ND.AVE-01		40	4	DISTRIBUTION	CREOSOTE		1981	34
F2/FS-05		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
F2/FS-06		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
F2/FS-20		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
F2/FS-29		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
F2/FS-30		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
F2/FS-33		45	4	DISTRIBUTION	PCP	North West Pine	1981	34
F2/BFLY-02		40	4	DISTRIBUTION	PCP		1981	34
F2/BFLY-03		40	4	DISTRIBUTION	PCP		1981	34
F2/BFLY-05		45	4	DISTRIBUTION	PCP		1981	34
F2/BFLY-07		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/72-258		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
F3-768		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-769		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-723		55	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-726		55	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-799		45	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F2/AL-51	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F2/AL-52		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1981	34
F2/AL-53		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1981	34
F2/SS-02		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/SS-03		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/SS-04		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/AL-42	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/AL-72	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F2/AL-66	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/AL-67	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/AL-68	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-013		45	4	DISTRIBUTION	PCP		1981	34
F2/D-014		45	4	DISTRIBUTION	PCP		1981	34
F2/D-015		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-023	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-025	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-026		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-046		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1981	34
F2/D-051		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1981	34
F2/D-074		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1981	34
F2/D-009	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1981	34

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F2/D-018		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1981	34
F2/D-019		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-020		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-021		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-038		45	4	DISTRIBUTION	PCP	North West Pine	1981	34
F2/D-040	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F2/SR-049		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/SR-050		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
F3-811		45	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-233		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-234		50	4	DISTRIBUTION	CREOSOTE	North West Pine	1981	34
F3-238		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-240		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-241		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-242		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-246		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-391		35	4	DISTRIBUTION	PCP	North West Pine	1981	34
F3-426		50	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-430		45	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F3-456		35	4	DISTRIBUTION	CREOSOTE	Carney	1981	34
F4-044		55	4	DISTRIBUTION	PCP	North West Pine	1981	34
F4-066		50	4	DISTRIBUTION	CREOSOTE		1981	34
F4-067		45	4	DISTRIBUTION	CREOSOTE		1981	34
F4-068		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
F4-073		45	4	DISTRIBUTION	PCP	North West Pine	1981	34
F4-074		35	4	DISTRIBUTION	PCP	North West Pine	1981	34
F4-075		45	4	DISTRIBUTION	PCP	North West Pine	1981	34
F1/F2-1		45	4	DISTRIBUTION	CREOSOTE		1981	34
F2/D-150		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1981	34
F2/72-320		40	4	DISTRIBUTION	PCP	North West Pine	1981	34
B.CRES-02		40	4	DISTRIBUTION	CREOSOTE		1982	33
B.CRES-04		40	4	DISTRIBUTION	CREOSOTE		1982	33
B.CRES-06		45	4	DISTRIBUTION	PCP	North West Pine	1982	33
F1/1-001		45	4	DISTRIBUTION	CREOSOTE		1982	33
3RD.ST-07		40	4	DISTRIBUTION	CREOSOTE		1982	33
F2/FS-35		45	4	DISTRIBUTION	PCP	North West Pine	1982	33
F2/MH-09		45	4	DISTRIBUTION	PCP	North West Pine	1982	33
F2/MH-11		45	4	DISTRIBUTION	PCP	North West Pine	1982	33
F2/MH-25		45	4	DISTRIBUTION	PCP	North West Pine	1982	33
F2/MH-35		45	4	DISTRIBUTION	PCP	North West Pine	1982	33
F3-467		50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33

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F3-490	40	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-559	45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-560	45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-701	40	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-708	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1982	33
F3-709	45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-716	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-717	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-719	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-720	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-721	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-722	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-737	45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-738	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F2/AL-35	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1982	33
F2/AL-75	WESTERN RED CI 45	4	DISTRIBUTION	PCP	Carney	1982	33
F2/D-050	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F2/D-052	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F2/D-037	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE		1982	33
F2/D-058	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F2/D-063	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F2/D-108	40	4	DISTRIBUTION	PCP	North West Pine	1982	33
F2/SM-03	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-189	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3/PF-06	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE		1982	33
F3/PF-08	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE		1982	33
F3-108	40	4	DISTRIBUTION	PCP		1982	33
F3-191	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-192	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-193	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-194	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-211	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-217	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-218	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-219	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-220	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-221	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-222	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-355	45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-356	45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F3-465	50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33

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F4-001		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1982	33
F4-002		45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F4-019		50	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F4-041		55	4	DISTRIBUTION	PCP	North West Pine	1982	33
F2/72-321		40	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F2/AL-65	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1982	33
F4/F3-1		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1982	33
MILL.RD-06		45	4	DISTRIBUTION	CREOSOTE		1983	32
MILL.RD-05		45	4	DISTRIBUTION	CREOSOTE		1983	32
F2/MH-05		40	4	DISTRIBUTION	PCP		1983	32
F3-468		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-483		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-484		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-485		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-556		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-591		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-592		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-593		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-624		35	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-625		35	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-663		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-657		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-658		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-659		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-776		40	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-795		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F2/AL-63		40	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-111		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-112		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-113		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-114		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-115		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-116		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-117		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-118		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3/PF-02		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3/PF-05		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-109		45	4	DISTRIBUTION	PCP		1983	32
F3-104		40	4	DISTRIBUTION	PCP		1983	32
F3-105		40	4	DISTRIBUTION	PCP		1983	32
F3-107		40	4	DISTRIBUTION	PCP		1983	32

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F3-198		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-200		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-294		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-256		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-258		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-274		40	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-275		40	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-276		40	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-277		40	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-328		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-110		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3-341		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-292		40	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-293		40	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-377		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-431		45	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3-463		50	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F4/F1-17		40	4	DISTRIBUTION	PCP	North West Pine	1983	32
F2/D-173		40	4	DISTRIBUTION	CREOSOTE	Carney	1983	32
F3/PF-01		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3/PF-03		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F3/PF-04		45	4	DISTRIBUTION	PCP	North West Pine	1983	32
F1/DEER-16		45	4	DISTRIBUTION	CREOSOTE		1984	31
3RD.ST-15		35	4	DISTRIBUTION	PCP	North West Pine	1984	31
3RD.ST-16		35	4	DISTRIBUTION	PCP	North West Pine	1984	31
F2/MH-15		35	4	DISTRIBUTION	PCP	Carney	1984	31
F2/CP-09		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F2/CP-12		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F3-661		45	4	DISTRIBUTION	CREOSOTE	Carney	1984	31
F2/AL-61		45	4	DISTRIBUTION	CREOSOTE		1984	31
F2/FD-06		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F2/FD-07		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F2/D-124		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F2/D-125		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F2/D-126		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F2/D-127		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F2/D-129		40	4	DISTRIBUTION	PCP	North West Pine	1984	31
F3-119		45	4	DISTRIBUTION	PCP	North West Pine	1984	31
F3-120		45	4	DISTRIBUTION	PCP	North West Pine	1984	31
F3/PF-09	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1984	31
F3/PF-10	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1984	31

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F3-106		45	4	DISTRIBUTION	CREOSOTE		1984	31
F3/PF-11	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1984	31
F3/PF-12	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1984	31
F3/PF-13	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE		1984	31
F1/DEER-09		45	4	DISTRIBUTION	PCP	Carney	1985	30
5TH.AVE-01		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
5TH.AVE-02		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/O.RD-06		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/O.RD-07		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/O.RD-11		45	4	DISTRIBUTION	PCP	Carney	1985	30
F2/O.RD-12		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/O.RD-15		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/72-065		40	4	DISTRIBUTION	CREOSOTE		1985	30
F2/O.RD-20		45	4	DISTRIBUTION	CREOSOTE	North West Pine	1985	30
F2/O.RD-21		45	4	DISTRIBUTION	PCP		1985	30
F2/VN.RD-4		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/VN.RD-5		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/BH-01		45	4	DISTRIBUTION	CREOSOTE	North West Pine	1985	30
F2/SR-071		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	1985	30
F3-489		40	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F3-561		45	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F3-562		45	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F2/1PH-137		50	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/1PH-138		55	4	DISTRIBUTION	PCP	Carney	1985	30
F2/1PH-139		50	4	DISTRIBUTION	PCP	Carney	1985	30
F2/L.RD-23		50	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/L.RD-27		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F3-662		45	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F3-660		45	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F2/AL-64		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-101		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-102		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-103		35	4	DISTRIBUTION	CREOSOTE		1985	30
F2/D-109		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-110		45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-111		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-112		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-113		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-114		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/D-116		40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F2/SR-055		40	4	DISTRIBUTION	PCP	North West Pine	1985	30

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F3-121	45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F3-036	45	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F3-123	45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F3-124	45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F3-125	45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F3-126	45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F3-127	45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F3-128	40	4	DISTRIBUTION	PCP	North West Pine	1985	30
F3-273	40	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F3-415	45	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F3-417	45	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F3-418	45	4	DISTRIBUTION	CREOSOTE	Carney	1985	30
F3-122	45	4	DISTRIBUTION	PCP	North West Pine	1985	30
F1-52	45	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1986	29
F1/DEER-01	45	4	DISTRIBUTION	PCP	Carney	1986	29
F1/DEER-02	45	4	DISTRIBUTION	PCP	Carney	1986	29
F1/DEER-03	45	4	DISTRIBUTION	PCP	Carney	1986	29
F1/DEER-04	45	4	DISTRIBUTION	PCP	Carney	1986	29
F1/DEER-05	45	4	DISTRIBUTION	PCP	Carney	1986	29
F1/DEER-06	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F1/DEER-07	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F1/DEER-08	45	4	DISTRIBUTION	CREOSOTE		1986	29
F1/DEER-10	45	4	DISTRIBUTION	PCP	Carney	1986	29
F1/DEER-11	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F1/DEER-12	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F1/DEER-13	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F1/DEER-14	40	4	DISTRIBUTION	CREOSOTE		1986	29
F1/DEER-15	40	4	DISTRIBUTION	CREOSOTE		1986	29
F2/1PH-34	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-53	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-74	35	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-76	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-102	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-103	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-104	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-109	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-111	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-054	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-089	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-090	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-091	40	4	DISTRIBUTION	PCP	North West Pine	1986	29

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F2/72-098		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-099		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-100		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-101		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-102		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-106		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-52		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-73		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-75		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-265		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-266		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/SR-020		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/SR-021		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/SR-073		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-466		50	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F3-487		50	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F3-488		45	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F2/1PH-110		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-150		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-140		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-178		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-183		50	4	DISTRIBUTION	PCP	Carney	1986	29
F2/1PH-185		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/L.RD-09		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/L.RD-19		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/L.RD-20		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/L.RD-22		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-218		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/1PH-227		50	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-866		40	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F2/SS-07		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/SS-08	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1986	29
F2/AL-62		40	4	DISTRIBUTION	CREOSOTE		1986	29
F2/D-069		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-078		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-080		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-081		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-057		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-086		35	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-089		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-090		40	4	DISTRIBUTION	PCP	North West Pine	1986	29

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F2/D-092	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-093	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-082	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-083	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-084	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-085	45	4	DISTRIBUTION	CREOSOTE		1986	29
F2/D-105	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-106	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-107	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-117	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-118	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-119	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-120	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-121	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-122	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-123	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-128	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-131	35	4	DISTRIBUTION	CREOSOTE		1986	29
F2/G-01	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-096	40	4	DISTRIBUTION	PCP		1986	29
F3-157	50	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F3-160	50	4	DISTRIBUTION	CREOSOTE	North West Pine	1986	29
F3-161	50	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F3-162	55	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F3-178	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-179	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3/PF-07	WESTERN RED CI 45	4	DISTRIBUTION	CREOSOTE		1986	29
F3-144	50	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F3-145	50	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F3-148	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-149	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-150	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-153	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-154	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-155	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-163	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-164	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-165	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-166	40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-168	45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-169	45	4	DISTRIBUTION	PCP	North West Pine	1986	29

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F3-247		50	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F3-419		45	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F4/F1-16		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F4-072		50	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-146		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-147		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-157		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-158		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-159		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/FD-26		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F3-174		50	4	DISTRIBUTION	CREOSOTE	Carney	1986	29
F2/D-192		40	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/D-193		45	4	DISTRIBUTION	PCP	North West Pine	1986	29
F2/72-342		45	4	DISTRIBUTION	CREOSOTE		1986	29
F2/D-076		40	H5	DISTRIBUTION	PCP	North West Pine	1986	29
F3-910		40	H5	DISTRIBUTION	CREOSOTE	Carney	1986	29
F2/1PH-35		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-36		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-37		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-38		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-40		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-42		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-44		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-46		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-48		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-49		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-51		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-54		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-56		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-58		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-59		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-60		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-61		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-63	WESTERN RED CI	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-64		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-66		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-67		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-68		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-69		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-70		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-71		40	4	DISTRIBUTION	PCP	North West Pine	1987	28

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F2/1PH-72		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-78		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-79		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-80		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-81		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-82		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-83		35	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-84		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-86		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-88		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-90		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-91		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-92		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-97		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-99		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-101		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-105		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-106		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-107		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-114		50	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/72-049		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/72-052		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/72-053		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/72-055		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/72-056		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/72-057		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-39		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-41		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-43		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-45		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-47	WESTERN RED CI	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-50		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-55		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-57		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-62		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-65		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-116		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-118		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-124		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-127		40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-132		40	4	DISTRIBUTION	PCP	North West Pine	1987	28

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F2/1PH-85	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-87	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-96	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-98	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-100	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-108	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-115	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-117	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-123	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-126	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-143	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-144	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-146	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-155	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-157	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-159	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-160	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-162	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-164	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-166	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-168	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-170	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-171	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-172	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-176	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-133	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-134	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-145	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-149	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-151	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-154	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-156	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-158	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-161	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-163	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-165	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-167	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-169	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-174	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-175	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-177	40	4	DISTRIBUTION	PCP	North West Pine	1987	28

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F2/1PH-184	50	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-190	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-191	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-192	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-01	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-02	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-03	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-04	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-179	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-07	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-11	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-12	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-13	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-15	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/L.RD-26	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-202	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-208	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-209	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-210	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-211	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-212	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-213	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-214	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-215	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-216	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-217	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-219	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-220	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/1PH-228	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/AL-50	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/FD-08	45	4	DISTRIBUTION	PCP		1987	28
F2/FD-14	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/AL-19	45	4	DISTRIBUTION	PCP		1987	28
F2/AL-20	45	4	DISTRIBUTION	PCP		1987	28
F2/AL-21	45	4	DISTRIBUTION	PCP		1987	28
F2/D-033	45	4	DISTRIBUTION	PCP		1987	28
F2/D-034	45	4	DISTRIBUTION	PCP		1987	28
F2/D-035	45	4	DISTRIBUTION	PCP		1987	28
F2/G-03	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-04	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-05	45	4	DISTRIBUTION	PCP	North West Pine	1987	28

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F2/G-06	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-08	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-09	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-10	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-11	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-12	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-13	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-14	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-15	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-16	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-17	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-18	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-19	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-20	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-22	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-23	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-26	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-30	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/G-31	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/SR-103	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F2/SR-118	35	4	DISTRIBUTION	PCP	North West Pine	1987	28
F3/WP-001	45	4	DISTRIBUTION	PCP		1987	28
F3/WP-002	45	4	DISTRIBUTION	PAINT		1987	28
F3/WP-003	45	4	DISTRIBUTION	PCP		1987	28
F3/WP-004	40	4	DISTRIBUTION	PCP		1987	28
F3/WP-006	40	4	DISTRIBUTION	PCP		1987	28
F3/WP-007	40	4	DISTRIBUTION	PCP		1987	28
F3-175	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F3-176	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F3-177	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F3-170	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F3-171	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F3-172	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F1-144	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
F1-161	45	4	DISTRIBUTION	PCP	North West Pine	1987	28
F1-162	45	4	DISTRIBUTION	PCP		1987	28
F1-167	45	4	DISTRIBUTION	PCP		1987	28
F1-151	45	4	DISTRIBUTION	PCP		1987	28
F1-153	45	4	DISTRIBUTION	PCP		1987	28
F1-154	45	4	DISTRIBUTION	PCP		1987	28
F1-155	45	4	DISTRIBUTION	PCP		1987	28

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F1-156	45	4	DISTRIBUTION	PCP		1987	28
F1-157	45	4	DISTRIBUTION	PAINT		1987	28
F1-158	45	4	DISTRIBUTION	PCP		1987	28
F1-159	45	4	DISTRIBUTION	PCP		1987	28
F1-160	45	4	DISTRIBUTION	PCP		1987	28
F4-107	55	4	DISTRIBUTION	CREOSOTE	Carney	1987	28
F2/1PH-232	40	4	DISTRIBUTION	PCP	North West Pine	1987	28
MILL.RD-07	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F1/1-014	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F4-18	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F4-19	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-93	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-94	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-112	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/VN.RD-2	40	4	DISTRIBUTION	PCP		1988	27
F2/72-105	40	4	DISTRIBUTION	PCP		1988	27
F2/1PH-77	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-120	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-122	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-129	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-130	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-131	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/SR-022	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/SR-066	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/SR-110	45	4	DISTRIBUTION	PCP		1988	27
F3-546	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-547	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-548	50	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-549	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-550	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-551	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-563	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-564	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-566	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-574	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-575	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-576	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-577	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-578	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-580	45	4	DISTRIBUTION	CREOSOTE		1988	27
F3-581	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27

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F3-582	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-583	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-584	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-594	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-595	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-596	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1988	27
F2/1PH-89	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-95	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-119	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-121	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-125	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-128	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-136	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-141	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-148	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-152	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-153	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-135	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-142	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-147	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-180	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-182	55	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-186	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-187	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-188	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-189	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-193	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-194	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-195	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-196	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-197	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/L.RD-14	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/L.RD-16	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/L.RD-17	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/L.RD-21	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/L.RD-25	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-198	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-199	45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-200	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-201	40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-203	45	4	DISTRIBUTION	PCP	North West Pine	1988	27

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F2/1PH-205		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-206		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-207		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-221		40	4	DISTRIBUTION	PCP		1988	27
F2/L.RD-05		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/L.RD-06		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/L.RD-18		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/L.RD-24		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-222		40	4	DISTRIBUTION	PCP		1988	27
F2/1PH-223		40	4	DISTRIBUTION	PCP		1988	27
F2/1PH-224		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-225		50	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/1PH-226		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-644		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-758		50	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-718		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-729		50	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-757		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-784		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F2/FAN-04		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/AL-58		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/AL-60		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/AL-16	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F2/AL-33		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F2/G-07		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/G-21		40	4	DISTRIBUTION	PCP		1988	27
F2/SR-024		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/SR-101		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F2/SR-102		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-133		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-134		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-135		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-136		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-137		50	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-138		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-139		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-158		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-159		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3/WP-005		45	4	DISTRIBUTION	PCP		1988	27
F3/WP-008		45	4	DISTRIBUTION	PCP		1988	27
F3/WP-009		45	4	DISTRIBUTION	PCP		1988	27

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F3-047	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-129		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-130		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-131		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-132		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-140		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-141		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-142		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-143		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-146		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-147		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-151		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-152		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-156		50	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-167		45	4	DISTRIBUTION	PCP	North West Pine	1988	27
F3-209		50	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-285		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1988	27
F3-286		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3/WP-010		45	4	DISTRIBUTION	PCP		1988	27
F3/WP-011		45	4	DISTRIBUTION	PCP		1988	27
F3/WP-012		45	4	DISTRIBUTION	PCP		1988	27
F3-173		50	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-311		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-313		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-315		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-319		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-321		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-323		35	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-325		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-815		45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F1-138		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F1-139		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F1-140		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F1-143		40	4	DISTRIBUTION	PCP	North West Pine	1988	27
F1-163		45	4	DISTRIBUTION	PCP		1988	27
F1-164		45	4	DISTRIBUTION	PCP		1988	27
F1-165		45	4	DISTRIBUTION	PCP		1988	27
F1-166		45	4	DISTRIBUTION	PCP		1988	27
F1-168		45	4	DISTRIBUTION	PCP		1988	27
F1-169		50	4	DISTRIBUTION	PCP		1988	27
F1-171		45	4	DISTRIBUTION	PCP		1988	27

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F1-173	45	4	DISTRIBUTION	CREOSOTE		1988	27
F1-174	45	4	DISTRIBUTION	PCP		1988	27
F1-175	40	4	DISTRIBUTION	PCP		1988	27
F3-329	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-331	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-423	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-852	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F3-877	45	4	DISTRIBUTION	CREOSOTE		1988	27
F3-886	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F1-152	45	4	DISTRIBUTION	PCP		1988	27
F4-071	45	4	DISTRIBUTION	CREOSOTE	Carney	1988	27
F4/F1-10	40	4	DISTRIBUTION	PCP	North West Pine	1989	26
F2/72-048	45	4	DISTRIBUTION	PCP		1989	26
F2/72-085	40	4	DISTRIBUTION	PCP	North West Pine	1989	26
F2/72-107	40	4	DISTRIBUTION	PCP		1989	26
F2/72-108	40	4	DISTRIBUTION	PCP		1989	26
F2/FS-02	45	4	DISTRIBUTION	CREOSOTE		1989	26
F2/BFLY-06	45	4	DISTRIBUTION	PCP		1989	26
F2/MH-27	45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F2/CP-04	40	4	DISTRIBUTION	PCP	Carney	1989	26
F2/SR-114	45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F3-474	45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-494	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-495	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-496	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-497	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-499	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-503	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-504	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-505	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-506	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-507	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-491	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-492	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-493	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-500	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-501	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-502	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-567	35	4	DISTRIBUTION	PCP	North West Pine	1989	26
F3-568	40	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-572	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26

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F3-573		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F2/L.RD-29		40	4	DISTRIBUTION	PCP		1989	26
F2/L.RD-31		40	4	DISTRIBUTION	PCP		1989	26
F2/L.RD-33		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F2/1PH-204		45	4	DISTRIBUTION	PCP		1989	26
F2/L.RD-28		40	4	DISTRIBUTION	PCP		1989	26
F2/L.RD-30		40	4	DISTRIBUTION	PCP		1989	26
F2/L.RD-32		40	4	DISTRIBUTION	PCP	North West Pine	1989	26
F3-681		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-687		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-690		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-826		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-751		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-752		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-779		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-802		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-808		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F2/SS-05	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1989	26
F2/SS-06	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1989	26
F2/AL-03		45	4	DISTRIBUTION	PCP		1989	26
F2/AL-04		40	4	DISTRIBUTION	PCP		1989	26
F2/D-059		45	4	DISTRIBUTION	PCP		1989	26
F2/D-060		45	4	DISTRIBUTION	PCP		1989	26
F2/G-27		40	4	DISTRIBUTION	PCP		1989	26
F2/G-28		40	4	DISTRIBUTION	PCP		1989	26
F2/G-33		40	4	DISTRIBUTION	PCP	North West Pine	1989	26
F3/PF-64		40	4	DISTRIBUTION	PCP	North West Pine	1989	26
F3-817		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-820		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-822		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F1-137		45	4	DISTRIBUTION	PCP		1989	26
F3-335		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-336		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-410		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-411		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F3-420		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-421		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-422		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-399		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-825		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-827		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26

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F3-828		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-829		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-846		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-400		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-402		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-405		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-406		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1989	26
F3-429		45	4	DISTRIBUTION	CREOSOTE	Carney	1989	26
F1-203		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F1-198		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F1-199		50	4	DISTRIBUTION	PCP	North West Pine	1989	26
F1-200		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F1-201		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F1-202		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F1-205		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F1-207		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F1-211		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F4-090		50	4	DISTRIBUTION	PCP	North West Pine	1989	26
F4-091		40	4	DISTRIBUTION	PCP	North West Pine	1989	26
F4-092		45	4	DISTRIBUTION	PCP	North West Pine	1989	26
F4-093		50	4	DISTRIBUTION	PCP	North West Pine	1989	26
F4-095		50	4	DISTRIBUTION	PCP	North West Pine	1989	26
F4-096		40	4	DISTRIBUTION	PAINT	North West Pine	1989	26
F2/1PH-229		45	H5	DISTRIBUTION	PCP		1989	26
F3-403		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1989	26
F3-914	EASTERN WHITE	45	4	DISTRIBUTION	PCP		1989	26
F2/AL-89	EASTERN WHITE	40	4	DISTRIBUTION	CCA/PEG		1989	26
F2/72-103		40	4	DISTRIBUTION	PCP		1990	25
F2/BFLY-08		45	4	DISTRIBUTION	PCP		1990	25
F2/BFLY-09		45	4	DISTRIBUTION	PCP		1990	25
F2/72-218		45	4	DISTRIBUTION	PCP		1990	25
F2/MH-01		45	4	DISTRIBUTION	PCP		1990	25
F2/MH-03		45	4	DISTRIBUTION	PCP		1990	25
F2/MH-04		45	4	DISTRIBUTION	PCP		1990	25
F2/MH-08		45	4	DISTRIBUTION	PCP	North West Pine	1990	25
F2/MH-10		45	4	DISTRIBUTION	PCP		1990	25
F2/MH-33		45	4	DISTRIBUTION	PCP		1990	25
F2/MH-38		45	4	DISTRIBUTION	PCP	North West Pine	1990	25
F2/MH-20		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-046		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-047		45	4	DISTRIBUTION	PCP		1990	25

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F2/SR-048		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-059		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-078		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-079		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-080		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-093		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-111	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-476		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-477		45	4	DISTRIBUTION	PCP		1990	25
F3-478		45	4	DISTRIBUTION	CREOSOTE		1990	25
F3-481		45	4	DISTRIBUTION	CREOSOTE		1990	25
F3-552		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-598		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-599		45	4	DISTRIBUTION	CREOSOTE	Carney	1990	25
F3-601		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-630		45	4	DISTRIBUTION	CREOSOTE	Carney	1990	25
F3-631		45	4	DISTRIBUTION	CREOSOTE	Carney	1990	25
F3-856		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-857		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-858		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-860		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-861		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-862		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-731		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-732		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-734		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-744		40	4	DISTRIBUTION	CREOSOTE	Carney	1990	25
F3-748		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-750		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F2/FD-01		45	4	DISTRIBUTION	PCP		1990	25
F2/FD-20		40	4	DISTRIBUTION	PCP		1990	25
F2/AL-36		45	4	DISTRIBUTION	PCP		1990	25
F2/AL-45		45	4	DISTRIBUTION	PCP		1990	25
F2/AL-73		40	4	DISTRIBUTION	PCP		1990	25
F2/72-303		45	4	DISTRIBUTION	PCP		1990	25
F2/D-077		45	4	DISTRIBUTION	PCP		1990	25
F2/D-061		45	4	DISTRIBUTION	PCP		1990	25
F2/SM-05		45	4	DISTRIBUTION	PCP		1990	25
F2/SM-06		40	4	DISTRIBUTION	PCP		1990	25
F2/SM-09		40	4	DISTRIBUTION	PCP	North West Pine	1990	25
F2/SM-15		45	4	DISTRIBUTION	PCP	North West Pine	1990	25

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F2/SM-16		45	4	DISTRIBUTION	PCP	North West Pine	1990	25
F2/SR-095		45	4	DISTRIBUTION	PCP	North West Pine	1990	25
F2/SR-117		45	4	DISTRIBUTION	PCP		1990	25
F2/SR-119		45	4	DISTRIBUTION	PCP	North West Pine	1990	25
F3-063	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1990	25
F3-287		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-288		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-278		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-338		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-416		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-440		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1990	25
F3-441		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1990	25
F3-289		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-290		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-291		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-307		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-308		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-369		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-370		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-840		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-841		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-842		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-843		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-844		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-434		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-435		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F3-436		40	4	DISTRIBUTION	CREOSOTE	Carney	1990	25
F3-451		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F2-51		45	4	DISTRIBUTION	PCP		1990	25
F2/72-317		35	4	DISTRIBUTION	CREOSOTE	Carney	1990	25
F2/72-318		40	4	DISTRIBUTION	CREOSOTE	Carney	1990	25
F2/SR-138		45	4	DISTRIBUTION	CREOSOTE		1990	25
F3-903		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1990	25
F2/72-325		35	H5	DISTRIBUTION	PCP	North West Pine	1990	25
F2/D-162		40	H4	DISTRIBUTION	PCP		1990	25
F2/D-164		40	H4	DISTRIBUTION	PCP		1990	25
F2/D-166		40	H5	DISTRIBUTION	PCP		1990	25
F2/D-167		45	H5	DISTRIBUTION	PCP		1990	25
F2/D-226	EASTERN WHITE	40	4	DISTRIBUTION	PCP	North West Pine	1990	25
F1-132		40	4	DISTRIBUTION	PCP		1991	24
MILL.RD-01		50	4	DISTRIBUTION	PCP	North West Pine	1991	24

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MILL.RD-03		50	4	DISTRIBUTION	PCP		1991	24
F2/72-071		40	4	DISTRIBUTION	PCP	North West Pine	1991	24
F2/72-078		45	4	DISTRIBUTION	PCP		1991	24
F2/72-079		45	4	DISTRIBUTION	PCP		1991	24
F2/72-081		40	4	DISTRIBUTION	PCP	North West Pine	1991	24
F2/FS-24		45	4	DISTRIBUTION	PCP		1991	24
F2/FS-25		45	4	DISTRIBUTION	PCP		1991	24
F2/FS-27		45	4	DISTRIBUTION	PCP		1991	24
F2/FS-28		45	4	DISTRIBUTION	PCP		1991	24
F2/FS-37		45	4	DISTRIBUTION	PCP	North West Pine	1991	24
F4/F1-01		45	4	DISTRIBUTION	PCP	North West Pine	1991	24
F4/F1-02		45	4	DISTRIBUTION	PCP	North West Pine	1991	24
F2/SM-35		40	4	DISTRIBUTION	PCP	North West Pine	1991	24
F2/SM-40		45	4	DISTRIBUTION	PCP		1991	24
F2/SM-41		45	4	DISTRIBUTION	PCP		1991	24
F2/SM-42		45	4	DISTRIBUTION	PCP		1991	24
F2/SR-063		45	4	DISTRIBUTION	PCP		1991	24
F2/SR-076		45	4	DISTRIBUTION	PCP		1991	24
F2/SR-077		45	4	DISTRIBUTION	PCP	North West Pine	1991	24
F2/AL-40		45	4	DISTRIBUTION	PCP		1991	24
F2/D-064		45	4	DISTRIBUTION	PCP		1991	24
F2/D-072		40	4	DISTRIBUTION	PCP		1991	24
F2/D-022	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1991	24
F2/D-091		45	4	DISTRIBUTION	PCP		1991	24
F2/SR-098		45	4	DISTRIBUTION	PCP		1991	24
F3-041	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1991	24
F2/AL-81		45	4	DISTRIBUTION	PCP	North West Pine	1991	24
F2/72-331		35	4	DISTRIBUTION	PCP		1991	24
F2/72-332		45	4	DISTRIBUTION	PCP		1991	24
F3-904		45	4	DISTRIBUTION	PCP		1991	24
F3-905		40	4	DISTRIBUTION	CREOSOTE		1991	24
F3-906		45	4	DISTRIBUTION	PCP		1991	24
F3-907		40	4	DISTRIBUTION	PCP		1991	24
F2/72-036		45	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/MH-12		40	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/CP-16		40	4	DISTRIBUTION	PCP		1992	23
F2/SM-32	WESTERN RED CI	45	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/SM-33		40	4	DISTRIBUTION	PCP		1992	23
F2/SR-016		45	4	DISTRIBUTION	CREOSOTE		1992	23
F2/SR-072		45	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/SR-074		45	4	DISTRIBUTION	PCP	North West Pine	1992	23

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F2/SR-075		45	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/72-001		50	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/SS-09		45	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/AL-06		45	4	DISTRIBUTION	CREOSOTE		1992	23
F2/AL-22	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1992	23
F2/AL-23	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1992	23
F2/AL-24	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1992	23
F2/AL-32	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1992	23
F2/D-070		40	4	DISTRIBUTION	PCP		1992	23
F2/SR-086		40	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/SR-087		45	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/SR-088		45	4	DISTRIBUTION	PCP		1992	23
F2/SR-090		40	4	DISTRIBUTION	PCP		1992	23
F2/SR-079		45	4	DISTRIBUTION	PCP	North West Pine	1992	23
F3-046	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE		1992	23
F3/PF-45		40	4	DISTRIBUTION	PCP	North West Pine	1992	23
F3/PF-46		40	4	DISTRIBUTION	PCP	North West Pine	1992	23
F3/PF-47		40	4	DISTRIBUTION	PCP	North West Pine	1992	23
F2/72-323		40	4	DISTRIBUTION	PCP		1992	23
F4-17		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-25		40	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-26		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-27		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-31		40	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-36		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SR-012		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SR-013		45	4	DISTRIBUTION	PCP		1993	22
F2/SR-014		45	4	DISTRIBUTION	PCP		1993	22
F2/SR-015		45	4	DISTRIBUTION	PCP		1993	22
F2/SR-081		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	1993	22
F2/SR-092		40	4	DISTRIBUTION	PCP		1993	22
F3-597		45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-602		40	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-603		45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-604		40	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-605		40	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-606		40	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-607		45	4	DISTRIBUTION	CREOSOTE		1993	22
F3-759		45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-760		45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-788		40	4	DISTRIBUTION	CREOSOTE	Carney	1993	22

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F3-789		40	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-790		40	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F2/D-016		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1993	22
F2/SM-20		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-21		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-22		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-23		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-17		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-18		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-19		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F3-054	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-055	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-056	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-057	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-058	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-059	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-060	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-062	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-064	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-083	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-087	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-326		45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F3-879		45	4	DISTRIBUTION	CREOSOTE	Carney	1993	22
F2/SM-44		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/SM-45		45	4	DISTRIBUTION	PCP	North West Pine	1993	22
F2/72-051		45	4	DISTRIBUTION	PCP	North West Pine	1994	21
F2/72-219		50	4	DISTRIBUTION	CREOSOTE		1994	21
F2/SM-29		40	4	DISTRIBUTION	PCP	North West Pine	1994	21
F4/F1-14		50	4	DISTRIBUTION	PCP		1994	21
F4/F1-15		45	4	DISTRIBUTION	PCP		1994	21
F2/1PH-231		40	4	DISTRIBUTION	PCP	North West Pine	1994	21
1ST.AVE-01		40	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/72-080		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1995	20
F2/SR-004	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F2/SR-010		50	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SR-011		45	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SR-017		40	4	DISTRIBUTION	CREOSOTE		1995	20
F2/SR-018		40	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SR-019		45	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SR-058		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F2/SR-082		40	4	DISTRIBUTION	PCP	North West Pine	1995	20

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F2/SR-091		40	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F2/SR-115		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F3-613		45	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F3-855		50	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F3-736		45	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F2/AL-01		45	4	DISTRIBUTION	CREOSOTE		1995	20
F2/AL-11	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1995	20
F2/AL-13		45	4	DISTRIBUTION	CREOSOTE		1995	20
F2/D-115		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1995	20
F2/SM-07		40	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SM-11		45	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SM-12		45	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SM-13		40	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SR-051		40	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F2/SR-052		40	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SR-053		45	4	DISTRIBUTION	CREOSOTE	North West Pine	1995	20
F2/SR-084		40	4	DISTRIBUTION	PCP	North West Pine	1995	20
F2/SR-085		40	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F2/SR-096		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F2/SR-097		40	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F2/SR-099		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F2/SR-100		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	1995	20
F2/SR-120		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1995	20
F3-037	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F3-038	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F3-039	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F3-042	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE		1995	20
F3-043	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE		1995	20
F3-044	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE		1995	20
F3-074	WESTERN RED CI	35	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F3-045	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE		1995	20
F3/PF-52	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F3-378		45	4	DISTRIBUTION	CREOSOTE	Carney	1995	20
F1-131		40	4	DISTRIBUTION	PCP		1996	19
1ST.AVE-02		45	4	DISTRIBUTION	CREOSOTE		1996	19
F2/CP-17		40	4	DISTRIBUTION	CREOSOTE		1996	19
F2/CP-18		45	4	DISTRIBUTION	CREOSOTE		1996	19
F2/72-263		45	4	DISTRIBUTION	CREOSOTE		1996	19
F2/SR-113		45	4	DISTRIBUTION	PCP	North West Pine	1996	19
F3-511		45	4	DISTRIBUTION	CREOSOTE	Carney	1996	19
F2/AL-12		45	4	DISTRIBUTION	CREOSOTE		1996	19

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F2/AL-14	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1996	19
F2/AL-15	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE		1996	19
F2/CP-20		45	4	DISTRIBUTION	CREOSOTE	Carney	1997	18
F2/SM-30		40	4	DISTRIBUTION	CREOSOTE		1997	18
F3-480		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	1997	18
F2/AL-59	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Carney	1997	18
F2/G-02		40	4	DISTRIBUTION	CREOSOTE		1997	18
F3/PF-56		50	4	DISTRIBUTION	PCP	North West Pine	1997	18
F3/PF-57		50	4	DISTRIBUTION	PCP	North West Pine	1997	18
F2/FD-27		40	4	DISTRIBUTION	CREOSOTE		1997	18
F2/SR-147	EASTERN WHITE	40	4	DISTRIBUTION	BUTT ONLY		1997	18
F2/SR-148	EASTERN WHITE	40	4	DISTRIBUTION	BUTT ONLY		1997	18
F2/1PH-113		50	4	DISTRIBUTION	PCP	North West Pine	1998	17
F3-570		45	4	DISTRIBUTION	CREOSOTE	Carney	1998	17
F3-787		45	4	DISTRIBUTION	CREOSOTE	Carney	1998	17
F2/AL-29		45	4	DISTRIBUTION	PCP	North West Pine	1998	17
F2/D-079		45	4	DISTRIBUTION	CREOSOTE		1998	17
F2/G-24	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Carney	1998	17
F3-061		55	4	DISTRIBUTION	PCP	Bell Lumber & Pole	1998	17
F3-180	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	1998	17
F3/PF-19		45	4	DISTRIBUTION	PCP	North West Pine	1998	17
F1/2-17		55	4	DISTRIBUTION	CREOSOTE		1999	16
F4/F1-09		45	4	DISTRIBUTION	CREOSOTE		1999	16
F2/1PH-12		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-13		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-14		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-15		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-16		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-17		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-18		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-19		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-20		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-21		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-22		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-23		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-24		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-26		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-27		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-29		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-31		45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-32		45	4	DISTRIBUTION	PCP	North West Pine	1999	16

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F2/1PH-33	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/O.RD-25	45	4	DISTRIBUTION	CREOSOTE		1999	16
F2/1PH-01	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-02	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-03	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-04	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-05	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-06	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-07	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-08	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-09	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-10	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-11	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-25	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-28	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/1PH-30	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/SR-065	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/72-024	35	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1999	16
F2/72-271	45	4	DISTRIBUTION	CREOSOTE		1999	16
F2/AL-25	40	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/AL-27	40	4	DISTRIBUTION	PCP	North West Pine	1999	16
F2/AL-31	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-63	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-65	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-68	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-69	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-70	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-71	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-72	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-73	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-74	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-75	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-30	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-31	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-32	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-33	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-34	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-36	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-37	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-38	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-39	45	4	DISTRIBUTION	PCP	North West Pine	1999	16

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F3/PF-40	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-41	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-42	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-43	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-44	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-48	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-60	40	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-61	40	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-62	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-14	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-15	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-16	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-17	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-18	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-20	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-21	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-22	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-23	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-24	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-25	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-26	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-27	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-28	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-29	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-50	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-53	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-54	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-55	40	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-58	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3/PF-59	45	4	DISTRIBUTION	PCP	North West Pine	1999	16
F3-279	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	1999	16
F1/2-10	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
3RD.ST-20	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/72-050	40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	2000	15
F2/72-093	40	4	DISTRIBUTION	CREOSOTE		2000	15
F2/72-094	40	4	DISTRIBUTION	CREOSOTE		2000	15
F2/72-092	40	4	DISTRIBUTION	CREOSOTE		2000	15
F2/72-034	45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2000	15
F2/FS-38	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/FS-39	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/72-221	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15

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F2/72-222		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/72-223		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/MH-26		40	4	DISTRIBUTION	PCP	North West Pine	2000	15
F2/SM-34		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/SR-068	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F3-545		50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F3-555		40	4	DISTRIBUTION	CREOSOTE		2000	15
F3-867		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/FD-21		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/D-005	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/AW-02		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/AW-03	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/D-130	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F2/SM-04	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F3-464		50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2000	15
F4-043		55	4	DISTRIBUTION	CREOSOTE		2000	15
F4-046		55	4	DISTRIBUTION	CREOSOTE		2000	15
F1/1-022		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/1-023		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/1-024		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/1-020		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/1-021		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/2-12		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/2-13		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/2-14		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/2-15		50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/2-16		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1/1-019		50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F4/F1-12		50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/B.RD-01		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/B.RD-02		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/B.RD-03		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/B.RD-04		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/B.RD-05		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/F.BL-06		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/F.BL-07		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/F.BL-09		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/F.BL-10		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/72-058		45	4	DISTRIBUTION	PCP	Bell Lumber & Pole	2001	14
F2/72-067		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/72-068		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14

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F2/DUMP-22		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/MH-13		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/MH-14		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/MH-16		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/WP-06		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/WP-10		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/SR-001	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/SR-002	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F3-544		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F3-569		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F3-637		50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F3-725		55	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/AW-01	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/AW-04	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/AW-05	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/AW-06	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/AW-07	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/AW-08	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/AW-14	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F3-040	WESTERN RED CI	55	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F3/PF-35	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F2/D-137		45	H5	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2001	14
F1-103		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/O.RD-13		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/72-066		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/FS-14		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/MH-06		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/MH-17		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/MH-18		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-01		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-02		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-03		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-04		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-05		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/DUMP-06		40	4	DISTRIBUTION	CREOSOTE	North West Pine	2002	13
F2/WP-07		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-08		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-09		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-11		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-12		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-13		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13

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F2/WP-14		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-15		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/WP-16		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/MH-19		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/MH-21		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F3-571		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/DUMP-18	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	North West Pine	2002	13
F2/DUMP-19	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	North West Pine	2002	13
F2/DUMP-17	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	North West Pine	2002	13
F3-740		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/D-087		40	4	DISTRIBUTION	PCP	North West Pine	2002	13
F2/D-088	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/D-104	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/D-132	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2002	13
F2/D-133	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2002	13
F2/D-134	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2002	13
F2/D-135	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2002	13
F2/D-136	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2002	13
F3-071	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F3-340		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F3-409		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F4-080		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2002	13
F2/D-141		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2002	13
F2/D-139		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2002	13
F2/D-172		40	4	DISTRIBUTION	PCP		2002	13
F2/DUMP-13	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	North West Pine	2002	13
F2/72-335		40	4	DISTRIBUTION	CREOSOTE		2002	13
F2/D-138		45	H5	DISTRIBUTION	PCP	Bell Lumber & Pole	2002	13
F2/D-140		40	H5	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2002	13
3RD.ST-05		40	4	DISTRIBUTION	CREOSOTE		2003	12
3RD.ST-06		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
3RD.ST-04		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-01		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-02		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-08		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-10		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/72-256		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/SR-003	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/SR-005		50	4	DISTRIBUTION	PCP	Bell Lumber & Pole	2003	12
F2/SR-006	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/SR-007	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12

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F2/DUMP-03		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-04		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-05		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-07		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-09		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-11		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/DUMP-15		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	2003	12
F2/DUMP-12		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	2003	12
F2/DUMP-14		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	2003	12
F2/DUMP-16		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	2003	12
F2/DUMP-21		40	4	DISTRIBUTION	PCP	Bell Lumber & Pole	2003	12
F2/DUMP-20	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	North West Pine	2003	12
F2/1PH-181		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/L.RD-08		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-777		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-778		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-786		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/FAN-05	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/SS-01	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE		2003	12
F2/AL-17	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/AL-18	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/AL-28	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/AL-30	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/D-003	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/AW-09	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/AW-11	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/AW-13	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/AW-15	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/D-097	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/D-098	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/D-099	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/72-306	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/72-307	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/72-308	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/72-309	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/72-310	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F3-085	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F3-092	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-093	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-094	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-095	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12

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F3-096	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-097	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-098	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3/WP-022		40	4	DISTRIBUTION	CREOSOTE		2003	12
F3/WP-023		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F1-180		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F1-182		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F1-183		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F3-432		45	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F3-461		45	4	DISTRIBUTION	CREOSOTE	Carney	2003	12
F4-21		55	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F4-057		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F4-058		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F4-051		45	4	DISTRIBUTION		Guelph Utility Pole	2003	12
F4-063		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F4-064		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F4-060		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2003	12
F2/D-176		40	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/D-175		50	4	DISTRIBUTION	CREOSOTE	Bell Lumber & Pole	2003	12
F2/72-324		50	H5	DISTRIBUTION	CREOSOTE		2003	12
2ND.ST-04		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
2ND.ST-05		45	4	DISTRIBUTION	CREOSOTE		2004	11
F2/72-035		40	4	DISTRIBUTION	PCP	Guelph Utility Pole	2004	11
F2/BFLY-01		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F3-745		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F2/AW-12	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F2/D-100	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F2/G-25	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F2/G-29	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F2/G-32		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F3-099	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	2004	11
F3-100	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	2004	11
F3-101	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Carney	2004	11
F3-102	WESTERN RED CI	50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F1-172		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-047		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-048		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-049		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-050		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-056		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-052		45	4	DISTRIBUTION	CREOSOTE		2004	11

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F4-053		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-054		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-055		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-061		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-062		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-065		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F4-059		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F2/AL-84		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2004	11
F3-587		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2005	10
F3-588		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2005	10
F3-589		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2005	10
F3-590		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2005	10
F2/AW-10	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2006	9
F2/O.RD-09		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-047		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-073		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/72-074		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/72-075		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/72-076		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/72-077		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/72-037		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-038		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-039		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-040		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-041		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-042		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-043		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-044		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-045		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-046		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/72-069		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/72-070		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/BFLY-04		40	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F3-585		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F3-586		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F3-804		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F3-805		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F3-806		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F3-807		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/72-286		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/AL-34		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8

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F2/D-047		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F2/D-053	WESTERN RED CI	45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2007	8
F3/PF-51		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F3-270		50	4	DISTRIBUTION	CREOSOTE		2007	8
F3-412		45	4	DISTRIBUTION	CREOSOTE	Carney	2007	8
F3-414		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/F.BL-17		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/F.BL-18		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/F.BL-19		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/F.BL-20		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/F.BL-21		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F2/FD-28		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F3-510		50	H5	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2007	8
F1-83		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2008	7
F1-108		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2008	7
1ST.ST-09		40	4	DISTRIBUTION	PCP	Guelph Utility Pole	2008	7
F2/F.BL-08		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2008	7
F2/72-082		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/72-083		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/72-084		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/72-086		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/72-087		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/72-088		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/72-095		40	4	DISTRIBUTION	CREOSOTE		2008	7
F2/VN.RD-7		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/MH-48		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-02		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-03		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-04		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-05		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-06		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-07		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-08		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-09		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-10		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/72-248		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F3-859		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/AL-49	WESTERN RED CI	40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/FD-13		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/AL-26	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/AL-46	WESTERN RED CI	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7

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F1-170		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F3-272		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F3-387		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F3-388		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F3-389		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F1-187		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/B.RD-06		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/AW-24		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F3-271		50	H5	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/72-313		40	H5	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2008	7
F2/D-227	EASTERN WHITE	45		DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2008	7
F2/D-041		45	4	DISTRIBUTION	PCP	North West Pine	2010	5
F2/O.RD-14		45	4	DISTRIBUTION	PCP	Guelph Utility Pole	2011	4
F2/MH-28		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-29		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-30		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-31		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-32		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-34		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-36		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-37		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-40		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-41		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-22		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-23		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-42		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-43		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-44		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-45		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-46		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-47		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-49		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F3-579		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F3-600		45	4	DISTRIBUTION	CREOSOTE	Carney	2011	4
F3-634		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/D-006		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SM-08		40	4	DISTRIBUTION	PCP	North West Pine	2011	4
F1-179		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F3-394		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F1-213		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SR-121		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4

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F2/SR-122		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SR-123		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SR-124		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SR-125		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SR-126		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SR-128		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SR-129		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/SR-130		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/F.BL-11		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/F.BL-12		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/F.BL-13		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/L.RD-34		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2/MH-50		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2011	4
F2-49	EASTERN WHITE	45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
1ST.ST-01	EASTERN WHITE	35	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
1ST.ST-02		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/VN.RD-1		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/MH-02		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/1PH-173		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F3-783		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/FD-11	EASTERN WHITE	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F2/FD-16		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/72-298	EASTERN WHITE	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F2/72-299	EASTERN WHITE	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F2/72-300	EASTERN WHITE	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F2/72-301	EASTERN WHITE	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F2/D-049		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-065		40	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-066		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-067		40	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F2/D-068		45	4	DISTRIBUTION	CREOSOTE	North West Pine	2012	3
F2/D-071		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-073		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-075		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-039		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-054		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-055		35	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-056		35	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-062		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F3/PF-66	EASTERN WHITE	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F3/PF-67	EASTERN WHITE	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3

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F3-021		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F3/PF-49		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-225	EASTERN WHITE	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F2/D-160		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/SM-51		45	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2012	3
F2/D-208	EASTERN WHITE	40	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2012	3
F2/72-304		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2015	0
F3-008	WESTERN RED CI	50	4	DISTRIBUTION	PCP	Guelph Utility Pole	2015	0
F3-897		50	4	DISTRIBUTION	CREOSOTE	Guelph Utility Pole	2015	0
F3-997	YELLOW CEDAR	45	4	DISTRIBUTION	BUTT ONLY	Guelph Utility Pole	2015	0
F2/VN.RD-6		35	4	DISTRIBUTION	CREOSOTE			#VALUE!
F2/72-2185		40	4	DISTRIBUTION	CREOSOTE			#VALUE!
F2/AL-54		40	4	DISTRIBUTION	CREOSOTE			#VALUE!
F2/AL-55		35	4	DISTRIBUTION	PCP	North West Pine		#VALUE!
F2/AL-56		35	4	DISTRIBUTION	CREOSOTE			#VALUE!
F2/AL-57		35	4	DISTRIBUTION	CREOSOTE			#VALUE!
F2/SR-054		35	4	DISTRIBUTION	PCP	North West Pine		#VALUE!
F2/SR-057		45	4	DISTRIBUTION	PCP	North West Pine		#VALUE!
F2/72-334		40	4	DISTRIBUTION	PCP	North West Pine		#VALUE!
F2/D-197		40	4	DISTRIBUTION	CREOSOTE	Carney		#VALUE!
F2/FD-30		40	4	DISTRIBUTION	CREOSOTE	Carney		#VALUE!
F2/D-209	EASTERN WHITE	35	4	DISTRIBUTION	PCP	North West Pine		#VALUE!
F2/D-202	EASTERN WHITE	40		DISTRIBUTION				#VALUE!
F2/D-203	EASTERN WHITE	40		DISTRIBUTION				#VALUE!
F2/AL-89	EASTERN WHITE	45		DISTRIBUTION	PCP	North West Pine		#VALUE!
F2/BFLY-10		40	H5	GUY	PCP	North West Pine	1948	67
F2/D-148		35	4	GUY	PCP	North West Pine	1979	36
F2/BFLY-11		35	H5	GUY	PCP	North West Pine	1979	36
F2/BFLY-12		35	H5	GUY	PCP	North West Pine	1979	36
F2/D-163		35	H4	GUY	PCP		1990	25
F2/D-165		35	H5	GUY	PCP		1990	25
F2/SR-083		45	4	GUY	PCP	North West Pine	1994	21
F2/AW-18		40	4	GUY	CREOSOTE	Guelph Utility Pole	2003	12
F2/BH-11		35	4	GUY	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-12		35	4	GUY	CREOSOTE	Guelph Utility Pole	2008	7
F2/BH-13		35	4	GUY	CREOSOTE	Guelph Utility Pole	2008	7
F2/SR-127		45	4	GUY	CREOSOTE	Guelph Utility Pole	2011	4
F3-339		35	4	SECONDARY	PCP	North West Pine	1949	66
F3-878		35	4	SECONDARY	CREOSOTE	Carney	1949	66

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F3-880		35	4	SECONDARY	CREOSOTE	Carney	1949	66
F3-894		35	4	SECONDARY	PCP	North West Pine	1949	66
F2/BFLY-13		35	H5	SECONDARY	PCP	North West Pine	1949	66
F2/BFLY-14		35	H5	SECONDARY	PCP	North West Pine	1949	66
F2-210	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	1949	66
3RD.ST-02		35	4	SECONDARY	PCP	North West Pine	1955	60
3RD.ST-01		35	4	SECONDARY	CREOSOTE		1955	60
BAY.CR.-01		35	4	SECONDARY	PCP	North West Pine	1955	60
BAY.CR.-02		35	4	SECONDARY	PCP	North West Pine	1955	60
F3-318		35	4	SECONDARY	PCP	North West Pine	1956	59
F3-333		35	4	SECONDARY	CREOSOTE	Carney	1957	58
F3-366		35	4	SECONDARY	CREOSOTE	Carney	1957	58
F3-848		35	4	SECONDARY	CREOSOTE	Carney	1957	58
F3-849		35	4	SECONDARY	CREOSOTE	Carney	1957	58
F3-923	EASTERN WHITE	35	4	SECONDARY	PCP		1957	58
F3-924	EASTERN WHITE	35	4	SECONDARY			1957	58
F3-938	EASTERN WHITE	30	6	SECONDARY		North West Pine	1957	58
F3-398		35	4	SECONDARY	CREOSOTE	Carney	1959	56
F3-408		35	4	SECONDARY	CREOSOTE	Carney	1960	55
F3-831		35	4	SECONDARY	CREOSOTE	Carney	1963	52
F3-832		35	4	SECONDARY	CREOSOTE	Carney	1963	52
F3-833		35	4	SECONDARY	CREOSOTE	Carney	1963	52
W.LANE-04		35	4	SECONDARY	PCP	North West Pine	1966	49
W.LANE-05		35	4	SECONDARY	PCP	North West Pine	1966	49
F3-367		35	4	SECONDARY	CREOSOTE	Carney	1966	49
F3-883		35	4	SECONDARY	PCP	North West Pine	1966	49
F3-884		35	4	SECONDARY	PCP	North West Pine	1966	49
F3-611		35	4	SECONDARY	PCP	North West Pine	1967	48
F3-346		35	4	SECONDARY	CREOSOTE	Carney	1970	45
F2/SR-150	EASTERN WHITE	35	5	SECONDARY	PCP	North West Pine	1970	45
F3-617		35	4	SECONDARY	PCP	North West Pine	1971	44
F3-619		35	4	SECONDARY	PCP	North West Pine	1971	44
F3-615		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-616		35	4	SECONDARY	CREOSOTE	Carney	1972	43
F3-620		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-621		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-623		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-664		35	4	SECONDARY	CREOSOTE	Carney	1972	43
F3-665		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-666		35	4	SECONDARY	CREOSOTE	Carney	1972	43
F3-667		35	4	SECONDARY	CREOSOTE	Carney	1972	43

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F3-668		35	4	SECONDARY	CREOSOTE	Carney	1972	43
F3-869		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-188		35	4	SECONDARY	CREOSOTE		1972	43
F3-199		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-207		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-327		35	4	SECONDARY	PCP	North West Pine	1972	43
F3-960	EASTERN WHITE	35		SECONDARY	BUTT ONLY	North West Pine	1972	43
F3-976	EASTERN WHITE	20		SECONDARY	PCP	UNKNOWN	1972	43
F3-977	EASTERN WHITE	20		SECONDARY	PCP	North West Pine	1972	43
F3-979	EASTERN WHITE	20		SECONDARY	PCP	North West Pine	1972	43
F3-980	EASTERN WHITE	20		SECONDARY	PCP	North West Pine	1972	43
F3-981	EASTERN WHITE	20		SECONDARY	PCP	North West Pine	1972	43
F3-982	EASTERN WHITE	20		SECONDARY	PCP	North West Pine	1972	43
F2/CP-20	EASTERN WHITE	35	3	SECONDARY	PCP	North West Pine	1972	43
P	EASTERN WHITE	35		SECONDARY			1972	43
6TH.AVE-03		35	4	SECONDARY	PCP	North West Pine	1973	42
6TH.AVE-04		35	4	SECONDARY	PCP	North West Pine	1973	42
F3-314		35	4	SECONDARY	PCP	North West Pine	1973	42
F3-401		35	4	SECONDARY	PCP	North West Pine	1973	42
F3-404		35	4	SECONDARY	PCP	North West Pine	1973	42
F3-371		35	4	SECONDARY	PCP	North West Pine	1974	41
F3-372		35	4	SECONDARY	PCP	North West Pine	1974	41
F3-373		35	4	SECONDARY	PCP	North West Pine	1974	41
F3-376		35	4	SECONDARY	PCP	North West Pine	1974	41
F3-837		35	4	SECONDARY	CREOSOTE	Carney	1974	41
F3-838		35	4	SECONDARY	PCP	North West Pine	1974	41
F3-839		45	4	SECONDARY	PCP	North West Pine	1974	41
F3-931	EASTERN WHITE	30	6	SECONDARY	PCP	North West Pine	1974	41
F2/SS-10	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	1974	41
2ND.ST-01		40	4	SECONDARY	PCP	North West Pine	1975	40
2ND.ST-03		45	4	SECONDARY	PCP	North West Pine	1975	40
5TH.AVE-04		35	4	SECONDARY	CREOSOTE		1975	40
2ND.ST-02		40	4	SECONDARY	PCP	North West Pine	1975	40
3RD.ST-09		35	4	SECONDARY	PCP	North West Pine	1975	40
4TH.AVE-05		35	4	SECONDARY	PCP	North West Pine	1975	40
F3-252		40	4	SECONDARY	CREOSOTE		1975	40
F3-854		40	4	SECONDARY	PCP	North West Pine	1976	39
F3-365		35	4	SECONDARY	CREOSOTE	Carney	1976	39
F3-978	EASTERN WHITE	25		SECONDARY	PCP		1976	39
F3-710		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-711		35	4	SECONDARY	PCP	North West Pine	1977	38

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F3-713		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-714		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-322		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-330		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-332		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-337		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-381		35	4	SECONDARY	CREOSOTE	Carney	1977	38
F3-873		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-874		35	4	SECONDARY	PCP	North West Pine	1977	38
F3-359		40	4	SECONDARY	CREOSOTE	Carney	1977	38
F3-892		35	4	SECONDARY	CREOSOTE	Carney	1977	38
F3-962	EASTERN WHITE	45	4	SECONDARY	BUTT ONLY		1977	38
F3-875		35	4	STREETLIGHT	PCP	North West Pine	1977	38
F3-452		35	4	SECONDARY	CREOSOTE	Carney	1978	37
F3-186		35	4	SECONDARY	CREOSOTE		1979	36
F3-819		35	4	SECONDARY	CREOSOTE	Carney	1979	36
F3-448		35	4	SECONDARY	CREOSOTE	Carney	1979	36
F3-622		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-648		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-649		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-650		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-651		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-652		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-653		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-654		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-655		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-863		35	4	SECONDARY	PCP	North West Pine	1980	35
F3-864		35	4	SECONDARY	PCP		1980	35
F3-870		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-703		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-704		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-705		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-715		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-803		35	4	SECONDARY	PCP	North West Pine	1980	35
F3-203		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-205		35	4	SECONDARY	CREOSOTE		1980	35
F3-227		35	4	SECONDARY	PCP	North West Pine	1980	35
F3-229		35	4	SECONDARY	CREOSOTE		1980	35
F3-231		35	4	SECONDARY	CREOSOTE		1980	35
F3-235		35	4	SECONDARY	CREOSOTE		1980	35
F3-237		35	4	SECONDARY	CREOSOTE		1980	35

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F3-239		35	4	SECONDARY	CREOSOTE		1980	35
F3-259		35	4	SECONDARY	PCP	North West Pine	1980	35
F3-824		35	4	SECONDARY	PCP	North West Pine	1980	35
F3-830		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-834		35	4	SECONDARY	PCP	North West Pine	1980	35
F3-835		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-836		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-845		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-881		35	4	SECONDARY	PCP	North West Pine	1980	35
F3-882		35	4	SECONDARY	PCP	North West Pine	1980	35
F3-888		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-889		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F3-890		35	4	SECONDARY		Carney	1980	35
F3-891		35	4	SECONDARY	CREOSOTE	Carney	1980	35
F2/72-314		40	4	SECONDARY	PCP	North West Pine	1980	35
F3-961	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Bell Lumber & Pole	1980	35
F2/72-351	EASTERN WHITE	35		SECONDARY	CCA/PEG		1980	35
3RD.ST-12		35	4	SECONDARY	PCP	North West Pine	1981	34
1ST.ST-12		35	4	SECONDARY	PCP	North West Pine	1981	34
1ST.ST-13		40	4	SECONDARY	PCP	North West Pine	1981	34
1ST.ST-14		40	4	SECONDARY	PCP	North West Pine	1981	34
1ST.ST-15		40	4	SECONDARY	PCP	North West Pine	1981	34
W.LANE-06		40	4	SECONDARY	PCP	North West Pine	1981	34
W.LANE-07		40	4	SECONDARY	PCP	North West Pine	1981	34
F3-812		45	4	SECONDARY	CREOSOTE	Carney	1981	34
F3-813		45	4	SECONDARY	CREOSOTE	Carney	1981	34
F3-814		35	4	SECONDARY	PCP	North West Pine	1981	34
F3-243		35	4	SECONDARY	CREOSOTE		1981	34
3RD.AVE-01		35	4	SECONDARY	PCP	North West Pine	1982	33
F3-190		35	4	SECONDARY	CREOSOTE		1982	33
F3-212		35	4	SECONDARY	PCP	North West Pine	1982	33
F3-350		35	4	SECONDARY	CREOSOTE	Carney	1982	33
F3-354		35	4	SECONDARY	CREOSOTE	Carney	1982	33
F3-357		35	4	SECONDARY	CREOSOTE	Carney	1982	33
F3-982	EASTERN WHITE	20		SECONDARY	PCP	North West Pine	1982	33
F3-794		35	4	SECONDARY	CREOSOTE	Carney	1983	32
F3-312		35	4	SECONDARY	CREOSOTE	Carney	1983	32
F3-320		35	4	SECONDARY	CREOSOTE	Carney	1983	32
F3-262		35	4	SECONDARY	CREOSOTE	Carney	1983	32
F3-263		35	4	SECONDARY	CREOSOTE	Carney	1983	32
F3-264		35	4	SECONDARY	CREOSOTE	Carney	1983	32

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F3-342		35	4	SECONDARY	CREOSOTE	Carney	1983	32
F3-361		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1983	32
F3-362		35	4	SECONDARY	PCP	North West Pine	1983	32
F3-363		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1983	32
F3-386		35	4	SECONDARY	PCP		1984	31
5TH.AVE-03		35	4	SECONDARY	CREOSOTE		1985	30
F3-424		40	4	SECONDARY	CREOSOTE		1985	30
F3-184		35	4	SECONDARY	CREOSOTE		1986	29
F3-920	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY		1986	29
F2/L.RD-10		40	4	SECONDARY	PCP	North West Pine	1987	28
F3-618		45	4	SECONDARY	CREOSOTE	Carney	1988	27
F3-868		35	4	SECONDARY	CREOSOTE	Carney	1988	27
F3-181		35	4	SECONDARY	CREOSOTE		1988	27
F3-182		35	4	SECONDARY	CREOSOTE		1988	27
F3-223		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1988	27
F3-225		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1988	27
F3-316		35	4	SECONDARY	PCP	North West Pine	1988	27
F3-324		35	4	SECONDARY	CREOSOTE	Carney	1988	27
F3-816		35	4	SECONDARY	CREOSOTE	Carney	1988	27
F3-257		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1988	27
F3-447		35	4	SECONDARY	CREOSOTE	Carney	1988	27
F3-454		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1988	27
F3-921	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Bell Lumber & Pole	1988	27
F3-706		35	4	SECONDARY	CREOSOTE	Carney	1989	26
F3-364		50	4	SECONDARY	CREOSOTE	Carney	1989	26
F3-823		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	1989	26
F3-309		40	4	SECONDARY	CREOSOTE	Carney	1990	25
F3-310		40	4	SECONDARY	PCP	Carney	1990	25
F3-360		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1990	25
F2/FD-23		35	4	SECONDARY	PCP		1990	25
6TH.AVE-05		35	4	SECONDARY	PCP		1991	24
2ND.ST-07		35	4	SECONDARY	CREOSOTE		1991	24
F2/SM-43		35	4	SECONDARY	PCP	North West Pine	1992	23
F3-379		45	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1993	22
F2/FAN-07	EASTERN WHITE	35	4	SECONDARY	PCP	North West Pine	1993	22
F3-304		35	4	SECONDARY	CREOSOTE		1994	21
F3-347		35	4	SECONDARY	CREOSOTE	Carney	1995	20
F3-348		35	4	SECONDARY	CREOSOTE	Carney	1995	20
F3-349		35	4	SECONDARY	CREOSOTE	Carney	1995	20
F3-351		35	4	SECONDARY	CREOSOTE	Carney	1995	20
F3-352		35	4	SECONDARY	CREOSOTE	Carney	1995	20

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F3-353		35	4	SECONDARY	CREOSOTE	Carney	1995	20
F3-368		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	1995	20
F2/FAN-06	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Guelph Utility Pole	1995	20
F3-358		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	1996	19
F3/SR-140	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY		1996	19
F2/SR-143	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY		1996	19
F2/AL-83	EASTERN WHITE	35	4	SECONDARY	CCA/PEG		1996	19
F3-245		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-334		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-343		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-344		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-345		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-306		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-374		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-375		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-383		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-384		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F3-385		35	4	SECONDARY	CREOSOTE	Carney	1997	18
F2/D-223	EASTERN WHITE	30		SECONDARY	PCP	North West Pine	1997	18
F2/AL-80		35	4	SECONDARY	PCP		1998	17
F3-407		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	2000	15
F2/AW-22		40	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	2000	15
F2/FD-25		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2000	15
F2/SM-47		35	4	SECONDARY	CREOSOTE	Bell Lumber & Pole	2000	15
F2/D-232	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	2000	15
F2/D-239	EASTERN WHITE	35		SECONDARY	BUTT ONLY	Guelph Utility Pole	2002	13
6TH.AVE-06		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
3RD.ST-08		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
3RD.ST-10		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
3RD.ST-11		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
F3-821		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
F2/AW-19		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
F2/AW-20		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
F2/WP-20		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
F2/WP-24		35	H5	SECONDARY	CREOSOTE	Guelph Utility Pole	2003	12
F2/SR-143	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY		2003	12
F2/AL-86	EASTERN WHITE	45	4	SECONDARY	BUTT ONLY	Bell Lumber & Pole	2003	12
2ND.ST-06		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11
F3-688		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11
F3-689		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11
F3-196		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11

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F3-455		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11
F2/AW-16		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11
F2/AW-17		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11
F2/AW-21		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11
F2/AW-26		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2004	11
F2/D-218	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Guelph Utility Pole	2004	11
F2/AL-80	EASTERN WHITE	40	4	SECONDARY	BUTT ONLY	Guelph Utility Pole	2004	11
F3-210		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2007	8
F2/F.BL-15		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2007	8
F3-932	EASTERN WHITE	35		SECONDARY	BUTT ONLY	Guelph Utility Pole	2007	8
F2/D-231	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Guelph Utility Pole	2007	8
F2/AL-81	EASTERN WHITE	40		SECONDARY	BUTT ONLY	Guelph Utility Pole	2007	8
4TH.AVE-06		40	4	SECONDARY	CREOSOTE		2008	7
4TH.AVE-07		35	4	SECONDARY	PCP	Guelph Utility Pole	2008	7
4TH.AVE-08		35	4	SECONDARY	PCP	Guelph Utility Pole	2008	7
F3-865		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2008	7
F3-876		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2008	7
F3-885		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2008	7
F3-893		40	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2008	7
F3-397		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2011	4
F2/AW-23		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2011	4
F3-895		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2011	4
F3-896		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2011	4
F2/AW-25		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2011	4
F3-712		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2012	3
F3-224		35	4	SECONDARY	CREOSOTE	Guelph Utility Pole	2012	3
F3-935	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Guelph Utility Pole	2012	3
F3-953	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Guelph Utility Pole	2012	3
F3-956	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Guelph Utility Pole	2012	3
F3-987	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY	Guelph Utility Pole	2012	3
F2/SM-46		35	4	SECONDARY	PCP	North West Pine		#VALUE!
F2/72-336		35	4	SECONDARY	PCP	North West Pine		#VALUE!
F2/CP-24	EASTERN WHITE	30	4	SECONDARY	PCP	North West Pine		#VALUE!
F3-912	EASTERN WHITE	35	4	SECONDARY		Guelph Utility Pole		#VALUE!
F3-913	EASTERN WHITE	25	4	SECONDARY				#VALUE!
F3-922	EASTERN WHITE	35	4	SECONDARY	PCP			#VALUE!
F3-925	EASTERN WHITE	35	4	SECONDARY	BUTT ONLY			#VALUE!
F3-926	EASTERN WHITE	25	6	SECONDARY	PCP			#VALUE!
F3-927	EASTERN WHITE	30	6	SECONDARY	PCP	North West Pine		#VALUE!
F3-929	EASTERN WHITE	25		SECONDARY	PCP			#VALUE!
F3-933	EASTERN WHITE	35	4	SECONDARY	PCP	North West Pine		#VALUE!

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F3-934	EASTERN WHITE	30	4	SECONDARY	BUTT ONLY		#VALUE!
F3-936	EASTERN WHITE	35	4	SECONDARY			#VALUE!
F3-940	EASTERN WHITE	40	4	SECONDARY			#VALUE!
F3-957	EASTERN WHITE	25		SECONDARY	BUTT ONLY	North West Pine	#VALUE!
F3-964	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	#VALUE!
F3-966	EASTERN WHITE	20	6	SECONDARY	PCP	North West Pine	#VALUE!
F3-984	EASTERN WHITE	35		SECONDARY	BUTT ONLY		#VALUE!
F3-985		35		SECONDARY	BUTT ONLY		#VALUE!
F3-986	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	#VALUE!
F2/SM-53	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	#VALUE!
F2/D-213	EASTERN WHITE	35		SECONDARY	PCP		#VALUE!
F2/D-222	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	#VALUE!
F2/D-224	EASTERN WHITE	35		SECONDARY	BUTT ONLY		#VALUE!
F2/D-228	EASTERN WHITE	35		SECONDARY	PCP		#VALUE!
F2/D-229	EASTERN WHITE	25		SECONDARY	PCP	North West Pine	#VALUE!
F2/D-230	EASTERN WHITE	25		SECONDARY	PCP	North West Pine	#VALUE!
F2/72-350	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	#VALUE!
F2/AL-82	EASTERN WHITE	35		SECONDARY	PCP	North West Pine	#VALUE!
F2/AL-85	EASTERN WHITE	30		SECONDARY	PCP	North West Pine	#VALUE!
F2/72-352	EASTERN WHITE	40		SECONDARY	BUTT ONLY		#VALUE!
F2/72-353	EASTERN WHITE	30		SECONDARY	PCP	North West Pine	#VALUE!

Appendix C:
SLHI Maintenance Inspection Program

Maintenance Inspection Program

In Accordance to the Requirements of:

Ontario Regulation 22/04 Sections 4 & 5

“Safety Standard/When Safety Standards Met”

And

Ontario Energy Board

Electrical Distribution System Code Appendix C

“Minimum Inspection Requirements”

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Purpose:

The intent of this document is to establish the processes and guidelines to meet the requirements of Ontario Regulation 22/04 Section 4, "Safety Standards", and section 5, "When Safety Standards met" and of the Ontario Energy Board's Distribution System Code Appendix C, "Minimum Inspection Requirements". In addition, this document describes the formal process and protocol that governs the maintenance for overhead, underground and transformer station maintenance.

Inspection Cycles for Overhead and Underground

Sioux Lookout Hydro Inc. (SLHI) ensures that only persons qualified under the Occupation of Health and Safety Act are involved in inspection activities. Since some inspections can expose inspectors to energized lines or high voltage circuits and equipment, and may include inspection and repair, a qualified person is assigned to this work. This assumes that they are both properly trained to protect both themselves and the public, and to respond to those emergencies, which may arise during inspections.

The patrol inspection is defined as follows:

> Patrol or simple visual inspections consisting of walking, driving or flying by equipment to identify obvious structural problems and hazards such as leaning power poles, damaged equipment enclosures, and vandalism. In cases where a patrol notices that a problem exists or identifies a condition that warrants a more thorough or rigorous inspection, patrol may then include situations where structures are opened as necessary, and individual pieces of equipment carefully observed and their condition noted and recorded. The specifics of these inspections would be recorded, and a summary document prepared in the distributor's annual reports as part of their rates or licensing submissions.

In all cases, SLHI ensures that appropriate follow up and corrective action is taken regarding problems identified during a patrol.

SLHI will file both annual summary reports of detailed patrol inspection activities that have taken place during the previous year as well as an outline of inspection plans ("compliance plans") for the forthcoming year.

Inspection cycles are categorized by SLHI's major distribution facilities:

Distribution Transformers
Switching and Protective Devices
Regulators
Capacitors
Conductors and Cables
Vegetation
Poles/Supports
Civil Infrastructure

For each of these facilities SLHI will further distinguish between overhead facilities and underground facilities. SLHI will also separate according to the facilities' location and the relative population density in the locale.

- Rural means those areas that are less populous suburban areas and are outside of a standard metropolitan area. Generally, rural will be defined on a circuit or sub-circuit basis by each utility, as areas with a line density of less than 60 customers per kilometer of line. It is recognized that there may be circumstances where the utility might want to treat something as urban thought it would otherwise be defined as "rural" according to this definition.
- Urban, means areas with higher density and, by definition pose safety and reliability consequences to greater numbers of people.

Line Patrol Inspection Checklist:

Transformers and switching kiosks:

Paint condition and corrosion
Placement on pad or vault
Check for lock and penta bolt in place
Grading changes
Access changes (Shrubs, trees, etc.)
Phase indicators and unit numbers match operating map(where used)
Leaking oil
Flashed or cracked insulators
Pad mounted – lid damage, missing bolts, cabinet damage, public security lock damage

Switching/Protective Devices

Overhead

Bent, broken bushings and cutouts,

Damaged lightning arresters, control boxes, current and potential transformers

Underground

Security and structural condition of enclosure

Pad mounted

Security and structural condition of enclosure

Regulators

Condition of bushings

Tank corrosion/leaks

Damaged disconnect switches or lightning arresters

Capacitors

Conditions of bushings

Tank corrosion/leaks

Damaged cutouts, disconnects or control cabinet

Conductors and Cables

Low conductor clearance

Broken/frayed conductors or tie wires

Tree Conditions, exposed broken ground conductors

Broken strands, bird caging, and excessive or inadequate sag

Insulation fraying on secondary especially open wire

Pole/Supports

Bent, cracked or broken poles

Excessive surface wear or scaling

Loose, cracked or broken cross arms and brackets

Wood pecker or insect damage, bird nests

Loose or unattached guy wires or stubs

Guy strain insulators pulled apart or broken

Guy guards out of position or missing

Grading changes, or washouts

Indications of burning

Hardware and attachments

Loose or missing hardware

Insulators unattached from pins

Conductor unattached from insulators

Insulators flashed over or obviously contaminated (difficult to see)

Tie wires unraveled

Ground wire broken or removed
Ground wire guards removed or broken
Equipment Installations (includes transformers)
Contamination/discoloration of bushings
Oil Leaks
Rust
Ground lead attachments
Ground wires on arrestors unattached
Bird or animal nests
Vines or brush growth interference
Evidence of bushing flashover
Accessibility compromised
Vegetation and Right of Way
Leaning or broken “danger” trees
Growth into line of “climbing” trees
Unapproved/unsafe occupation or secondary use
Civil Infrastructure – For example, buildings that house the equipment may need attention (cracking, fire hazard, etc.). In addition, cable chambers, underground vaults and tunnels crossing the rail track or water are also included in this category. These inspections will be conducted in the patrol of the equipment with which they are “associated”.

Underground Systems:

With respect to underground systems, riser poles will be checked as with an overhead patrol, with a visual check of cable, cable guards, terminators and arrestors. Since underground cable is difficult to check, the system will be checked for exposed cable and/or grading changes that may indicate that the cable or wire has been brought too close to the surface.

Table C-1 below outlines SLHI’s inspection cycles in years. Table C-2 is the inspection report to be completed on an annual basis. Finally Table C-3 is a sample of the patrol deficiency record to be used to document areas of concern.

TABLE C-1 Electric Utility System Inspection Cycles (Maximum Intervals in Years)

Major or Substantial Distribution Facility*	Patrol			Patrol		
Distribution Transformers	**Urban**			**Rural**		
Overhead	3			3		
Submersible	3			3		
Vault	3			3		
Pad Mounted	3			3		
Stations (see note below)	**Outdoor Open**	**Outdoor Enclosed**	**Indoor Enclosed**	**Outdoor Open**	**Outdoor Enclosed**	**Indoor Enclosed**
Transformer Station	n/a	n/a	n/a	n/a	n/a	n/a
Distribution Station	n/a	n/a	n/a	n/a	n/a	n/a
Customer Specific Substation	n/a	n/a	n/a	n/a	n/a	n/a
Lines and Associated Equipment						
Regulators	3			3		
Switching and Protective Devices	3			3		
Capacitors	3			3		
Conductors and Cables						
Overhead	3			3		
Underground	3			3		
Submarine	3			3		
Vegetation	3			3		
Poles	3			3		
Civil Infrastructure	3			3		

TABLE C-2 Sample Line Patrol Inspection Checklist – Poles

Sioux Lookout Hydro Inc. **Line Patrol - Inspection Checklist**

Line Patrolled: From: ___________________________
To: ___________________________

Date: _______________________________ Location: ___________________________

Feeder: _____________________________ Pole #: _______________
____

Bell Canada: ☐
Hydro: ☐

GOOD - Inspection required in three (3) years
FAIR - Inspection required in one (1) year
BAD - Replace within six (6) months

CONDITION DESCRIPTION	GOOD	FAIR	BAD
Leaning Pole			
Cracked Pole			
Broken Pole			
Excessive Surface Wear, Scaling			
Wood Pecker Holes			
Grading Changes or Washouts			
Loose, Cracked, Broken Cross Arms			
Johnny Balls - Cracked, Broken			
Guy Guards Out of Position, Missing			
Insulators Detached From Pins			
Damaged Dead End Insulator			
Conductor Detached From Insulators			
Tie Wire Unravelled			
Conductor Clearance			
Broken Strands, Birdcaging			
Clearance to Trees			

Patrolled By: ____

Signature: ____

TABLE C-3 Sample Line Patrol Inspection Checklist – Overhead and Padmount Transformers

SIOUX LOOKOUT HYDRO INC.			
LINE PATROL INSPECTION CHECKLIST			
OVERHEAD AND PADMOUNT TRANSFORMERS			
	DATE:	____________________	
LOCATION: ____________________________________	YEAR:	____________________	
FEEDER: ____________________________________	KVA:	____________________	
TRANSFORMER #: ____________________________________	SERIAL #:	____________________	
□ OVERHEAD □ UNDERGROUND	IMPEDANCE Z __________________		
GOOD - Inspection required in three (3) years			
FAIR - Inspection required in one (1) year			
BAD - Replace within six (6) months			
CONDITION DESCRIPTION:	**GOOD**	**FAIR**	**BAD**
PAINT CONDITION			
CORROSION			
PLACEMENT ON PAD			
PENTA BOLT IN PLACE			
LOCK IN PLACE AND IN WORKING CONDITION			
GRADING CHANGES, WASHOUTS			
ACCESS TO CHANGE			
ACCESS TO SWITCHING			
CONDITION OF SECONDARY CABLES (HEAT, LOOSE)			
CONDITION OF PRIMARY ELBOW AND CABLE			
PRIMARY CABLE NUMBERS			
SECONDARY CABLE NUMBERS			
LEAKING OIL			
VEGETATION OR TREES			
PAD CONDITION/CABINET DAMAGED			
GROUND WIRE BROKEN OR DISCONNECTED			
STAPLES MISSING ON GROUND WIRE			
MOULDING MISSING ON GROUND WIRE			
CRACKED INSULATORS ON PRIMARY OR SECONDARY BUSSING			
CUT OUT CONDITION (LOOSE)			
ARRESTOR - POLYMOR			
ARRESTOR - PORCELAIN			
15 KV CHANCE CUTOUT - YES □ NO □			

Appendix D:
Service Quality Indicators
Comparators Calculations

Service Quality Indicators - SLHI's Comparator LDCs

2012	Atikokan	Fort Frances	Kenora	Chapleau	Espanola
Including LOS					
SAIDI	4.31	0.3	0.73	0.44	1.13
SAIFI	1.47	0.3	1.46	0.28	0.5
CAIDI	2.92	1.02	0.5	1.54	2.24
Excluding LOS					
SAIDI	0.3	0.3	0.43	0.44	1.13
SAIFI	0.47	0.3	0.46	0.28	0.5
CAIDI	0.64	1.02	0.94	1.54	2.25

2013	Atikokan	Fort Frances	Kenora	Chapleau	Espanola
Including LOS					
SAIDI	3.43	11.37	1.42	2.32	1.05
SAIFI	1.12	3.19	1.11	2.85	0.4
CAIDI	3.07	3.56	1.28	0.81	2.66
Excluding LOS					
SAIDI	3.43	0.1	0.36	2.18	1.05
SAIFI	1.12	0.14	0.11	2.58	0.4
CAIDI	3.07	0.74	3.12	0.85	2.66

2014	Atikokan	Fort Frances	Kenora	Chapleau	Espanola
Including LOS					
SAIDI	0.37	1.18	0.53	5.09	1.27
SAIFI	0.09	1.17	0.29	2.46	2.29
CAIDI	-	-	-	-	-
Excluding LOS					
SAIDI	0.37	1.18	0.53	0.28	0.29
SAIFI	0.09	1.17	0.29	0.38	0.15
CAIDI	-	-	-	-	-

SAIDI Inc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	4.31	0.3	0.73	0.44	1.13	6.91	1.382
2013	3.43	11.37	1.42	2.32	1.05	19.59	3.918
2014	0.37	1.18	0.53	5.09	1.27	8.44	1.688

SAIFI Inc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	1.47	0.3	1.46	0.28	0.05	3.56	0.712
2013	1.12	3.19	1.11	2.85	0.4	8.67	1.734
2014	0.09	1.17	0.029	2.46	2.29	6.039	1.2078

CAIDI Inc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	2.92	1.02	0.5	1.54	2.24	8.22	1.644
2013	3.07	3.56	1.28	0.81	2.66	11.38	2.276
2014	-	-	-	-	-	-	-

SAIDI Exc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	0.3	0.3	0.43	0.44	1.18	2.65	0.53
2013	3.43	0.1	0.36	2.18	1.05	7.12	1.424
2014	0.37	1.18	0.53	0.28	0.29	2.65	0.53

SAIFI Exc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	0.47	0.3	0.46	0.28	0.5	2.01	0.402
2013	1.12	0.14	0.11	2.58	0.4	4.35	0.87
2014	0.09	1.17	0.29	0.38	0.15	2.08	0.416

CAIDI Exc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	0.64	1.02	0.94	1.54	2.25	6.39	1.278
2013	3.07	0.74	3.12	0.85	2.66	10.44	2.088
2014	-	-	-	-	-	-	-

All data derived from the OEB Electricity Distributors Yearbooks

Appendix E:
Vehicle Fleet Inventory and Replacement Planning

Sioux Lookout Hydro Inc.
General Plant Fleet Listing

Private Passenger	Light Truck	Heavy Truck	Other	Make	Model	Year
☐	☒	☐	☐	Chevrolet	CK10753 4x4 EC	2010
☐	☐	☒	☐	International	AM55E	2012*
☐	☐	☒	☐	Freightliner	FL80	2001
☐	☐	☒	☐	Ford	F-S/Duty	2008
☐	☒	☐	☐	GMC	Sierra 4x4 2500	2015
☐	☐	☐	☒	Polaris	Snowmobile	1996
☐	☐	☐	☒	Polaris	Ranger 6x6	2005
☐	☐	☐	☒	EZ Loader	EZKU3750	2005
☐	☐	☐	☒	Kiefer	Cable Trailer	1996
☐	☐	☐	☒	Bandit Chipper	CB90-XP	1999
☐	☐	☐	☒	Pole Trailer	TJWL	1988
☐	☐	☐	☒	BWS Eze-2-Load	25BWS3X	2011
☐	☐	☐	☒	Bobcat	BackHoe Excavator	2012
☐	☐	☐	☒	Ski-Doo	Skandic	2015

*2012 International Bucket Truck lease ends in 2020.

Appendix F:
Underground Cable Testing Report

EnergyOttawa An Affiliate of Hydro Ottawa	TITLE: **Pilot Project Report**

Condition Assessment of Medium Voltage XLPE Underground Cables in Sioux Lookout Hydro's Distribution Network

September 22nd, 2016

Alana Jones, EIT
Testing & Instrumentation Engineer

Philippe Malone, M.Eng., EIT
Testing & Instrumentation Engineer

1. Introduction

Since the deregulation of the power system, the electrical energy market has become more competitive. Utility companies have been continually looking for ways to improve their system while focusing on improved reliability and preserving capital investments. With an increased population of aged infrastructure, one of the main issues that utility companies are consistently facing is ways to assess the true condition of their critical assets.

The underground system across North America has been densely populated with electric power distribution conductors that are insulated with cross-linked polyethylene (XLPE) since the 1960s. A substantial amount of these cables are approaching and even exceeding their nominal life expectancy and thus, a strategic asset management plan to properly manage cable assets must be a priority.

To protect capital investment, an asset management program must address the following issues:

1. Replacement of cables after they reach their end-of-life (wear-out) stage
   Although this option seems logical, the premature replacement of cables without knowing their true condition can result in unnecessary capital loss and loss of service-years.

2. Rejuvenation of cables
   Depending of the health index of the cable, rejuvenation with a dielectric liquid could help to preserve or even improve the dielectric strength of the cable.

3. Maintaining cables in service until failure
   Simply replacing a cable as it fails, causes unplanned outages that result in substantial operational and financial costs and poorer reliability.

In order to maintain a reliable system, utility engineers must keep track of which cables are in good standing and which ones are approaching their end-of-life stage. A condition based asset management approach is achieved by diagnosing the health of XLPE and TR-XLPE underground power cables in the system.

One major cause of power distribution XLPE and TR-XLPE cable failures is the development of water trees within the polymeric insulation. Water trees are small tree shaped channels that develop within the insulation of a cable and propagate in the presence of moisture and impurities under the effect of electric field, making their way into the cable’s insulation. With time, water trees can grow and degrade the quality of the insulation. The dielectric strength of the cable can be reduced due to the presence of water trees in the insulation layer of the cable, leading to unexpected failures under switching and lightning surges.

Aging of XLPE and TR-XLPE cables due to water trees have been thoroughly investigated at National Research Council Canada (NRC). An efficient method was developed accordingly to diagnose the quality of the cables and determine the extent to which water trees have deteriorated the dielectric withstand capability of the XLPE and TR-XLPE cables, namely the NRC

Polarization/Depolarization Current Measurement technique. This technique, with its truly non-destructive approach, supports a reliable asset management decision to prioritize replacement projects and get a better understanding of the population of the cable assets. A diagnostic indicator $\%Q_{Dep}$ was developed to assess the health index of the cable. A higher value of $\%Q_{Dep}$ has shown a consistent correlation with the length and density of water trees found within the insulation. This report provides a condition assessment for XLPE distribution cables in the Sioux Lookout Hydro network, based on the NRC Polarization/Depolarization Current Measurement technique.

2. Description of The Measurement System

The Polarization/Depolarization Current Measurement technique uses three modules to complete the cable testing; the Depolarization Current Measurement Module (DCM), the Instrumentation Module (IM), and the Software Module (SM). A voltage of either 1kV or 3kV, depending on the rating of the tested cable, is applied through the bushing mounted on the DCM during the polarization stage of the testing. The voltage is then switched off and the depolarization current is measured. An oscilloscope, found in the IM, is used to capture the High Frequency (HF) component of the depolarization current waveform. A Keithley electrometer can be used to capture the Low Frequency (LF) component of the waveform but for the purpose of this analysis, only the HF data is used. All of the captured data is sent to the SM through a USB hub for analysis.

The novelty of the NRC on-site cable testing system is in the integration of the fast digitizer and the noise-free solid state switch. This switching technology allows a measurement to be conducted with high signal-to-noise (SNR) ratio, thereby facilitating the detection of the depolarization current components that appear when water trees exist within the cable's insulation.

3. Condition Assessment of the Tested Cables

Seven aged cables in the Sioux Lookout Hydro distribution network were tested with the NRC Polarization/Depolarization Current Measurement method. All cables were approaching vintages of 29 to 35 years with four being unjacketed. As for the diagnostics of the tested cable condition, the determined value of $\%Q_{Dep}$ can be compared to the diagnostic criteria found in Table 1. The diagnostic criteria have been developed by the NRC based on their extensive research and development of this testing method. The tested cables were assessed accordingly as shown in Table 2 and illustrated in Figure 1.

Table 1 – Limits of the %Q_{Dep} Parameter for Various Cable Insulation Conditions

Cable Insulation Condition	Diagnostic Parameter Value
	XLPE Insulation
Good	%Q_{Dep} < 15
Fair	15 ≤ %Q_{Dep} < 43
Poor	%Q_{Dep} ≥ 43

As such, asset management decisions can be taken with respect to the diagnosis determined as the following,

<u>Good Condition</u>: Failure probability due to water treeing is low but could increase and result in insulation failure if voltage transients due to switching operation or lightening surges are not properly controlled. Cable could be repaired and returned to service after failure. If cable failure occurs, it could be due to other causes such as local defects, mechanical damage or termination failure. Cable should be repaired and returned to service.

<u>Fair Condition</u>: Failure probability due to water treeing is moderate and could increase and result in insulation failure if voltage transients due to switching operation or lightening surges are not properly controlled. Cable could be repaired and returned to service after failure. However, the cable should be re-tested every 3 to 5 years to keep track of the on-going water tree deterioration.

<u>Poor Condition</u>: Failure probability due to water treeing is extremely high and any repair to the cable would be short lived. The cables in this category should be scheduled for early replacement.

Table 2 – Summary of Calculated 2016 Cable Testing Results for Sioux Lookout Hydro

Cable	Device 1	Device 2	Phase	Conductor Material	Rating (kV)	System Voltage (kV)	Size	Length (m)	Jacketed	Commissioning Year	%Q_{Dep}	Diagnostic Test Result
1	TO-563	TO-562	W	Al	25	25	1/0	207	No	Early 1980’s	30	Fair
2	TO-562	TO-561	W	Al	25	25	1/0	122	No	Early 1980’s	28	Fair
3	TO-561	S-537	W	Al	25	25	1/0	112	No	Early 1980’s	28	Fair
4	Submarine – W – Spare	Submarine – W – Spare	W	Cu	25	25	4/0	860	No	1987	0	Good
5	Submarine – R	Submarine – R	R	Cu	25	25	4/0	875	Yes	1987	7	Good
6	Submarine – W	Submarine – W	W	Cu	25	25	4/0	952	Yes	1987	6	Good
7	Submarine – B	Submarine – B	B	Cu	25	25	4/0	960	Yes	1987	6	Good

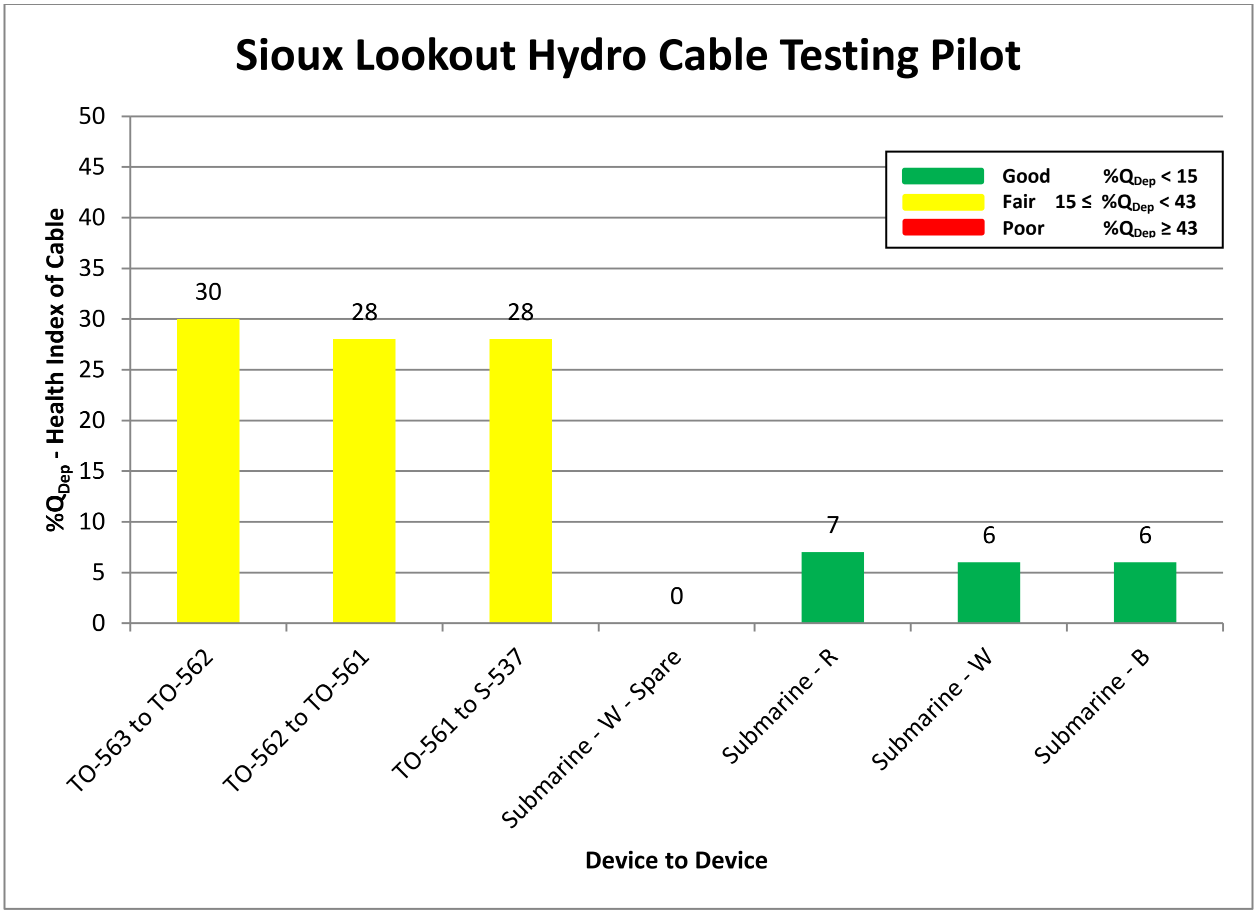

Figure 1 – Health Index Assessment of XLPE Cable in Sioux Lookout Hydro's Network

Based on the results shown in Table 2, the cables tested were 29 to 34 years of age and approaching their nominal end of life. Four cable segments were diagnosed in Good and three in Fair condition using NRC's Polarization/Depolarization Current Measurement method, giving 57% of cables in Good condition, 43% in Fair condition and no cables in Poor condition. This indicates that there is not always a direct correlation between cable age and its insulation condition. In addition, the assessed cable conditions will allow the asset manager to prioritize wisely and use capital and operational budgets on cable replacement or rejuvenation activities, rather than just solely depending on the nominal age.

4. Conclusions and Recommendations

Four of the cables tested in Sioux Lookout were found in Good condition and three in Fair condition when diagnosed using the NRC's Polarization/Depolarization Current Measurement method. Accordingly, the following general recommendations can be made;

Good Condition: Failure probability due to water treeing is low but could increase and result in insulation failure if voltage transients due to switching operation or lightening surges are not properly controlled. Cable could be repaired and returned to service after failure. If cable failure occurs, it could be due to other causes such as local defects, mechanical damage or termination failure. Cable should be repaired and returned to service.

Fair Condition: Failure probability due to water treeing is moderate and could increase and result in insulation failure if voltage transients due to switching operation or lightening surges are not properly controlled. Cable could be repaired and returned to service after failure. However, the cable should be re-tested every 3 to 5 years to keep track of the on-going water tree deterioration.

Appendix B – West of Thunder Bay IRRP

WEST OF THUNDER BAY SUB-REGION
INTEGRATED REGIONAL RESOURCE PLAN

Part of the Northwest Ontario Planning Region | July 27, 2016

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Connecting Today. Powering Tomorrow.

Integrated Regional Resource Plan

West of Thunder Bay

This Integrated Regional Resource Plan ("IRRP") was prepared by the Independent Electricity System Operator ("IESO") pursuant to the terms of its Ontario Energy Board electricity licence, EI-2013-0066.

This IRRP was prepared on behalf of the West of Thunder Bay Sub-region Working Group (the "Working Group"), which included the following members:

- Independent Electricity System Operator
- Hydro One Networks Inc. (Distribution)
- Hydro One Networks Inc. (Transmission)
- Fort Frances Power Corporation
- Atikokan Hydro Inc.
- Kenora Hydro Electric Corporation Ltd.
- Sioux Lookout Hydro Inc.

The Working Group assessed the reliability of electricity supply to customers in the West of Thunder Bay Sub-region over a 20-year period; developed a flexible, comprehensive, integrated plan that considers opportunities for coordination in anticipation of potential demand growth scenarios and varying supply conditions in the West of Thunder Bay Sub-region; and developed an implementation plan for the recommended options, while maintaining flexibility in order to accommodate changes in key assumptions over time.

The Working Group members agree with the IRRP's recommendations and support implementation of the plan, subject to obtaining necessary regulatory approvals. Where growth in the sub-region is directly related to potential large industrial developments, the onus lies with those developers to initiate the implementation of the plan.

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List of Abbreviations

Atikokan Hydro	Atikokan Hydro Inc.
CDM or Conservation	Conservation and Demand Management
CEP	Community Energy Plan(s)
CFF	Conservation First Framework
CHP	Combined Heat and Power
C&S	Codes and Standards
DR	Demand Response
DG	Distributed Generation
EA	Environmental Assessment
EE	Energy Efficiency
Fort Frances Power	Fort Frances Power Corporation
GHG	Greenhouse Gas
Hydro One	Hydro One Networks Inc.
IAP	Industrial Accelerator Program
ICI	Industrial Conservation Initiative
IESO	Independent Electricity System Operator
IRRP	Integrated Regional Resource Plan
Kenora Hydro	Kenora Hydro Electric Corporation Ltd.
kV	Kilovolt
kW	Kilowatt
LAC or Committee	Local Advisory Committee
LDC	Local Distribution Company
LMC	Load Meeting Capability
LTEP	Long-Term Energy Plan
MW	Megawatt
NERC	North American Electric Reliability Corporation
NPCC	Northeast Power Coordinating Council
OEB or Board	Ontario Energy Board

OPA	Ontario Power Authority
ORTAC	Ontario Resource and Transmission Assessment Criteria
PPWG	Planning Process Working Group
PPWG Report	Planning Process Working Group Report to the Board
RIP	Regional Infrastructure Plan
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
Sioux Lookout Hydro	Sioux Lookout Hydro Inc.
TOU	Time-of-Use
TS	Transformer Station
TWh	Terawatt Hours
Working Group	Technical Working Group for the West of Thunder Bay IRRP
QUEST	Quality Urban Energy Systems of Tomorrow

1. Introduction

This Integrated Regional Resource Plan ("IRRP") for the West of Thunder Bay Sub-region addresses the electricity needs for the sub-region over the next 20 years ("study period") from 2015-2034. The IRRP was prepared by the Independent Electricity System Operator ("IESO") on behalf of the Technical Working Group (the "Working Group") for the West of Thunder Bay Sub-region composed of the IESO, Hydro One Networks Inc. (Hydro One Distribution and Hydro One Transmission[1]), Atikokan Hydro Inc. ("Atikokan Hydro"), Kenora Hydro Electric Corporation Ltd. ("Kenora Hydro"), Fort Frances Power Corporation ("Fort Frances Power"), and Sioux Lookout Hydro Inc. ("Sioux Lookout Hydro").

The area covered by the West of Thunder Bay IRRP is a sub-region of the Northwest Ontario Region identified through the Ontario Energy Board ("OEB" or "Board") regional planning process. This sub-region is defined as the area bordered to the south and west by the United States and Manitoba borders respectively, and extending north to include the City of Kenora, the City of Dryden and the Municipality of Sioux Lookout, and east as far as (but not including) the City of Thunder Bay, and does not include the area North of Dryden. This sub-region is characterized by:

- **Diverse communities**: In addition to the "unorganized areas"[2] in the Kenora and Rainy River Districts, there are 26 First Nation communities and 16 municipalities included in this sub-region, all of which are listed in Section 4.1. Each community has local priorities and distinct electricity needs. Many of these communities are engaging in community energy planning activities.

- **Mining, pulp and paper and other industrial developments:** Industrial customers are major electricity consumers in this sub-region and are sensitive to varying economic conditions, such as commodity price and changes in economic growth. Often these factors can lead to material changes in their annual electricity demand and uncertainty in the sub-region's electricity demand forecast.

- **Large geographical area:** Long and expansive transmission and distribution infrastructure is required to bring electricity supply to the various communities and customers across this sub-region. The geography and sparsely populated areas make it challenging and costly to develop and maintain infrastructure.

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[1] For the purpose of this report, "Hydro One Transmission" and "Hydro One Distribution" are used to differentiate the transmission and distribution accountabilities of Hydro One Networks Inc., respectively.

[2] Unorganized areas are parts of the province where there is no municipal level of government. Services in these unorganized districts are typically administered by local service boards.

- **Complex electricity infrastructure network:** The sub-region's electricity system is comprised of a 230 kilovolt ("kV") bulk system, 115 kV regional system, local distribution networks and variable, local generation resources. The system is interconnected with Manitoba and Minnesota. This system not only supplies the communities and customers in the West of Thunder Bay Sub-region, it also provides an important source of supply to the North of Dryden Sub-region. The interactions between these interconnections and the bulk, regional and distribution network will have an impact on the reliability of supply for the West of Thunder Bay Sub-region.

This IRRP took into consideration the characteristics discussed above. Given the uncertainties associated with the timing and magnitude of potential industrial developments, the Working Group identified regional electricity needs and solutions under three demand forecast scenarios (Reference, High and Low) as described in Section 5.3.4., and developed a flexible, comprehensive, integrated plan to accommodate these potential scenarios. The challenges, costs and lead times required to develop and maintain infrastructure in this sub-region were also taken into consideration in the development of the plan.

The primary focus of this IRRP is to identify and address electricity reliability needs on the 115 kV regional transmission systems in the sub-region. Given the complex nature of the electricity system and the diverse needs in this sub-region, bulk, distribution and community energy planning activities are also underway. To facilitate coordination of the various electricity planning activities in this sub-region, this IRRP also documents and considers bulk and distribution system needs and community planning activities. Section 3 describes the types of electricity planning in Ontario and the linkages between them, as well as, how important it is to coordinate regional planning with bulk and distribution system and community energy planning.

This IRRP fulfills the requirements for the sub-region as required by the IESO's OEB electricity licence. IRRPs are required to be reviewed on a 5-year cycle so that plans can be updated to reflect the changing electricity outlook. This IRRP will be revisited in 2021, or earlier if significant changes occur relative to the current forecast.

This IRRP report is organized as follows:

- A summary of the recommended plan for the West of Thunder Bay Sub-region is provided in Section 2;
- The process used to develop the plan is discussed in Section 3;

- The context for electricity planning in the West of Thunder Bay and the study scope are discussed in Section 4;
- Demand forecast scenarios, and conservation and demand management ("CDM" or "conservation") and distributed generation ("DG") assumptions are described in Section 5;
- Needs in West of Thunder Bay are presented in Section 6;
- Options to address regional and local needs are addressed in Section 7;
- Recommended actions are set out in Section 8;
- A summary of community, indigenous and stakeholder engagement to date is provided in Section 9; and
- A conclusion is provided in Section 10.

2. The Integrated Regional Resource Plan

The West of Thunder Bay IRRP addresses the sub-region's electricity needs over the next 20 years, based on application of the IESO's Ontario Resource and Transmission Assessment Criteria ("ORTAC"). The IRRP was developed in consideration of a number of factors, including reliability, cost, technical feasibility and also the diverse needs and unique characteristics of the sub-region. Given the uncertainty associated with the demand forecast, the Working Group identified regional electricity needs and solutions under various demand scenarios and developed a flexible, comprehensive, integrated plan for these varying conditions.

In addition to regional planning, bulk, distribution and community energy planning activities are also underway in the sub-region. While these activities are beyond the scope of the regional planning process, they were identified and taken in consideration in the development of this IRRP.

The needs and recommended actions are summarized below.

The 20-Year Plan (2015-2034)

Aside from the potential need for additional supply on the 230 kV bulk transmission system, the Working Group did not identify any major regional 115 kV supply and reliability needs in the West of Thunder Bay Sub-region under Low and Reference scenarios. Under the High scenario, there is the potential need for an additional 50 MW of supply on the Dryden 115 kV sub-system.

Given the uncertainty with the location, timing and magnitude of demand growth, early development work for major infrastructure projects is not required at this time. Instead, the Working Group has sought to lay the ground work for the next planning cycle by exploring potential options for the Dryden 115 kV sub-system and monitoring demand growth closely to determine if and when an investment decision on the Dryden 115 kV sub-system would be required. End-of-life replacements/sustainment activities and transformer station capacity needs were also identified in this area, but these are not expected to have regional implications. Options to address the 230 kV bulk transmission system needs are being considered as part of the bulk system planning process led by the IESO.

In this sub-region, many communities and customers are supplied by long transmission and distribution networks and rely on a single supply source. They are concerned about service reliability and performance. The transmission and distribution service reliability performances of the West of Thunder Bay Sub-region are within the provincial service reliability and performance standards. Communities and customers may consider working with Hydro One Transmission and local distribution companies ("LDCs") to explore opportunities to further improve transmission and distribution service reliability and performance. Cost-benefit and cost-responsibility for investments will need to be considered.

A number of communities in this sub-region are also in the process of developing community-energy plans ("CEPs"). While regional planning focuses on maintaining reliability of electricity supply, CEPs takes into consideration other energy uses, such as transportation, natural gas and electricity. CEPs also have different goals, including net zero energy, electrification, and reducing emissions. Since CEP and regional planning processes have different objectives and scope, greater coordination between community energy planning and regional planning processes is required to help provincial system and municipal planners develop a common understanding of growth and local developments and to identify opportunities to develop community-based energy solutions.

Recommended Actions

1. Monitor electricity demand growth closely to determine if and when an investment decision for the Dryden 115 kV sub-system is required

On an annual basis, the Working Group will review electricity demand growth in the West of Thunder Bay and the North of Dryden Sub-regions with the members of the Local Advisory Committees ("LACs"). This information will be used to determine if and when an investment decision for the Dryden 115 kV sub-system is required.

2. Ensure communities are informed of bulk and distribution planning activities in the West of Thunder Bay Sub-region

The Working Group will provide a status update at LAC meetings on bulk and distribution planning activities and associated projects.

3. Explore opportunities to further improve service reliability and power quality in consideration of cost-benefit and cost allocations

Communities and customers who are looking to further improve service reliability and performance may work with Hydro One Transmission and LDCs to develop transmission, distribution and community energy solutions. The cost and benefit of improvements and how costs would be allocated will need to be considered.

4. Coordinate regional and community energy planning activities

Greater coordination between community energy planning and regional planning processes can inform dialogue on energy issues and can assist provincial system planners and local communities in developing a common understanding of the growth and local developments and in identifying opportunities to develop community-based energy solutions. Going forward, LAC meetings can be used as an opportunity to facilitate discussions on: (1) status of local growth and developments, (2) local planning priorities, (3) energy planning activities, (4) impact of supply interruptions, and (5) the potential, feasibility and challenges of implementing community-based energy solutions. Due to the unique energy planning challenges in northwestern Ontario, it would be helpful to identify initiatives to facilitate knowledge sharing and coordinate community energy planning activities in northern Ontario (e.g., a community energy planning webinar or workshop for communities in northern Ontario).

3. Development of the Integrated Regional Resource Plan

3.1 The Regional Planning Process

In Ontario, planning to meet the electricity needs of customers at a regional level is done through regional planning. Regional planning assesses the interrelated needs of a region—defined by common electricity supply infrastructure—over the near, medium, and long term and develops a plan to ensure cost-effective, reliable electricity supply. Regional plans consider the existing electricity infrastructure in an area, forecast growth and customer reliability, evaluate options for addressing needs, and recommend actions.

Regional planning has been conducted on an as needed basis in Ontario for many years. Most recently, the former Ontario Power Authority ("OPA") carried out planning activities to address regional electricity supply needs. The OPA conducted joint regional planning studies with distributors, transmitters, the IESO and other stakeholders in regions where a need for coordinated regional planning had been identified.

In the fall of 2012, the Board convened a Planning Process Working Group ("PPWG") to develop a more structured, transparent, and systematic regional planning process. This group was composed of industry stakeholders including electricity agencies, utilities, and stakeholders, and in May 2013, the PPWG released its report to the Board[3] ("PPWG Report"), setting out the new regional planning process. Twenty-one electricity planning regions were identified in the PPWG Report, and a phased schedule for completion was outlined. The Board endorsed the PPWG Report and formalized the process timelines through changes to the Transmission System Code and Distribution System Code in August 2013, as well as through changes to the OPA's licence in October 2013. The OPA's licence changes required it to lead a number of aspects of regional planning. After the merger of the IESO and the OPA on January 1, 2015, the regional planning responsibilities identified in the OPA's licence were transferred to the IESO.

The regional planning process begins with a Needs Screening performed by the transmitter, which determines whether there are needs requiring regional coordination. If regional planning is required, the IESO then conducts a Scoping Assessment to determine whether a comprehensive IRRP is required, which considers conservation, generation, transmission, and

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[3] http://www.ontarioenergyboard.ca/OEB/_Documents/EB-2011-0043/PPWG_Regional_Planning_Report_to_the_Board_App.pdf

distribution solutions, or whether a more limited "wires" solution is the only option such that a transmission and distribution focused Regional Infrastructure Plan ("RIP") can be undertaken instead. The Scoping Assessment assesses what type of planning is required for each region. There may also be regions where infrastructure investments do not require regional coordination and so can be planned directly by the distributor and transmitter outside of the regional planning process. At the conclusion of the Scoping Assessment, the IESO produces a report that includes the results of the Needs Screening process and a preliminary Terms of Reference. If an IRRP is the identified outcome, the IESO is required to complete the IRRP within 18 months. If an RIP is the identified outcome, the transmitter takes the lead and has six months to complete it. It should be noted that a RIP may be initiated after the Scoping Assessment or after the completion of all IRRPs within a planning region; the transmitter may also initiate and produce a RIP report for every region. Both RIPs and IRRPs are to be updated at least every five years. The draft Scoping Assessment Outcome Report is posted to the IESO's website for a 2-week comment period prior to finalization.

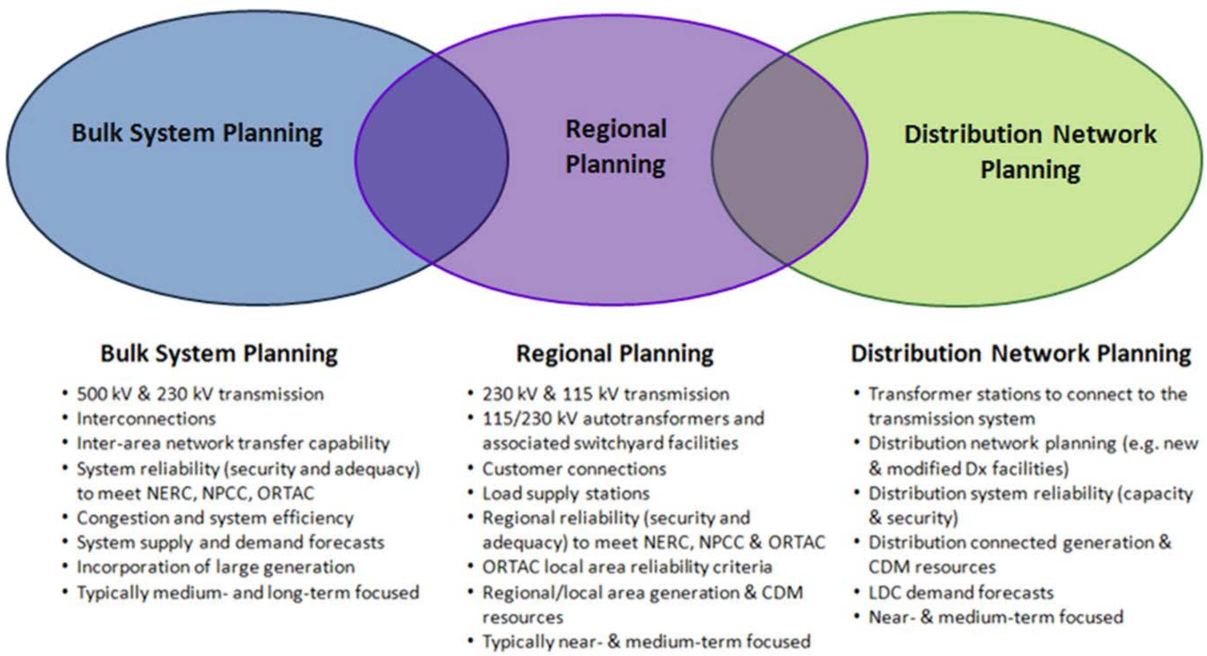
The final IRRPs and RIPs are posted on the IESO's and relevant transmitter's websites, and may be referenced and submitted to the Board as supporting evidence in rate or "Leave to Construct" applications for specific infrastructure investments. These documents are also useful for municipalities, First Nations communities and Métis community councils for planning, conservation and energy management purposes, as information for individual large customers that may be involved in the region, and for other parties seeking an understanding of local electricity growth, CDM and infrastructure requirements. Regional planning is not the only type of electricity planning that is undertaken in Ontario. As shown in Figure 3-1, there are three levels of planning that are carried out for the electricity system in Ontario:

- Bulk system planning
- Regional system planning
- Distribution system planning

Planning at the bulk system level typically considers the 230 kV and 500 kV network and examines province-wide system issues. Bulk system planning considers not only the major transmission facilities or "wires", but it also assesses the resources needed to adequately supply the province. This type of planning is typically carried out by the IESO pursuant to government policy. Distribution planning, which is carried out by LDCs, considers specific investments in an LDC's territory at distribution level voltages.

Regional planning can overlap with bulk system planning. For example, overlaps can occur at interface points where there may be regional resource options to address a bulk system issue. Similarly, regional planning can overlap with the distribution planning of LDCs. For example, overlaps can occur when a distribution solution addresses the needs of the broader local area or region. Therefore, it is important for regional planning to be coordinated with both bulk and distribution system planning as it is the link between all levels of planning.

Figure 3-1: Levels of Electricity System Planning



By recognizing the linkages with bulk and distribution system planning, and coordinating multiple needs identified within a region over the long term, the regional planning process provides a comprehensive assessment of a region's electricity needs. Regional planning aligns near- and long-term solutions and puts specific investments and recommendations coming out of the plan in perspective. Furthermore, regional planning optimizes ratepayer interests by avoiding piecemeal planning and asset duplication, and allows Ontario ratepayer interests to be represented along with the interests of LDC ratepayers, and individual large customers. IRRPs evaluate the multiple options that are available to meet the needs, including conservation, generation, and "wires" solutions. Regional plans also provide greater transparency through engagement in the planning process, and by making plans available to the public.

3.2 The IESO's Approach to Integrated Regional Resource Planning

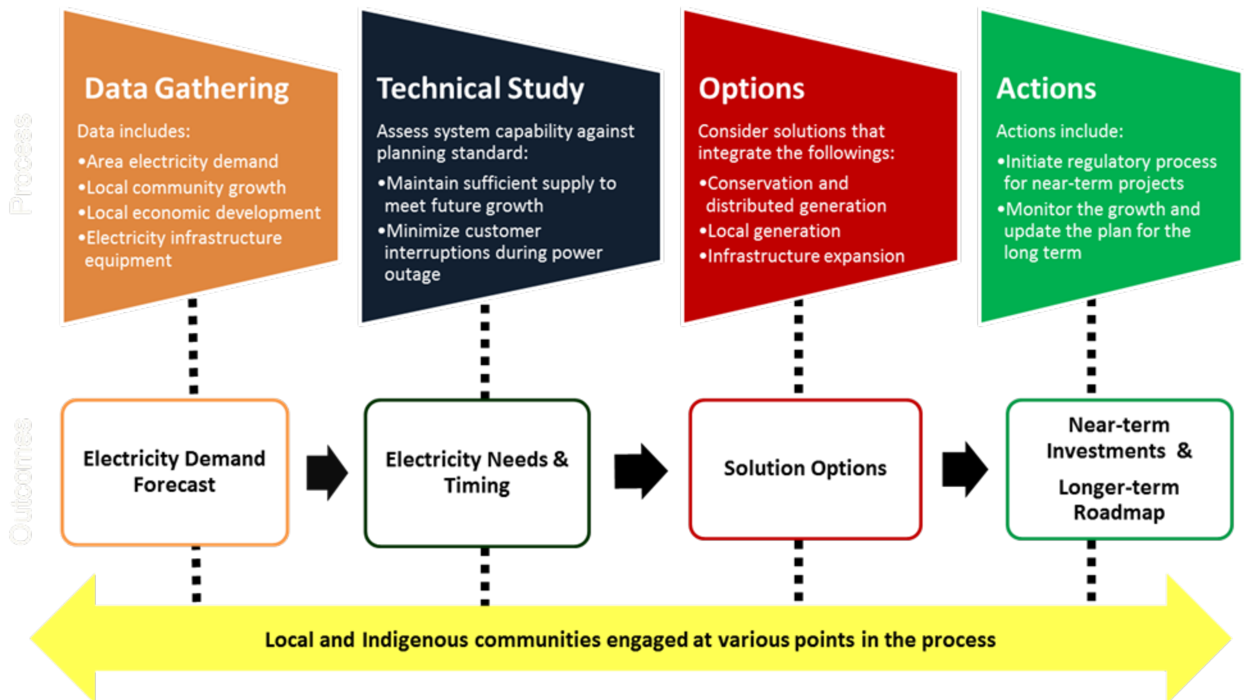
IRRPs assess electricity system needs for a region over a 20-year period. The 20-year outlook anticipates long-term trends in a region, so that near-term actions are developed within the context of a longer-term vision. This enables coordination and consistency with the long-term plan, rather than simply reacting to immediate needs.

Planning in northwestern Ontario requires a unique approach. In southern Ontario, most of the forecast load growth is driven by growth in the LDC customer base. In northwestern Ontario the majority of the forecast load growth is driven by new or expanding large transmission-connected industrial customers, the majority of which are in the resource sector or are unique development projects. Therefore, when establishing the need for electricity enhancements and developing integrated alternatives, industrial customers generally drive the nature and magnitude of the electrical demand requirements.

The IRRP describes the Working Group's recommendations for system enhancements based on different scenarios. The Working Group also recommends staging options to mitigate reliability and cost risks related to demand forecast uncertainty associated with individual large customers. The recommendations of the IRRP seek to ensure flexibility is maintained such that changing long-term conditions may be accommodated.

In developing this IRRP, the Working Group followed a number of steps. These steps included: data gathering, including development of electricity demand forecasts; technical studies to determine electricity needs and the timing of these needs; the development of potential options; and, preparation of a recommended plan including actions for the near and longer term. Throughout this process, engagement was carried out with local municipalities, First Nation communities, Métis community councils and local stakeholders. These steps are illustrated in Figure 3-2 below.

Figure 3-2: Steps in the IRRP Process



This IRRP documents the inputs, findings, and recommendations developed through the process described above, and provides recommended actions for the various entities responsible for plan implementation.

3.3 West of Thunder Bay Sub-region Working Group and IRRP Development

In 2014, the lead transmitter – Hydro One Transmission– initiated a Needs Screening process for the Northwest Ontario Region. The North of Dryden IRRP[4] and Remote Community Connection Plan[5] were already underway prior to the formalization of the regional planning process and were therefore not included within the scope of the Needs Screening process. The Northwest Ontario Region Needs Screening study team determined that the need for coordinated regional planning had already been established, and that a formal Needs Screening process was not required for the Northwest Ontario Region. A Scoping Assessment was then initiated to identify new planning sub-regions within the Northwest Ontario Region that were not already identified in previous planning studies.

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[4] http://www.ieso.ca/Pages/Ontario's-Power-System/Regional-Planning/Northwest-Ontario/North-of-Dryden.aspx
[5] http://www.ieso.ca/Pages/Ontario's-Power-System/Regional-Planning/Northwest-Ontario/Remote-Community-Connection-Plan.aspx

On December 12, 2014, a draft Scoping Assessment Outcome Report (“Scoping Report”) was posted for public comment. The Scoping Report was finalized on January 28, 2015, and it incorporated feedback from community, stakeholder, and First Nation and Métis community meetings. The Scoping Report identified the West of Thunder Bay Sub-region as one of three new planning sub-regions for coordinated regional planning, as illustrated in Figure 3-3.

Figure 3-3: Northwest Ontario Region and Sub-regions

Subsequently, the Working Group was formed to carry out the IRRP for the West of Thunder Bay Sub-region.

For the purpose of regional planning, two LACs have been established for this sub-region: a General LAC and a First Nation LAC. The LACs were informed of the planning activities in the area and provided their input on the status of local growth and developments, local planning priorities, energy planning activities (e.g., community energy planning), local electricity concerns, and opportunities to implement community-based energy solutions. Greater detail regarding community and stakeholder engagement activities is provided in Section 9 of this report.

4. Background and Study Scope

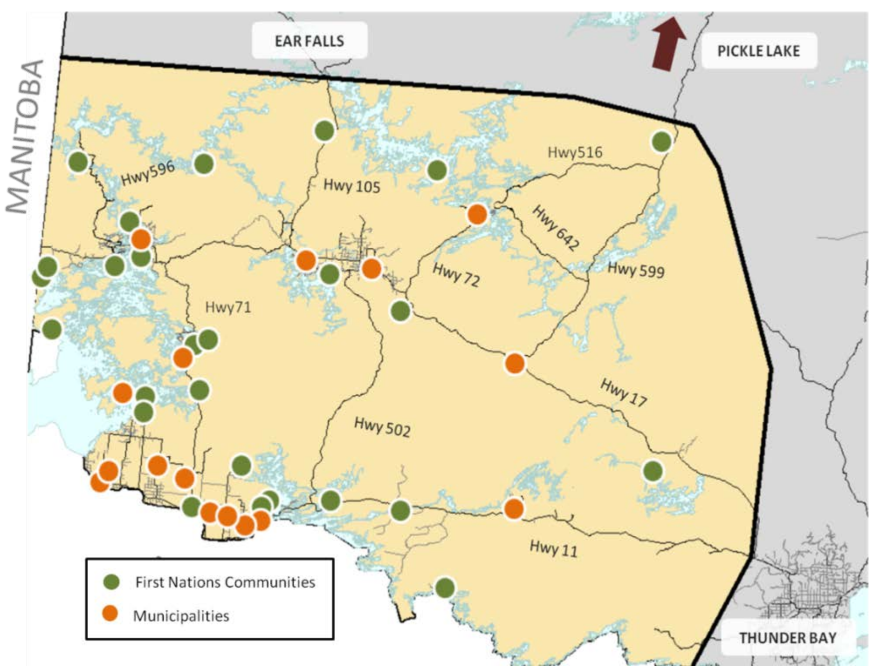
The sub-region and the scope of the IRRP are described in Section 4.1. Section 4.2 details the electricity system supplying the West of Thunder Bay Sub-region.

4.1 West of Thunder Bay - Study Scope

The West of Thunder Bay IRRP assesses the reliability of the regional electricity system supplying the West of Thunder Bay Sub-region and identifies integrated solutions for the 20-year period from 2015 to 2034.

The West of Thunder Bay Sub-region is defined as the area bordered to the south and west by the United States and Manitoba borders; it extends north to include Kenora, Dryden and Sioux Lookout, and east as far as (but not including) the City of Thunder Bay; the study area does not include the area north of Dryden[6]. The approximate geographical boundaries of the sub-region are shown in Figure 4-1.

Figure 4-1: Geographical Boundaries of the West of Thunder Sub-region



[6] The North of Dryden IRRP published in 2015 addresses the reliability of the electricity system supplying the North of Dryden sub-region (see http://www.ieso.ca/Documents/Regional-Planning/Northwest_Ontario/North_of_Dryden/North-Dryden-Report-2015-01-27.pdf)

The West of Thunder Bay Sub-region includes the following First Nations:

- Anishinabe of Wauzhushk Onigum
- Anishinaabeg of Naongashiing
- Big Grassy
- Couchiching
- Eagle Lake
- Grassy Narrows
- Iskatewizaagegan #39
- Lac Des Mille Lacs
- Lac La Croix
- Lac Seul
- Mitaanjigamiing
- Naicatchewenin
- Naotkamegwanning
- Nigigoonsiminikaaning
- Northwest Angle #33
- Northwest Angle #37
- Obashkaandagaang
- Ochiichagwe'Babigo'Ining
- Ojibway Nation of Saugeen
- Ojibways of Onigaming
- Rainy River
- Seine River
- Shoal Lake #40
- Wabaseemoong
- Wabauskang
- Wabigoon Lake Ojibway

The sub-region also includes the following municipalities:

- Township of Alberton
- Town of Atikokan
- Township of Chapple
- Township of Dawson
- Township of Emo
- Town of Fort Frances
- Township of Lake of the Woods
- Township of La Vallee
- Township of Morley

- Town of Rainy River
- City of Dryden
- City of Kenora
- Municipality of Machin
- Municipality of Sioux Lookout
- Township of Ignace
- Township of Sioux Narrows-Nestor Falls

In addition, there are a number of unorganized areas[7] in the Rainy River and Kenora Districts.

This IRRP addresses the reliability of the 115 kV regional transmission systems. The reliability of the 230 kV bulk transmission system and distribution systems supplying the area is beyond the scope of the regional planning process and this IRRP. 230 kV Bulk system and distribution system related concerns are for context referenced in Section 6.3, but they will be formally addressed through the bulk system and distribution systems planning processes.

It is important to note that connection assessment of generation resources for procurement programs, such as the Feed-in-Tariff and, the Large Renewable Procurement, are beyond the scope of this IRRP. Generation projects participating in procurement programs will be assessed according the rules and specifications of the procurement programs.

4.2 West of Thunder Bay Electricity System

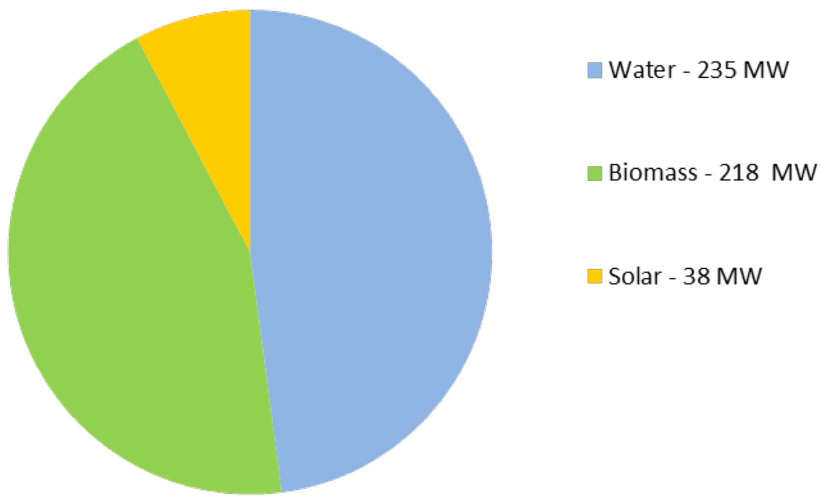
The West of Thunder Bay electricity system consists of local generation resources, 230 kV bulk transmission, 115 kV regional transmission and low voltage distribution networks. Local generation resources provide important sources of electricity supply to the communities and customers in this sub-region. However, under certain system conditions (e.g., generation outages or if electricity demand exceeds the capability of local generation), local generation sources would need to be supplemented with power delivered to the sub-region from the rest of the province through the 230 kV bulk transmission system. From the 230 kV bulk transmission system, power is then delivered to various communities and customers through the regional 115 kV and low-voltage distribution networks. The following sub-sections discuss these components in more details.

[7] Unorganized areas are parts of the province where there is no municipal level of government. Services in these unorganized districts are typically administered by local service boards.

4.2.1 Local Generation Resources

There are three types of generation resources totaling to about 491 Megawatts ("MW") in the West of Thunder Bay Sub-region: hydroelectric (water), biomass and solar, as shown in Figure 4-2.

Figure 4-2: Installed Capacity of Generation Resources in the West of Thunder Bay Sub-region (MW)



In Ontario, the electricity system is designed to meet regional coincident peak demand – i.e., the 1-hour period each year when total demand for electricity in the region (or sub-region) is the highest. While hydroelectric, biomass and solar resources are a potential source of energy, only a certain amount of power can be relied upon at the time of peak due to the variable nature of these resources. In the West of Thunder Bay Sub-region, electricity demand typically peaks during the evening in the winter season. For the purposes of infrastructure planning, the installed capacity of distributed and variable generation is adjusted to reflect the reliable power output at the time of the local winter peak.

Below is a description of local generation resources in the West of Thunder Bay Sub-region.

- **Hydroelectric (Water):** Hydroelectric resources account for almost 50 percent of the installed capacity in the sub-region (about 235 MW). While there are a number of small scale hydroelectric generators, the major facilities, Caribou and Whitedog Generating Stations, are situated in the Kenora area. All hydroelectric resources in this sub-region are run-of-river facilities and have limited storage capability. As such, hydroelectric output is highly variable and is dependent on water conditions. During drought and low water conditions, power output is reduced to less than a third of the installed capacity. In some cases, high waters and flooding conditions may also reduce the power output from these facilities.

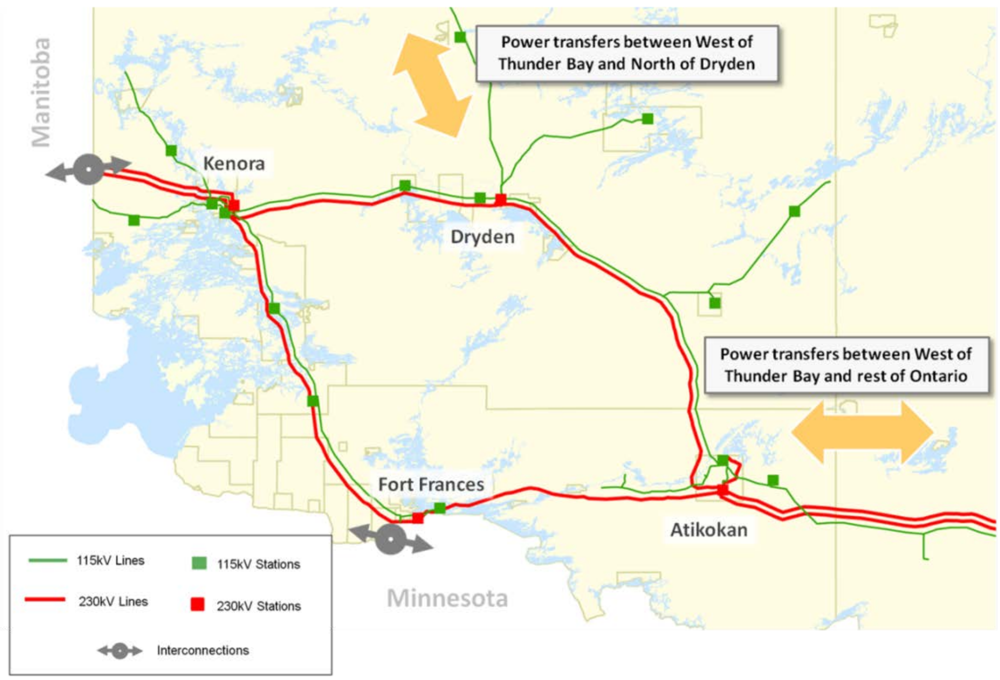
- **Biomass:** In 2014, the coal-fired generation facility at Atikokan was converted to burn biomass (wood pellets). This facility currently is contracted with the IESO until 2024 and has the capacity to generate up to 200 MW. Based on the current contract terms, the facility purchases up to 90,000 tonnes of biomass fuel annually. The forecast fuel availability will limit energy production to 140 GWh per year and may limit the amount of hours it can operate at the maximum capacity. For the purpose of this IRRP, it is assumed that Atikokan facility may operate as a merchant facility upon expiration of the contract. There are currently two merchant biomass generation facilities near Dryden and Fort Frances.

- **Solar:** A 25 MW transmission-connected solar facility is in operation in the Rainy River area. Many communities have also installed small-scale, distribution-connected solar facilities. Today, solar resources account for a small portion of the local, installed capacity. Solar is an intermittent resource and power output can vary depending on factors such as cloud cover, location, time of day, and season. As the local peak typically occurs during the evening in the winter, solar resources are not expected to contribute to the reduction of the local peak demand.

4.2.2 Transmission System

The transmission system in the sub-region consists of 230 kV and 115 kV lines and stations, as shown in Figure 4-3.

Figure 4-3: West of Thunder Bay Sub-region – Transmission System



The West of Thunder Bay transmission system is interconnected with Manitoba at Kenora and with Minnesota at Fort Frances. The interconnections with Manitoba and Minnesota handle transfers scheduled on an economic basis to address provincial needs and are not relied upon for maintaining local reliability. As the electricity system in this area is a source of supply to the North of Dryden Sub-region, its electricity requirements are affected by the potential growth in the area north of Dryden.

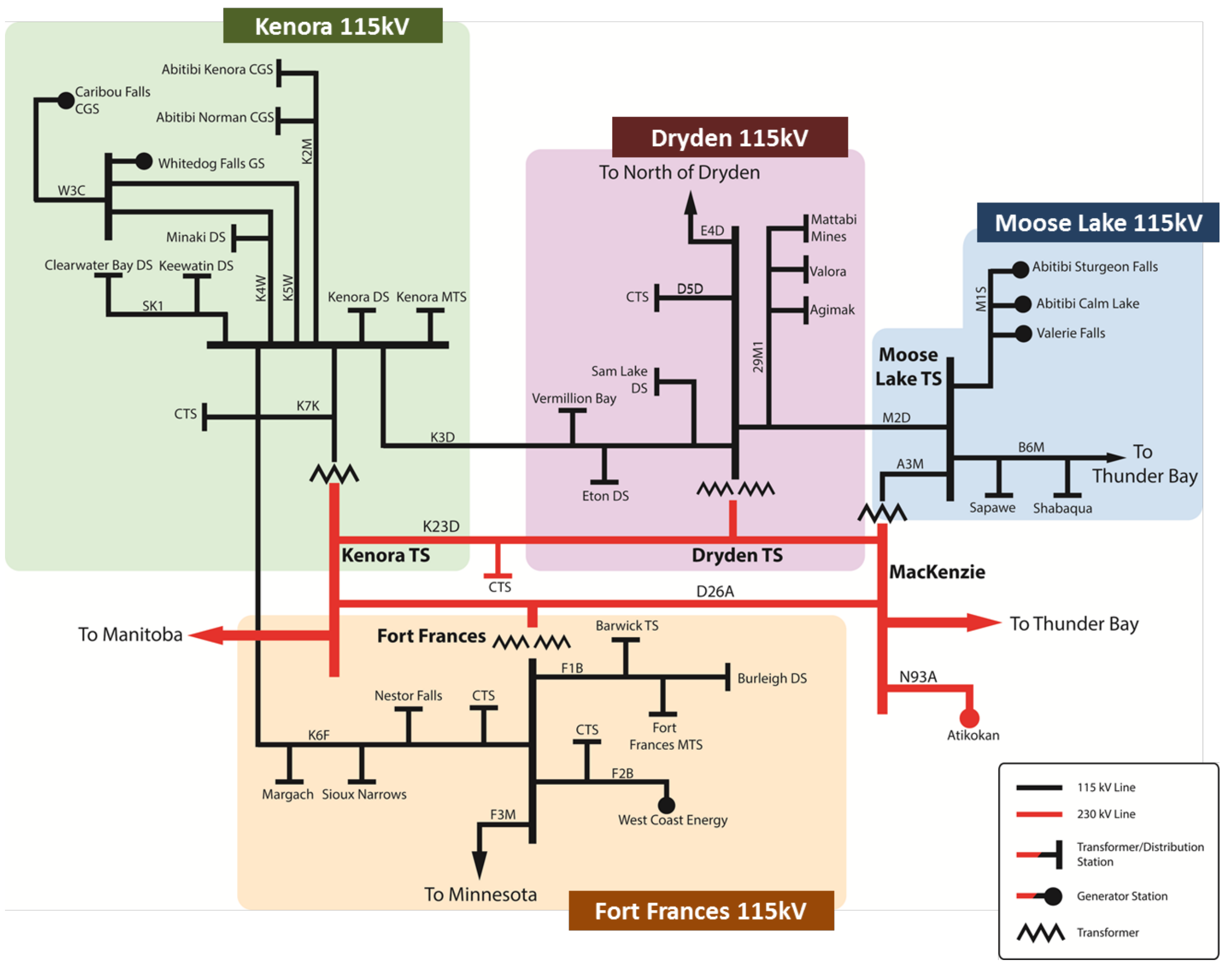
The West of Thunder Bay transmission system can be broken down into two components: 230 kV bulk transmission system and 115 kV regional sub-systems. These components are described in more detail below.

230 kV Bulk Transmission System

The bulk transmission system consists of a double circuit 230 kV line and a single-circuit 115 kV line between Thunder Bay and Atikokan. These lines bring power into the West of Thunder Bay Sub-region to supplement local generation resources. To the west of Atikokan, a diamond-shaped, 230 kV bulk transmission network connects to Fort Frances, Dryden and Kenora. There are step-down stations that connect to local 115 kV networks at Kenora, Fort Frances, Dryden and Atikokan. Issues related to the bulk system are for context discussed in this IRRP, but these issues will be addressed as part of bulk transmission system planning.

Regional 115 kV Sub-systems

Figure 4-4: Regional 115 kV Sub-systems in the West of Thunder Bay Sub-region



The regional 115 kV sub-systems (as shown in Figure 4-4) enable power to be delivered to communities and customers in the West of Thunder Bay Sub-region. There are four 115 kV sub-systems in the sub-region:

- **Dryden 115 kV sub-system:** Today, this sub-system provides up to 65 MW of power to customers and communities in the Dryden and surrounding areas and supplies up to 68 MW to the North of Dryden Sub-region through the 115 kV line from Dryden to

Ear Falls. The two 230 kV/115 kV autotransformers at Dryden are the primary sources of supply into this sub-system. This sub-system also includes 115 kV connection lines to the Kenora and Atikokan areas.

- **Kenora 115 kV sub-system**: The Kenora and surrounding areas are supplied by this 115 kV sub-system. Today, this sub-system has a winter peak demand of about 60 MW. In addition to the 230 kV/115 kV autotransformer at Kenora, this sub-system relies on local hydroelectric facilities, including Norman, Caribou and Whitedog, as the main sources of electricity supply. This sub-system also has 115 kV connections to Fort Frances and Dryden.

- **Fort Frances 115 kV sub-system:** During the winter season, this sub-system provides up to 75 MW of supply to customers and communities in the Fort Frances and surrounding areas. This sub-system is supplied by local hydroelectric facilities and the two 230 kV/115 kV autotransformers at Fort Frances and has 115 kV connections to Kenora and Minnesota.

- **Moose Lake 115 kV sub-system:** Today, this sub-system provides up to 13 MW of electricity supply to customers and communities in the Atikokan and surrounding areas. While this sub-system is primarily supplied by the two 230 kV/115 kV autotransformers near Atikokan, the 115 kV connections to Dryden and Thunder Bay and the small hydroelectric facilities also provide electricity supply.

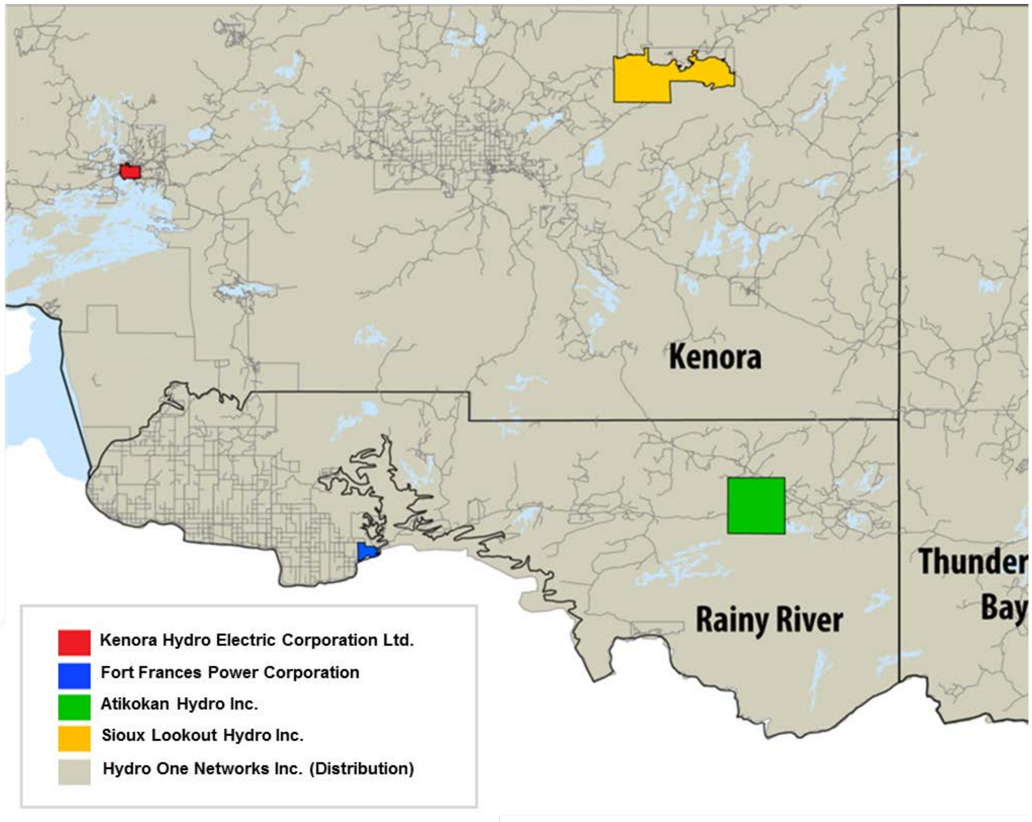
The focus of this IRRP will be on the reliability of the 115 kV regional sub-systems in the West of Thunder Bay Sub-region.

4.2.3 Distribution System

From the regional 115 kV sub-systems, power is delivered through transformer stations to the low-voltage distribution systems. There are 36 customer and utility-owned transformer stations that service the various communities and industrial customers in this sub-region. Given the large geographic and sparsely populated areas, many communities and customers in the West of Thunder Bay Sub-region are supplied by long distribution lines and a single source of supply.

The low-voltage distribution system is managed and operated by five LDCs: Atikokan Hydro, Fort Frances Power Corporation, Kenora Hydro, Sioux Lookout Hydro, and Hydro One Networks (Distribution), as shown in Figure 4-5.

Figure 4-5: Local Distribution Companies (LDCs) Service Area



Distribution system planning is beyond the scope of the regional planning process. Issues related to the distribution system may for context be discussed in this IRRP, but they will be addressed as part of the distribution planning process led by the LDCs.

The details regarding the characteristics of the LDC service areas can be found in Appendix A.

5. Demand Forecast

Regional electricity systems in Ontario are designed to meet regional coincident peak demand – the one-hour period each year when total regional demand for electricity is the highest.

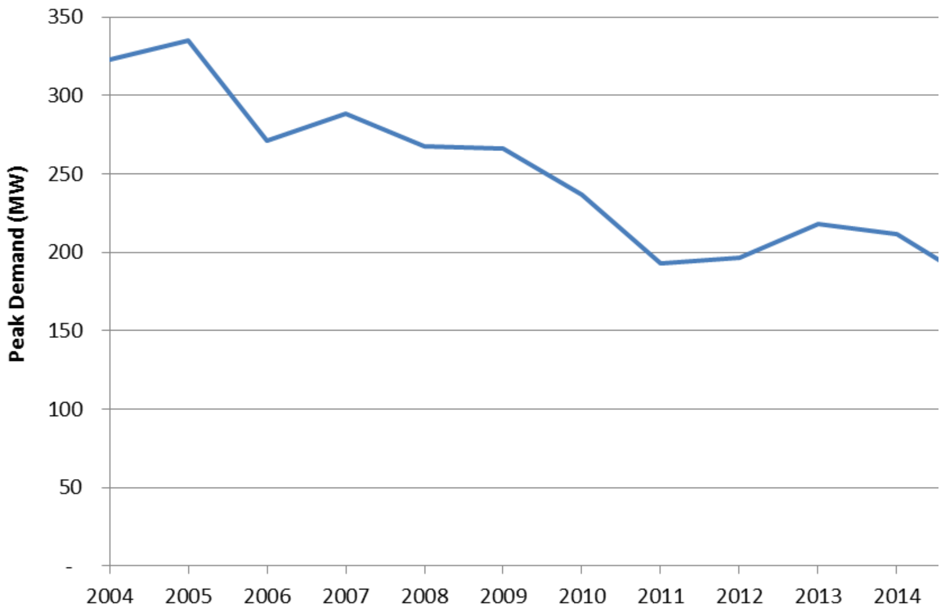
This section describes the development of the regional electricity demand forecast for the West of Thunder Bay Sub-region. Section 5.1 describes electricity demand trends in the sub-region from 2004 to 2014. Section 5.2 provides an overview of the demand forecast methodology used in this study, and Section 5.3 summarizes the various demand scenarios.

5.1 Historical Electricity Demand 2004-2014

The West of Thunder Bay Sub-region's peak electrical demand typically occurs during the evening in the winter. This is driven by a large electrical heating demand in the residential sector as access to natural gas in the area is limited.

In addition to the heating requirements from the residential sector, there are a number of large industrial customers in the pulp and paper and forestry sectors. These industrial customers consume a large amount of energy on a continuous basis; however, they are sensitive to changing economic conditions (e.g., commodity prices, changes in economic growth) which can have material impacts on annual energy demand. As shown in Figure 5-1, historical winter peak demand in the sub-region has decreased from a high of 335 MW in 2005 to a low of 210 MW in 2014. This decline in electrical load is primarily due to the closure of numerous large industrial customers in the pulp and paper sectors.

Figure 5-1: West of Thunder Bay Sub-region Historical Peak Demand (2004-2014)



5.2 Methodology for Establishing Planning Forecast Scenarios

Demand forecast scenarios were developed to assess reliability of the West of Thunder Bay electricity system over the planning period. For the purpose of regional planning, these demand scenarios take into consideration a number of components:

- Gross winter demand forecast scenarios for distribution-connected and transmission-connected customers,
- Estimated peak demand savings from meeting provincial energy conservation targets, and
- Expected peak capacity contribution from DG.

Gross demand forecast scenarios were developed based on the expected peak demand projections for distribution-connected and transmission-connected customers in the West of Thunder Bay Sub-region. For each scenario, these growth projections are modified to reflect the estimated peak demand savings from meeting provincial energy conservation targets and from existing and contracted DG.

Using a planning forecast that is net of provincial conservation targets is consistent with the province's Conservation First policy. However, this assumes that the targets will be met and that the targets, which are energy-based, will produce the expected local peak demand impacts.

An important aspect of plan implementation will be monitoring the actual peak demand impacts of conservation programs delivered by the local LDCs and, as necessary, adapting the plan accordingly.

The methodology and assumptions used for the development of the demand forecast scenarios are described in detail in Appendix A.

5.3 Development of Planning Forecast

5.3.1 Gross Demand Forecast Scenarios

The gross demand forecast is based on the gross electricity requirements for distribution-connected customers and transmission-connected customers in the sub-region.

Distribution-Connected Customers

The gross demand forecast for distribution-connected customers is provided by the five LDCs in the West of Thunder Bay Sub-region. Overall, the growth in electricity demand forecast from distribution-connected customers is expected to remain relatively modest. Most of the growth is attributed to requirements from small industrial customers, such as biomass pellet plants and saw mills, community development associated with the new gold mine near Rainy River and population growth in First Nations communities. Descriptions of the LDCs' forecast assumptions and methodology can be found in Appendix A.

Transmission-Connected Customers

The gross demand forecast for transmission-connected customers is developed based on information gathered from transmission-connected industrial customers. The IESO and Hydro One Transmission regularly communicate with existing and potential transmission-connected industrial customers to understand their electricity demand requirements and their operation and development status.

Over the planning period, the demand growth in the West of Thunder Bay Sub-region will be primarily driven by large, transmission-connected industrial customers, including gold mines near Rainy River and Dryden, and the proposed gas to oil pipeline development. New transmission-connected industrial customers could potentially add up to 300 MW of incremental electricity demand by 2034. As discussed, industrial customers are particularly sensitive to the changes in economic conditions. The timing, location and scale of industrial developments is uncertain and will depend on a number of external factors, such as the commodity price of the resource, the economic viability of the industrial project, and the ability to secure capital. Often these factors can lead to material increases or decreases in annual demand. For example, due to declining gold prices, the development of a prospective, large gold mine near Atikokan, with peak demand requirements of up to 125 MW, was suspended in 2014. Other developments, by contrast, are proceeding. For example, a new gold mine near Rainy River, with a peak demand requirement of up to 60 MW, is currently under construction and should be in operation by 2017.

Since these changes are often difficult to anticipate, a scenario based approach was used to ensure the sub-region's electricity system is able to adequately supply electricity to industries and communities under various assumptions and conditions. Three scenarios (Reference, High and Low) are described in Section 5.3.4.

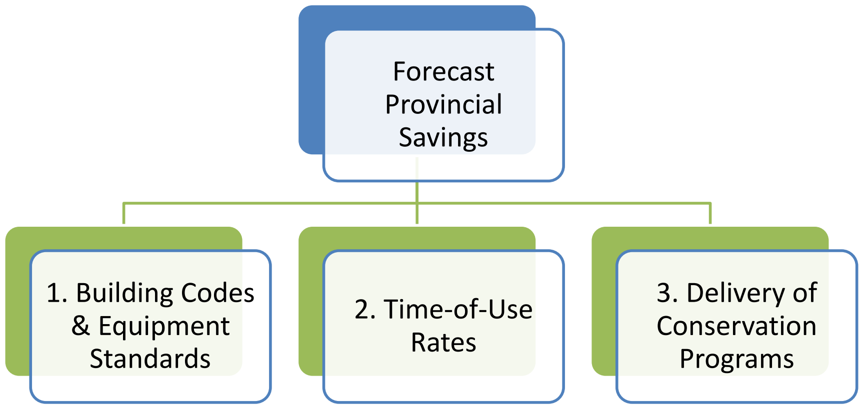
The specific forecasting methodology and assumptions for the gross demand forecast scenarios can be found in Appendix A.

5.3.2 Expected Peak Demand Savings from Provincial Conservation Targets

Conservation is the first resource considered in planning, approval and procurement processes. It plays a key role in maximizing the utilization of existing infrastructure and maintaining reliable supply by keeping demand within equipment capability. Conservation is achieved through a mix of program-related activities, rate structures, and mandated efficiencies from building codes and equipment standards. The conservation savings forecast for the sub-region have been applied to the gross peak demand forecast, along with DG resources (described in Section 5.2), to determine the planning forecast for the sub-region.

In December 2013 the Ministry of Energy released a revised Long-Term Energy Plan ("LTEP") that outlined a provincial conservation target of 30 terawatt-hours ("TWh") of energy savings by 2032. A portion of this province-wide energy conservation target was allocated to the West of Thunder Bay Sub-region, and, as further described below, it was further converted to an estimated peak demand reduction for the sub-region. To estimate the impact of the conservation savings in the area, the forecast provincial savings were divided into three main categories, as shown in Figure 5-2:

Figure 5-2: Categories of Conservation Savings



1. *Savings due to Building Codes & Equipment Standards*
2. *Savings due to Time-of-Use Rate structures*
3. *Savings due to the delivery of Conservation Programs*

The 2013 LTEP committed to establishing a new 6-year Conservation First Framework ("CFF") beginning in January 2015 to enable the achievement of all cost-effective conservation. In the near term, Ontario's LDCs have an aggregate energy reduction target of 7 TWh, as well as individual LDC specific targets. These targets are to be achieved between 2015 and the end of 2020 through LDC conservation programs enabled by the CFF. In 2015, each LDC submitted a CDM plan to the IESO describing how the targets will be achieved. LDCs are also required to provide updates to their CDM plans.

As part of the Conservation First policy, the provincial government has adopted a broad definition of conservation that includes various types of customer action and behind-the-meter generation. This means that conservation includes any programs or mechanisms that reduce the amount of energy consumed from the provincial electricity grid. Conservation initiatives, including behind-the-meter generation projects and on-site generation, are expected to reduce customers' reliance on the provincial electricity grid and contribute to peak demand savings in the sub-region. Conservation initiatives, including behind-the-meter generation projects and on-site generation, are expected to reduce customers' reliance on the provincial electricity grid and contribute to peak demand savings in the sub-region.

For the purpose of this IRRP, the allocation of the 7 TWh of provincial energy savings target to the West of Thunder Bay Sub-region is estimated to offset approximately 14 MW of the forecast peak demand between 2015 and 2034. Savings from potential future demand response ("DR") resources are not included in the forecast. Instead, the development of locally targeted DR projects may be considered as potential solutions to address future needs.

The estimated annual peak demand savings from the provincial energy conservation targets in the West of Thunder Bay Sub-region are summarized in Appendix A.

5.3.3 Expected Peak Demand Contribution of Existing and Contracted Distributed Generation

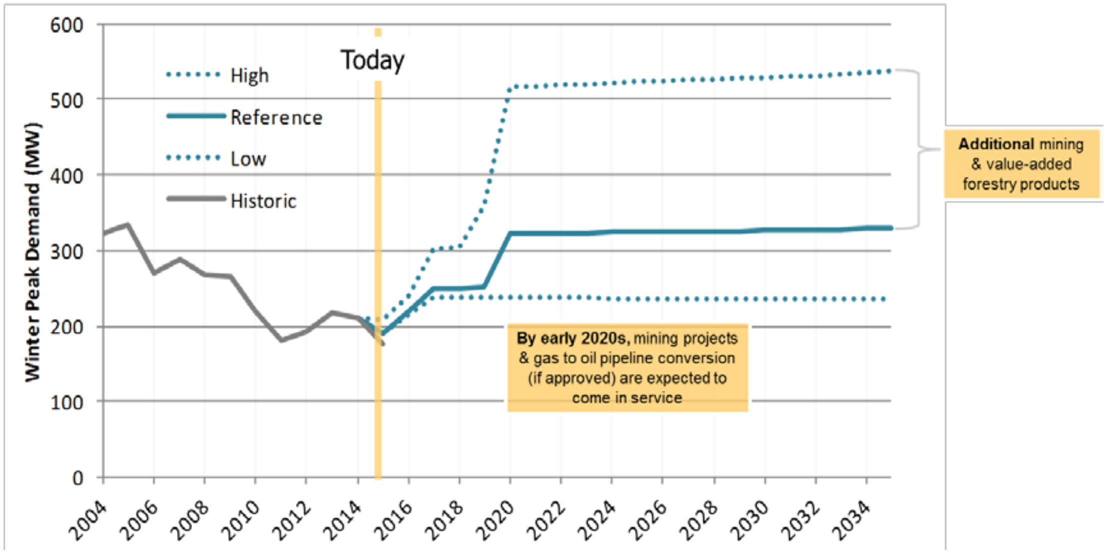
As of 2015, about 38 MW of DG was contracted in the West of Thunder Bay Sub-region. For the purpose of developing the planning forecast, contracted DG is expected to reduce the regional peak demand by about 1.5 MW over the next 20 years. Future DG uptake was, as noted, not included in the planning forecast and is instead considered as an option for meeting identified needs.

The expected annual peak demand contribution of contracted DG in the West of Thunder Bay Sub-region can be found in Appendix A.

5.3.4 Planning Forecast

A scenario-based approach was used to account for the uncertainty in the demand forecast. Figure 5-3 shows planning demand scenarios for the West of Thunder Bay Sub-Region (2015 to 2034, using a base year of 2014). The scenarios represent plausible outcomes that must be considered in planning for the electricity needs of the sub-region. The demand forecast scenarios shown below take into consideration the gross demand forecast scenarios, estimated peak demand savings from provincial energy conservation targets, and existing and contracted DG.

Figure 5-3: Planning Forecast Scenarios [8]



<u>**Reference scenario**</u>

Under the Reference scenario, the winter peak electricity demand in the West of Thunder Bay Sub-region is expected to increase to 330 MW over the planning period. As shown in Figure 5-3, by the mid-2020s, the peak demand will be similar to 2004 levels. The growth includes two transmission-connected mining developments near the Dryden and Rainy River areas. Together, these developments could increase regional electricity demand by up to 70 MW.

For the purpose of regional planning, it is also assumed that the proposed gas to oil pipeline development will be approved and that four oil pumping stations will be supplied from the West of Thunder Bay transmission system under the Reference scenario. The pumping stations would each require approximately 15 to 18 MW of electricity supply by 2020.

<u>**High scenario**</u>

In addition to the growth identified in the Reference scenario, the High scenario assumes more transmission-connected mining developments and the recovery of the local pulp and paper industry, for example the restart of the mill in the Fort Frances area. The electricity demand from the proposed gas to oil pipeline development is expected to increase as a total of six oil pumping stations will be supplied from the West of Thunder Bay transmission system under

[8] West of Thunder Bay Sub-region demand forecast does not include growth in the North of Dryden Sub-region. The demand forecast for the North of Dryden Sub-region is discussed in Section 5.4.

this scenario. With these additional developments, the total demand could grow to 540 MW by the end of the study period.

Low scenario

Aside from the above-mentioned mining development in the River Rainy area, no additional mining development is expected to materialize under the Low scenario. It is assumed that the proposed gas to oil pipeline development will not proceed. This scenario results in a relatively flat electricity demand growth over the planning period.

Further details related to the demand forecast scenarios can be found in Appendix A.

5.4 Potential Growth in the North of Dryden Sub-region

The West of Thunder Bay electricity system is a major source of supply to the North of Dryden Sub-region, capable of transferring up to 85 MW via through the 115 kV line from Dryden to Ear Falls. In 2015, the winter peak demand in the North of Dryden area was about 68 MW.

Based on the North of Dryden IRRP published in 2015[9], up to 170 MW of additional demand growth could materialize in the North of Dryden Sub-region and would require supply from the West of Thunder Bay 230 kV bulk transmission system. Depending on the location, magnitude and timing of these potential developments in the North of Dryden Sub-region, this could have an impact on the 115 kV Dryden regional sub-system.

The North of Dryden IRRP recommends building a new 230 kV line to Pickle Lake to support the potential developments in the North of Dryden Sub-region including connection of 21 remote First Nation communities. With the new 230 kV line to Pickle Lake, up to 120 MW of incremental demand from new mining developments and remote communities north and northeast of Pickle Lake would be supplied directly from the 230 kV West of Thunder Bay bulk transmission system. The remaining growth in the Red Lake and Ear Falls area (up to 50 MW of incremental demand), which includes the remote communities north of Red Lake, would be supplied directly from the Dryden 115 kV sub-system. To ensure that the West of Thunder Bay electricity system has sufficient capacity to serve growth in the West of Thunder Bay and North of Dryden Sub-regions, the potential growth and development in the area north of Dryden is taken in to consideration in the development of this IRRP.

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[9] http://www.ieso.ca/Documents/Regional-Planning/Northwest_Ontario/North_of_Dryden/North-Dryden-Report-2015-01-27.pdf

6. Needs

This section outlines the needs assessment methodology and identifies regional electricity supply and reliability needs over the 20-year planning period. In addition, other electricity needs and considerations at the bulk, distribution and community levels are also discussed in this section.

6.1 Needs Assessment Methodology

The IESO's ORTAC,[10] the provincial standard for assessing the reliability of the transmission system, was applied to assess supply capacity and reliability needs. ORTAC includes criteria related to the assessment of the bulk transmission system, as well as the assessment of local or regional reliability requirements (see Appendix B for more details).

Through the application of these criteria, three broad categories of needs can be identified:

- **Transformer Station Capacity** is the electricity system's ability to deliver power to the local distribution network through the regional transformer stations. This is limited by the load meeting capability ("LMC") of the step-down transformer stations in the local area, which is the maximum demand that can be supplied from the transformer stations based on their combined transformer station ratings.
- **Supply Capacity** is the electricity system's ability to provide continuous supply to a local area. This is limited by the LMC of the transmission line or sub-system, which is the maximum demand that can be supplied on a transmission line or sub-system under applicable transmission and generation outage scenarios as prescribed by ORTAC; it is determined through power system simulations analysis (See Appendix B for more details). Supply capacity needs are identified when peak demand on a transmission line or sub-system exceeds its LMC.
- **Load Security and Restoration** is the electricity system's ability to minimize the impacts of potential supply interruptions to customers in the event of a major transmission outage, such as an outage on a double-circuit tower line resulting in the loss of both circuits. Load security describes the amount of load susceptible to supply interruptions in the event of a major transmission outage. Load restoration describes the electricity system's ability to restore power to those affected by a major transmission outage within

[10] http://www.ieso.ca/imoweb/pubs/marketadmin/imo_req_0041_transmissionassessmentcriteria.pdf

reasonable timeframes. The specific load security and restoration requirements prescribed by ORTAC are described in Appendix B.

In addition, the needs assessment may also identify needs related to transmission service reliability performance, equipment end-of-life and planned sustainment activities. Service reliability performance describes the frequency and probability of major outages on an electricity system, which can be affected by various factors such as exposure to elements, age and maintenance of equipment, and length and configuration of the transmission or distribution networks. Equipment reaching the end of its life and planned sustainment activities may have an impact on the needs assessment and options development. Transmission assets reaching end-of-life are typically replaced with assets of equivalent capacity and specification. The need to replace aging transmission assets may present opportunities to better align investments with evolving power system priorities. This may involve up-sizing equipment in areas with capacity needs, or downsizing or even removing equipment that is no longer considered useful. Such instances may also present opportunities to enhance or reconfigure assets for infrastructure hardening to improve system resilience.

6.2 Regional Electricity Reliability Needs

For the purpose of regional planning, this IRRP focuses on identifying and addressing needs on the regional 115 kV sub-systems, as defined in Section 4.2.2. It is important to note that there may be a potential need for additional supply on the West of Thunder Bay 230 kV bulk system. This bulk system need is not within the scope of this IRRP, but for contextual reasons is discussed in Section 6.3.1.

Results from the needs assessment show all the regional 115 kV sub-systems are adequate over the planning period under Reference and Low scenarios. Under the High scenario, strong growth in the Dryden and North of Dryden Sub-region may exceed the Dryden 115 kV sub-system capacity over the planning period. End-of-life replacements, transmission service reliability and transformer station capacity needs were also identified in the West of Thunder Bay Sub-region. The following section describes these needs in more detail.

6.2.1 Potential Supply Capacity Need on the Dryden 115 kV Sub-system

The Dryden 115 kV sub-system can provide up to 240 MW of continuous supply to the Dryden area and North of Dryden Sub-region (Dryden 115 kV System LMC = 240 MW). Today, the Dryden 115 kV sub-system supplies 130 MW to the Dryden area and North of Dryden Sub-region. Under the Reference scenario, electricity demand supplied by the Dryden 115 kV sub-system is expected to grow to about 240 MW by 2034. There will be sufficient capacity on the existing system to support this growth over the planning period.

Under the High scenario, however, the electricity demand on Dryden 115 kV sub-system can potentially increase to about 290 MW. The existing Dryden 115 kV sub-system therefore does not meet the ORTAC supply capacity under this particular scenario. If the forecast demand growth materializes under the High scenario, 50 MW of additional supply capacity may be required on the Dryden 115 kV sub-system in the mid-2020s. Given that the timing, magnitude and location associated with potential developments in the Dryden area are uncertain, it is important to monitor these potential developments before proceeding with an investment decision. Section 7.1 will provide a high-level discussion of potential options to address these concerns under the High scenario.

Details related to the assessment can be found in Appendix B.

6.2.2 Transformer Station Capacity Needs in the Kenora area

The transformer station supplying the City of Kenora and surrounding areas ("Kenora MTS") can supply up to 25 MW at the time of peak. Today, this transformer station currently supplies up to 20 MW. There is therefore about 5 MW of supply margin remaining on the transformer station. Since the residential and commercial growth in the Kenora area is forecast to be modest over the planning period, the remaining margin will be adequate to support commercial and residential developments in the area.

Recently, a large industrial customer in the Kenora area that has historically been supplied from a local dam is looking to Kenora MTS for alternative supply. Depending on the needs of the industrial customer, the requirement for additional transformer station capacity may be triggered in Kenora over the next few years. Potential developments at the former Abitibi mill site may also require additional transformer station capacity in the Kenora area. However, the timing and magnitude of these developments are uncertain at this time. Kenora Hydro will monitor these developments closely to determine if and when a new transformer station will be required. If a new transformer station is required to supply the industrial customers, it may potentially provide a second source of supply to the City of Kenora and surrounding areas. As this is a customer-driven need, it is not expected to have major regional implications.

6.2.3 Transmission End-of-Life Replacements and Sustainment Activities

The Dryden TS 115 kV/44 kV transformers and Moose Lake 115 kV/44 kV transformers are due for end-of-life replacements within the next five years. The Dryden 115 kV/44 kV transformers are scheduled to be replaced in 2016, with assets of equivalent capacity and specification based on current standards. This sustainment decision was made prior to the initiation of this IRRP.

The Moose Lake 115 kV/44 kV transformers and associated 44 kV distribution lines are scheduled to be replaced in the early 2020s. The refurbished transformer station, with equally sized equipment and station reconfiguration, will improve the supply security to the customers and communities in Atikokan and the surrounding areas. As part of the IRRP, Atikokan Hydro and Hydro One Transmission examined potential sustainment options, including potential relocation of the transformer station, based on cost-benefit and cost allocation considerations. The details related to the end-of-life replacements for the Moose Lake 115 kV/44 kV transformers can be found in Appendix E.

Hydro One Transmission will be replacing wood pole structures on a number of aging 115 kV transmission lines in the Kenora, Sioux Lookout and Dryden areas and the 230 kV transmission lines in the Fort Frances and Atikokan areas. During the wood pole structure replacements, the electricity supply to local communities will be temporarily rerouted to other circuits. As a result, no service interruption is expected during construction. This sustainment decision was made prior to the initiation of this IRRP.

Going forward, the Working Group will need to better understand the timing and scope of upcoming sustainment activities in this sub-region, as sustainment activities may provide opportunities to replace these aging assets in a manner that also addresses broader regional needs.

6.2.4 Transmission Service Reliability and Performance

Many communities and customers in the sub-region are supplied by long transmission lines and rely on a single supply source. A few customers have expressed concerns regarding service reliability and performance. Service reliability and performance is measured based on customers' exposure to power outages on the distribution and transmission system, which is expressed in terms of *frequency* (i.e., number of outages a year) and *duration* (e.g., length of time before the power is restored). Transmission customer delivery point standards are used to measure the service reliability and performance of the electricity system in Ontario.

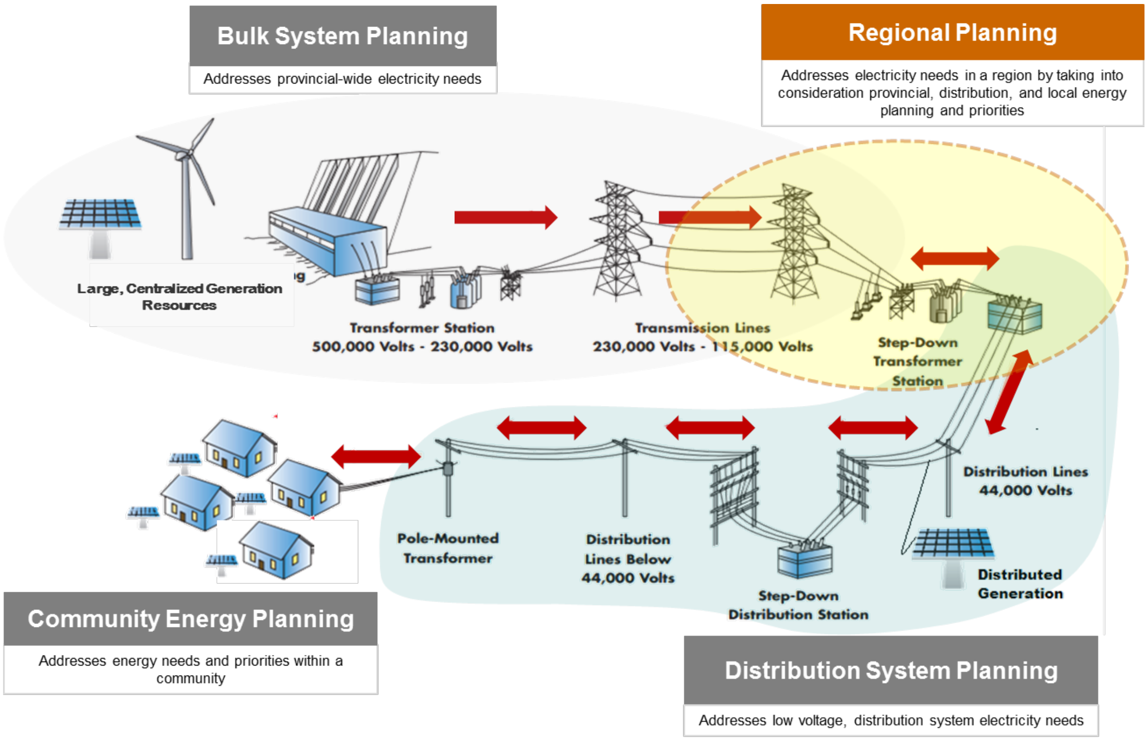
In response to service reliability and performance concerns raised by communities and LDCs, the Working Group assessed the reliability performance of the transmission system in the West of Thunder Bay Sub-region, in particular, the 115 kV sub-systems supplying Town of Sioux Lookout and Town of Fort Frances. These sub-systems are supplied by a single transmission supply and have recently experienced outages. Based on historical reliability performance statistics, the 115 kV transmission system supplying Sioux Lookout and Fort Frances is within the provincial service reliability and performance standards. However, Hydro One Transmission indicated that during a recent maintenance outage, switching equipment failure resulted in a prolonged outage for customers in the Fort Frances area. Customers and communities may work with Hydro One Transmission to explore options to avoid similar incidents in the future.

A summary of transmission reliability performance assessment can be found in Appendix C. Section 7.2 will discuss the potential opportunities to further improve transmission service reliability and the associated cost implications.

6.3 Other Electricity Needs and Considerations

As discussed in Section 3, electricity planning is conducted at various levels: bulk, regional, local, and community (Figure 6-1). In addition to regional planning, bulk, distribution and community energy planning activities are also underway in the West of Thunder Bay Sub-region. While these needs are beyond the scope of regional planning process, bulk, distribution and community energy needs were taken into consideration in the development of the plan.

Figure 6-1: Electricity Planning at the Bulk, Regional, Distribution and Community Levels

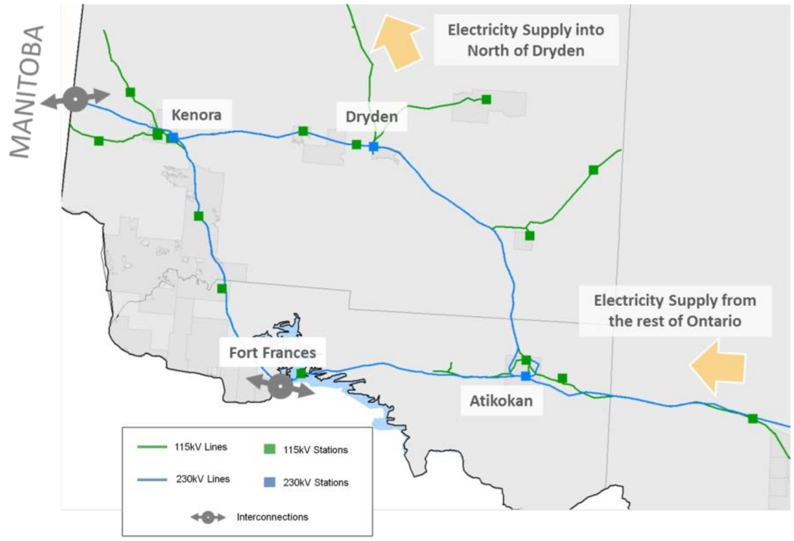


To provide the broader context, issues and considerations related to 230 kV bulk transmission system, the local distribution systems, and community energy planning activities and their implications on the West of Thunder Bay Sub-region will be discussed in the following sections.

6.3.1 230 kV Bulk System Needs

The 230 kV bulk transmission system supplying the West of Thunder Bay and North of Dryden Sub-regions is adequate today. As a result of potential industrial developments and remote community connections in the West of Thunder Bay and North of Dryden Sub-regions, the West of Thunder Bay 230 kV bulk transmission system may need to serve up to 500 MW of additional electricity demand over the planning period. The 230 kV bulk transmission system will require sufficient supply capacity to deliver power into the West of Thunder Bay and North of Dryden Sub-regions as shown in Figure 6-2.

Figure 6-2: 230 kV Supply into West of Thunder Bay and North of Dryden Sub-regions



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Given the limited supply margin remaining on the 230 kV bulk transmission system, potential demand growth and changes in the regional supply mix may lead to bulk system reliability needs in the sub-region. These needs are discussed below:

- **230 kV supply into the Dryden area:** The existing 230 kV bulk transmission system can supply a total of 175 MW of load in Dryden area and North of Dryden Sub-region. There is 50-100 MW of additional capacity remaining to support growth in the Dryden area and North of Dryden Sub-region.

- **230 kV supply into the West of Thunder Bay Sub-region:** The existing 230 kV bulk transmission system is adequate today, assuming generation at Atikokan is available. Currently, there is approximately 150 MW of supply margin remaining to support growth in the West of Thunder Bay and North of Dryden Sub-regions. If the Atikokan generation is unavailable, either because of biomass fuel limitations or contract termination (in 2024), the supply margin may be further reduced.

A bulk transmission system study is currently underway to assess the reliability of the 230 kV bulk transmission system supplying the West of Thunder Bay and North of Dryden Sub-regions. As part of the study, the IESO is exploring potential supply options including generation, transmission and firm imports from Manitoba.

In order to maintain the viability of the transmission option, the IESO has issued a hand-off letter to Hydro One to undertake early development work. To facilitate the development work, Hydro One has been engaging Infrastructure Ontario in exploring ways to ensure that the project is developed and delivered in a cost-effective manner and results in value for Ontario electricity customers. The preliminary scope of the transmission option ("Northwest Bulk Transmission Line Project"[11]) consists of a new double-circuit 230 kV line between Thunder Bay and Atikokan and a single-circuit 230 kV line from Atikokan to Dryden. However, alternate routes may be considered as part of the development work.

6.3.2 Distribution System Needs

A number of distribution system needs were identified through engagement with communities and LDCs, including issues related to service reliability and performance, power quality and end-of-life replacements and sustainment activities. A summary of these issues is provided below. However, these needs will be formally addressed as part of the distribution planning process carried out by LDCs.

Distribution Service Reliability

In response to the service reliability and performance concerns raised by communities and LDCs, the Working Group assessed the reliability performance of the distribution systems in the West of Thunder Bay Sub-region. Results from the assessment show that the majority of distribution lines in this area perform well relative to other distribution lines in the province. However, there are two distribution lines supplying electricity to areas near Shabaqua and Margach that are performing below the provincial distribution system average. These distribution lines are three to four times longer than other distribution lines across the province. Long distribution lines typically exhibit lower levels of reliability because they are more exposed to tree and wildlife contact, and they sustain more damage from poor weather. Outages in rural areas with difficult terrain, also limits access by repair crews leading to increased restoration time. A summary of distribution reliability performance assessment can be found in Appendix D.

Section 7.2 will discuss the potential opportunities to further improve distribution service reliability and the associated cost implications.

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[11] For more information on Northwest Bulk Transmission Line: http://www.ieso.ca/Pages/Ontario's-Power-System/Regional-Planning/Northwest-Ontario/Bulk-Planning-Initiatives.aspx

Power Quality

Some industrial customers in the sub-region are experiencing issues related to power quality. Power quality issues are defined as disturbances to the customer's supply as a result of voltage-related issues. These voltage issues can be driven by a combination of customers' equipment and/or system voltage performances. The solutions and the cost responsibility of investments to address power quality issues may vary depending on the root causes of the problem. The Working Group agreed that there needs to be a better understanding of power quality issues in this sub-region and that they should be examined on a case-by-case basis by the LDCs, transmitter and customers.

End-of-Life Replacement and Sustainment Activities

Based on information provided by Hydro One Distribution, three distribution stations ("DS") were refurbished over the last couple of years: Nestor DS, Sioux Narrows DS, and Burleigh DS.

6.3.3 Community Energy Planning

A number of communities in the sub-region are in the process of developing community energy plans. At the time of this report, 16 of the 26 First Nations communities have received funding from the IESO through the Aboriginal Community Energy Plan program to develop community energy plans. The City of Kenora, City of Dryden and Town of Sioux Lookout have also expressed interest in developing community energy plans and some plans are in the early stages of development. The Municipal Energy Plan Program[12] administrated by the Provincial government supports municipalities in their efforts to develop a community energy plan.

Through community energy planning activities, communities will have a better understanding of their local energy needs and emissions footprint, will identify opportunities for energy efficiency and emissions reduction, and will develop plans to meet their goals in consideration of local economic development. These community energy plans examine broader energy needs, such as transportation, natural gas and electricity, and consider other objectives including net

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[12] For more information on the Ministry of Energy MEP Program: http://www.energy.gov.on.ca/en/municipal-energy/

zero energy, electrification, and emissions reductions. The development of these plans is being led by communities.

Given the growing concern with climate change and the move toward a low carbon economy, a CEP may include recommendations to promote electrification and other forms of fuel switching, such as shifting from natural gas to electric-power heat pumps, to achieve a goal of reducing greenhouse gas ("GHG") emissions. As such, the outcomes from CEPs may drive additional requirements on the electricity system and should be monitored closely as part of the regional planning process. Furthermore, with the increased access to distributed energy resources, community energy plans may identify opportunities for community-based energy solutions, such as district energy, combined heat and power ("CHP"), or microgrids. Depending on the timing, location and magnitude of the needs, community-based energy solutions can be considered as potential options to address regional electricity needs.

6.4 Needs Summary

Table 6-1 provides a summary of the regional supply and reliability needs in the West of Thunder Bay Sub-region. These needs are within the scope of the regional planning process.

Table 6-1: Summary of Regional Supply and Reliability Needs

Regional Electricity Reliability Needs	Components	Status
Supply Capacity	Dryden 115 kV sub-system	50 MW of additional supply may be required around the mid-2020s under the High scenario
Transformer Station Capacity	The transformer station supplying the City of Kenora and surrounding areas (Kenora MTS)	Limited supply margin remaining on the transformer station. Additional capacity may be required in the next few years as a result of a distribution connection-request from industrial customers in the Kenora area.

Transmission Service Reliability	Transmission supply to Town of Sioux Lookout and Town of Fort Frances	Based on historical outage statistics, the regional transmission system is within provincial service reliability and performance standards. During a recent maintenance outage, switching equipment failure resulted in a prolonged outage for customers in the Fort Frances area.
End-of-Life Replacements and Sustainment Activities	Dryden 44 kV/115 kV transformers	Scheduled to be replaced in 2016
	Moose Lake 44 kV/115 kV transformers	Due for end-of-life replacements in early 2020s
	Aging 115 kV structures in Kenora, Fort Frances and Dryden area	These structures will be replaced within the next five years

Table 6-2 provides a summary of the issues and considerations related to 230 kV bulk transmission system, local distribution systems, and community energy planning activities in the West of Thunder Bay Sub-region. Although these issues are beyond the scope of the regional planning study, the Working Group will continue to monitor these needs closely and keep LAC members informed of bulk, distribution and community planning activities in the sub-region.

Table 6-2: Other Electricity Needs and Considerations in the area

Type	Needs	Status
Bulk	A potential need for additional supply on the 230 kV bulk system supplying the West of Thunder Bay and North of Dryden Sub-regions	Potential growth in the North of Dryden and West of Thunder Bay Sub-regions may exceed capability on the 230 kV bulk transmission system

Distribution	Reliability Performance	Majority of distribution lines in this area perform well relative to other lines in the province, with the exception of the two distribution lines supplying to areas near Shabaqua and Margach.
	Power Quality	Some industrial customers are experiencing power quality issues, which could be driven by a combination of customers' equipment and/or system voltage performances. This will need to be investigated on a case-by-case basis.
	End-of-Life and Sustainment Activities	Nestor DS, Sioux Narrows DS, and Burleigh DS were refurbished over the last couple of years
Community	Greater coordination is required	A number of communities have expressed interest and some plans are in the early stages of development.

7. Options to Address Potential Regional and Local Needs

In developing the 20-year plan, the Working Group considered a range of integrated solutions for addressing needs, including a mix of conservation, generation, transmission and distribution facilities, and other electricity system initiatives. When evaluating alternatives, the Working Group considers a number of factors, including technical feasibility, cost, flexibility, alignment with planning policies and priorities and consistency with long-term needs and options. Solutions that maximized the use of existing infrastructure were given priority, where they were otherwise determined to be cost effective.

Although investing in new electricity infrastructure, such as a new transmission line or a generation facility, can be a potential solution to address the electricity needs within a community, it requires substantial capital investment, has environmental/land-use impact and has a long-service life. As such, it is important to take into the consideration the longer-term cost implications, value and potential risks (e.g., stranded or underutilized assets) when recommending investment. Furthermore, these facilities typically require a long lead time to complete development, obtain approvals and complete construction. For this reason, commitment of these facilities must be made with sufficient lead time to ensure they are available when needed. When assessing the need for infrastructure investments, it is important to strike a balance between overbuilding infrastructure (e.g., committing to infrastructure when there is insufficient demand to justify the investment) and under-investing (e.g., avoiding or deferring investment despite insufficient infrastructure to support growth in the region). Typically, conservation solutions can be implemented within six months, or up to two years for larger projects, whereas transmission and distribution facilities can take five to seven years to come into service. The lead time for generation development is typically two to three years, but could be longer depending on the size and technology type.

Given the uncertainty with the location, timing and magnitude of the electricity demand growth in the West of Thunder Bay Sub-region, as discussed in Section 5, it is important to monitor development closely and create a flexible, comprehensive, integrated plan in anticipation of potential demand growth scenarios and varying supply conditions in the sub-region. At this time, early development work for major electricity infrastructure projects to address potential regional needs is not required. However, to lay the ground work for the next planning cycle, the Working Group has explored potential options to address the potential supply capacity needs on the 115 kV Dryden sub-system under the High scenario. There are opportunities for communities and customers to work with LDCs and Hydro One Transmission to explore opportunities to further improve transmission and distribution service reliability and to assess the associated cost implications. Finally, the Working Group, with input from the LACs, has identified areas to facilitate greater coordination between community energy planning activities and regional planning.

These options and the opportunities to address these local and regional needs are discussed in the following section.

7.1 Options to Address Supply Capacity Needs on Dryden 115 kV Sub-system under the High Scenario

As discussed in Section 6.2.1, about 50 MW of additional supply capacity will be required on the Dryden 115 kV sub-system under the High scenario. Given the uncertainty with the demand growth, early development work for major electricity infrastructure projects is not required at this time. However, it is important to continue to monitor demand closely to determine if and when an investment decision for the Dryden 115 kV sub-system is required.

To lay the groundwork for the next planning cycle, the Working Group examined three conceptual approaches to address potential supply capacity needs on the Dryden 115 kV sub-system: conservation and distributed energy resources, delivering provincial resources ("wires" planning); and, large localized generation. In practice, certain elements of electricity plans will be common to all three approaches, and some overlap may be necessary. It is likely that all plans will contain some combination of conservation, local generation, transmission, and distribution elements. The following section describes the attributes, benefits, risks and implementation requirements associated with each of the three approaches.

As discussed in Section 6.3.1, additional reinforcements may be required to address the 230 kV bulk transmission needs in the West of Thunder Bay Sub-region and will be addressed separately as part of the bulk transmission planning process.

7.1.1 Conservation and Distributed Energy Resources

Conservation is important in managing demand in Ontario and plays a key role in maximizing the useful life of existing infrastructure and maintaining reliable supply. Conservation is achieved through a mix of program-related activities including behavioural changes by customers and mandated efficiencies from building codes and equipment standards. These approaches complement each other to maximize conservation results.

However, within West of Thunder Bay Sub-region, the majority of the forecast load growth is anticipated to be driven by new industrial development, which is assumed to include relatively efficient equipment given the inherent economic benefits and the latest codes and standards. Conservation expected to be achieved through provincial targets, including time-of-use, codes and standards, and program delivery, has already been included in the planning forecast scenarios. Therefore, the potential for an additional amount of significant conservation that could address needs is limited.

Two of the available programs that transmission-connected industrial customers could be eligible for are the Industrial Conservation Initiative ("ICI") and the Industrial Accelerator Program ("IAP"). The ICI encourages Class A customers to reduce their peak demand contributions, by providing a means to reduce their Global Adjustment charges.[13] IAP is geared to reducing electricity consumption on the provincial system, and to helping companies become more competitive by providing financial incentives that encourage investment in innovative process changes and equipment retrofits.[14] Opportunities for energy savings will continue to be explored for new and existing transmission-connected customers in the West of Thunder Bay Sub-region.

7.1.2 Large, Localized Generation Resources

Siting localized generation based on the size and location of the electricity requirements can be an effective means for addressing major regional supply and reliability needs over the long term. While this approach is similar to distributed energy resources in that it shares the goal of providing supply locally, the emphasis is on large, transmission-connected generation facilities rather than smaller, distributed resources. In the context of the West of Thunder Bay Sub-region, a 50 MW generation facility connected to the Dryden 115 kV sub-system can address the potential supply capacity needs under the High scenario.

There are a number of factors that need to be considered when siting localized generation, and any decisions would need to align with the recommendations found in the August 2013 report

[13] More information on how Global Adjustment is calculated for Class A customers is available at http://www.ieso.ca/Pages/Participate/Settlements/Global-Adjustment-for-Class-A.aspx

[14] More information on IAP is available at: http://www.ieso.ca/Pages/Participate/Industrial-Accelerator-Program/default.aspx

entitled "Engaging Local Communities in Ontario's Electricity Planning Continuum"[15] that was prepared for the Minister of Energy by the OPA and the IESO.

As the requirements in the West of Thunder Bay Sub-region are for additional capacity during times of peak demand, a large, transmission-connected generation solution would need to be capable of being dispatched when needed, and operate at an appropriate capacity factor. In some cases, additional transmission reinforcements may also be required. In addition, siting may be a challenge if the generation is to be located in populated or environmentally sensitive areas.

The cost of a large, localized generation resource depends on the size, fuel type, technology and the degree to which it can contribute to the local and provincial system capacity or energy needs. The fuel availability will also need to be taken in consideration. For example, there is limited natural gas storage capacity in northern Ontario, and the commitment timeframes for gas and electricity are not aligned. As such, procuring "firm" service in the northwest is expected to be more costly than in southern Ontario. The lead time for generation development is typically two to three years, but it could be longer depending on the size and technology type.

7.1.3 Delivering Provincial Resources ("Wires" Planning)

Delivering provincial resources, or "wires" planning, reflects the traditional regional electricity planning approach associated with the development of centralized electric power systems. This approach involves using transmission and distribution infrastructure to supply a region's electricity needs by taking power from the provincial electricity system. This model takes advantage of generation that is planned at the provincial level, along with generation sources typically located remotely from the region. Utilities, both transmitters and distributors, play a lead role in the development of this approach.

Installing an additional 115/230 kV autotransformer in the Dryden and surrounding area can enable more power to be delivered from the 230 kV bulk transmission system to the 115 kV Dryden sub-system. A 115/230 kV autotransformer typically costs in the range of $15 million to $20 million and the lead time to develop a transformer is typically three to five years. These enhancements may be subject to regulatory approvals, such as a Class Environmental Assessment and utilities' rate filings. The costs of "wires" solutions would depend not only on

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[15] http://www.ieso.ca/Pages/Participate/Regional-Planning/Local-Advisory-Committees.aspx

the specific infrastructure involved, but also on the cost of providing energy at the provincial system level. Cost responsibility for the transmission and distribution infrastructure would be determined as part of the regulatory application review process.

7.2 Opportunities to Further Improve Service Reliability

As discussed in Section 6.2.4 and Section 6.3.2, the reliability performance of the West of Thunder Bay Sub-region is generally within the provincial service reliability and performance standards. Communities and customers may consider working with LDCs and transmitter to explore opportunities to improve transmission and distribution service reliability and performance. Cost-benefit and cost allocation for investments will need to be considered.

At the distribution level, communities and customers may work with LDCs to identify mitigation measures to improve distribution service reliability, where applicable. Similarly, at the transmission-level, LDCs or transmission-connected customers may work with Hydro One Transmission to look at potential transmission improvements (e.g., switching facilities) to reduce the risk and impact of supply interruptions, especially during maintenance outages. Furthermore, many communities are interested in developing distributed energy resources. Communities may wish to explore opportunities for community-based solutions and emerging technologies, such as on-site generation and storage facilities, to minimize the impact of potential power outages.

Whether customers are looking at incremental distribution, transmission or community–based energy solutions to improve service reliability, consideration must be given to the cost–benefits and cost responsibility issues. According to the OEB's proposed "beneficiary pays" principle for cost-allocation, the responsibility to pay for higher reliability would likely be borne by the customers in the area. The issue of how much is appropriate to invest and who pays for the investments will need to be addressed.

The cost of improving service reliability varies depending on geography, the nature of the issue and the local system configuration. In the case of the West of Thunder Bay Sub-region, given the large geographical area and sparse population, solutions for improving system reliability performance may be very costly (e.g., a transmission line covering hundreds of kilometers), while the benefiting customer base may be relatively small. The Working Group has heard from communities and customers in this sub-region that below-average reliability is an impediment to economic development, while the investments necessary to improve the situation are not affordable. However, minor improvements, such as switches and outage mitigation and maintenance measures (e.g., tree trimming and relocations of off-road distribution lines), and distributed energy resources, may be more cost-effective alternatives. In any case, the cost-benefit and responsibility of investments to further improve service reliability will need to be examined on a case-by-case basis.

7.3 Potential Areas for Coordination: Community Energy Planning and Regional Planning Activities

As discussed in Section 6.3.3, a number of communities are currently in the process of developing community energy plans. Greater coordination between community energy planning and regional planning processes can help provincial system planners and local communities develop a common understanding of the growth and local developments, identify opportunities to develop community-based energy solutions and have an informed dialogue on related energy issues.

With the input from the LACs, the Working Group identified potential areas for greater coordination:

- Status of local growth and developments
- Local planning priorities
- Local energy planning activities (e.g., community energy plan)
- Impact of potential supply interruptions or outages
- Potential, feasibility and challenges of implementing community-based energy solutions in consideration of cost-benefit and cost responsibility

LAC meetings can be used as a forum to facilitate the discussion on these energy and planning issues at the community, distribution, regional and bulk system levels. More importantly, these meetings can provide an opportunity for communities to share lessons learned and best practices from community energy planning activities across a region.

A number of coordination efforts are underway in Ontario to facilitate the development of community energy planning, such as the Quality Urban Energy Systems of Tomorrow ("QUEST") initiative. Due to the unique energy planning challenges in the northwest, it would be helpful to identify initiatives to facilitate knowledge sharing and coordinate community energy planning activities in northern Ontario (e.g., a community energy planning webinar or workshop for communities in northern Ontario).

8. Recommended Actions

While specific solutions do not need to be committed to today, it is appropriate to begin work to gather information, monitor developments, continue to engage communities and develop alternatives to support decision-making for the next iteration of the IRRP for this sub-region. The plan sets out the actions required to ensure that options remain available to address future needs, if and when they arise.

Supply capacity needs on the Dryden 115 kV sub-system may emerge under the High scenario, but these potential needs do not require any immediate action. The Working Group will monitor demand growth closely to determine if and when an investment decision for the Dryden 115 kV sub-system is required. In the meantime, the Working Group will keep the communities informed about any developments at the bulk, regional and distribution levels. For communities and customers who are looking to further improve service reliability, they may consider working with LDCs and Hydro One Transmission to develop transmission, distribution and community-based solutions. However, cost-benefit and responsibilities will need to be taken into consideration. Communities in the West of Thunder Bay Sub-region have become increasingly involved in community energy planning activities. The results of early community energy planning initiatives, energy conservation initiatives, and achievable potential studies will be an important input to the next iteration of the plan for the West of Thunder Bay Sub-region. The LAC meetings can be an opportunity to help facilitate greater coordination between the local and regional electricity planning activities.

The recommended actions and deliverables for the plan are outlined in Table 8-1, along with the proposed timing and the parties assigned lead responsibility for implementation. The West of Thunder Bay Working Group will continue to meet regularly during the implementation phase of this IRRP to monitor developments in the West of Thunder Bay Sub-region and track progress of these deliverables.

Table 8-1: Recommended Actions

	Recommendations	Action(s)/Deliverable(s)	Lead Responsibility	Timeframe
1	Monitor electricity demand growth closely to determine if and when a decision on Dryden 115 kV sub-system is required	Review electricity demand growth in the West of Thunder Bay and the North of Dryden Sub-regions with the members of the LACs	Working Group	Annually
2	Ensure communities are informed of bulk and distribution planning activities in the West of Thunder Bay Sub-region	Provide a status update on bulk and distribution planning activities at LAC meetings	Working Group	On-going
3	Explore opportunities to further improve service reliability and power quality in consideration of cost-benefit and cost allocations	Examine cost benefit and cost responsibility of distribution, transmission and/or community-based energy solutions	Customers, local distribution companies, and transmitter	On-going
4	Coordinate regional and community energy planning activities	Use LAC meetings as an opportunity to share best practices and to coordinate regional and local energy planning activities	Working Group and Communities	On-going
		Identify opportunities to facilitate knowledge sharing and to coordinate community energy planning activities in northern Ontario, such as webinars on community energy planning in northern Ontario		

9. Community and Stakeholder Engagement

Community engagement is an important aspect of the regional planning process. Providing opportunities for input in the regional planning process enables the views and preferences of the community to be considered in the development of the plan, and helps lay the foundation for successful implementation. This section outlines the engagement principles as well as the engagement activities undertaken to date and next steps for the West of Thunder Bay IRRP.

A phased community engagement approach was undertaken for the West of Thunder Bay IRRP based on the core principles of creating transparency, engaging early and often, and bringing communities to the table. These principles were established as a result of the former OPA and the IESO's outreach with Ontarians in 2013 to determine how to improve the regional planning and siting process, and they now guide IRRP outreach with communities and will ensure this dialogue continues as the plan moves forward.

Summary of the West of Thunder Bay Community Engagement Process

Creating Transparency: ***Creation of West of Thunder Bay IRRP Information Resources***	• Dedicated West of Thunder Bay IRRP web page created on IESO website providing background information, the IRRP Terms of Reference and listing of the Working Group members • Dedicated web page created on Hydro One Network Inc's website • Self-subscription service established for the Northwest Ontario planning region for subscribers to receive regional planning updates • Status: complete
Engaging Early and Often: ***First Nation & Municipal Métis Outreach***	• Early engagement on regional planning and the draft Northwest Ontario Scoping Assessment Report (October - December 2014) • Meetings held with First Nations communities from across the planning region in Dryden, Fort Frances and Kenora (June - July 2015) • Group meetings held with municipalities from across the planning region in Dryden, Fort Frances and Kenora (June - July 2015) • Status: initial outreach complete; dialogue continues
Bringing Communities to the Table: ***Broader Community Outreach***	• West of Thunder Bay Local Advisory Committees (LACs) formed in fall 2015; dedicated West of Thunder Bay engagement page added to IESO website • Two LAC meetings held in November 2015 and April 2016 to discuss and obtain feedback on the development of the IRRP • General LAC meetings are open to the public and broadcast via live webinar; materials are posted to the engagement webpage • Status: begun in summer 2015; on-going

9.1 Creating Transparency

To start the dialogue on the West of Thunder Bay IRRP and build transparency in the planning process, a number of information resources were created for the plan. A dedicated web page was created on the IESO website including a map of the regional planning area, information on why an IRRP was being developed for the West of Thunder Bay Sub-region, the IRRP Terms of Reference and a listing of the organizations involved. A dedicated email subscription service was also established for the broader Northwest Ontario planning region where communities and stakeholders could subscribe to receive email updates about the IRRP.

9.2 Engage Early and Often

Early communication and engagement activities for the West of Thunder Bay IRRP were initiated in October 2014 as part of a series of meetings with communities and stakeholders to discuss electricity planning initiatives across northwest Ontario. The main objective of the meetings from a regional planning perspective was to introduce attendees to the regional planning process. This included the Northwest Ontario Scoping Assessment process for the regional planning studies being initiated in the area, as well as discussions of upcoming engagement activities. Various meetings were held with a broad range of attendees including municipal representatives, First Nation community members, Métis council members, federal and provincial representatives, electricity customers, Common Voice Northwest, transmission and generation project developers, and others.

9.2.1 Northwest Ontario Scoping Assessment Outcome Report

The draft Northwest Ontario Scoping Report was posted to the IESO website in December 2014 for comment. Following this comment period, the final scoping report was posted on January 27, 2015.

9.2.2 First Nation and Métis Community Meetings

Meetings with First Nation communities are one of the first steps in engagement for all regional plans. Initial meetings were held in Dryden, Fort Frances and Kenora in June and July 2015. The purpose of these meetings was to discuss the development of the IRRP and share the initial findings. During these meetings, community members indicated their participation in community energy planning as well as interest in local small renewable projects. Communities also gave information about developments in their community and the growing population. Concern was also raised about service outages and the cost of electricity.

On April 18, 2016, the IESO met with Dalles (Ochiichagwe'Babigo'Ining) Ojibway Nation to discuss the status of planning and the identified needs in the West of Thunder Bay area. The community also raised concerns about high electricity costs and the impact of hydroelectric power and other electricity infrastructure on their community.

The IESO invited all other local First Nations communities and Métis councils to similar meetings and remains open to further engagement on the plan.

9.2.3 Municipal Meetings

Meetings with area municipalities are also one of the first steps in engagement for all regional plans. In June and July 2015, the Working Group held group municipal meetings in Dryden, Fort Frances and Kenora to discuss the development of the IRRP as well as the findings to date. Attendees were generally pleased with the meetings and the opportunity to offer a local perspective, and they looked forward to the development of the LACs. During these meetings, many communities also indicated they were interested in developing community energy plans and wanted to find out more about how these plans and the IRRP could work together.

9.3 Bringing Communities to the Table

To continue the dialogue on regional planning, two LACs – a general LAC and a First Nations LAC - were established for the West of Thunder Bay regional planning area in fall 2015. The role of LACs is to provide advice and recommendations on the development of the regional plan as well as to provide input on broader community engagement. General LACs are comprised of Indigenous, municipal, environmental, business, sustainability and community representatives. First Nations LACs are comprised of representatives from the First Nation communities in the planning area. All general LAC meetings are open to the public and meeting information is posted on the dedicated engagement webpage, which in this case is the IESO's West of Thunder Bay engagement web page[16]. The general LAC meetings are also broadcast as live webinars to enable participation from across the planning region.

Development of the West of Thunder Bay general LAC was completed through a request for nominations process promoted by the following activities in July/August 2015: advertisements in local newspapers across the planning area and in Thunder Bay newspapers; localized digital advertising; emails sent to municipal representatives across the region; and an e-blast sent to the IESO's Northwest Ontario subscribers list. Two Métis Councils in the West of Thunder Bay area appointed a member to the general LAC. The development of the West of Thunder Bay First Nations LAC was established through a letter to the leadership of each First Nation in the

[16] http://www.ieso.ca/Pages/Participate/Regional-Planning/Northwest-Ontario/West-of-Thunder-Bay.aspx

West of Thunder Bay area inviting them to appoint a representative to the First Nations LAC. The First Nations LAC then appointed members to the general LAC.

The first meetings of the West of Thunder Bay LACs were held on November 18-19, 2015 in Dryden. The focus of these meetings was to introduce the regional planning process to the newly formed LACs, highlight key electricity supply issues and considerations in the West of Thunder Bay area, and determine the purpose and scope of the LACs. Material from the two LAC meetings and a web archive of the general LAC meeting can be accessed online.[17]

On April 19-20, 2016, the second general and First Nation LAC meetings were held in Dryden. The focus of these meetings was to provide an update on electricity planning activities in the area, review the draft outcomes of the West of Thunder Bay IRRP and determine key areas of focus for future LAC meetings. Material from the two LAC meetings and a web archive of the general LAC meeting can be accessed online.

Copies of the meeting summaries from the West of Thunder Bay general LAC meetings can be found in Appendix F.

Moving forward, the Working Group will present the final IRRP to both of the West of Thunder Bay LACs and discuss with members how they would like to continue the dialogue on regional planning in the area, as well as other electricity issues brought up by the LAC members, but that are outside the scope of regional planning.

The IESO is committed to undertaking early and sustained engagement to enhance regional electricity planning. Further information on the IESO's regional planning processes is available on the IESO website. Additional information on outreach activities for the West of Thunder Bay IRRP can be found on the IESO webpage and updates will continue to be sent to all Northwest Ontario Region email subscribers.

9.4 Additional Meetings and Presentations

The IESO recognizes Common Voice Northwest's unique mandate that includes investigating and making recommendations to the Northwest Ontario Municipal Association ("NOMA") on issues related to energy in the Northwest Ontario Region. The IESO continues to meet regularly

[17] http://www.ieso.ca/Pages/Participate/Regional-Planning/Northwest-Ontario/West-of-Thunder-Bay.aspx

with Common Voice Northwest to discuss the status of electricity planning for northwestern Ontario.

The IESO also presents regularly at the NOMA Spring Annual General Meeting and Fall Regional Conference, the Association of Municipalities of Ontario conference, as well as the Ontario Mining Association conference, among others. These presentations have included high-level status updates on the development of the West of Thunder Bay IRRP, along with other electricity topics.

10. Conclusion

This report documents the IRRP that has been carried out for the West of Thunder Bay Sub-region and fulfills the OEB's regional planning requirement for the sub-region. The IRRP identifies electricity needs in this sub-region over the 20-year period from 2015 to 2034.

Aside from the potential need for additional supply on the 230 kV bulk transmission system, there are no major regional needs identified in the West of Thunder Bay Sub-region under the Low and Reference scenarios. An additional 50 MW of supply may be required on the Dryden 115 kV sub-system under the High scenario. However, early development work for major electricity infrastructure projects is not required at this time given the uncertainty with the demand forecast. The Working Group will monitor demand growth closely to determine if and when an investment decision for the Dryden 115 kV sub-system is required. Although the transmission and distribution reliability performance of the West of Thunder Bay Sub-region is within the provincial service reliability and performance standards, communities and customers may consider working with LDCs and Hydro One to explore opportunities to further improve transmission and distribution service reliability with consideration given to cost-benefits and responsibility for investments. In the meantime, a number of communities in this sub-region are currently developing community energy plans. LAC meetings can be used as an opportunity to share best practices and to coordinate regional and local energy planning activities.

The West of Thunder Bay Working Group will continue to meet regularly throughout the implementation of the plan to monitor progress and developments in the sub-region, and will produce annual update reports that will be posted on the IESO website. To support development of the plan, a number of actions have been identified to develop alternatives, engage with the community, and monitor growth in the area, and responsibility has been assigned to appropriate members of the Working Group for these actions. Information gathered and lessons learned from these activities will inform development of the next iteration of the IRRP for the West of Thunder Bay Sub-region. The plan will be revisited according to the OEB-mandated 5-year schedule.

Appendix C – IESO Letter of Comment

IESO Letter of Comment

Sioux Lookout Hydro Inc.

Renewable Energy Generation Plan

February 22, 2017

Independent Electricity System Operator

Introduction

On March 28, 2013, the Ontario Energy Board ("the OEB" or "Board") issued its Filing Requirements for Electricity Transmission and Distribution Applications; Chapter 5 – Consolidated Distribution System Plan Filing Requirements (EB-2010-0377). Chapter 5 implements the Board's policy direction on 'an integrated approach to distribution network planning', outlined in the Board's October 18, 2012 Report of the Board - A Renewed Regulatory Framework for Electricity Distributors: A Performance Based Approach.

As outlined in the Chapter 5 filing requirements, the Board expects that the Ontario Power Authority[1] ("OPA") comment letter will include:

- the applications it has received from renewable generators through the FIT program for connection in the distributor's service area;
- whether the distributor has consulted with the OPA, or participated in planning meetings with the OPA;
- the potential need for co-ordination with other distributors and/or transmitters or others on implementing elements of the Renewable Energy Generation ("REG") investments; and
- whether the REG investments proposed in the DS Plan are consistent with any Regional Infrastructure Plan.

Sioux Lookout Hydro Inc. – Renewable Energy Generation Plan

On February 9, 2017, the IESO received Sioux Lookout Hydro Inc.'s ("SLHI") Renewable Energy Generation Investments Information ("Plan") as part of its 5-year Distribution System Plan. The IESO has reviewed the Plan and provides the following comments.

OPA FIT/microFIT Applications Received

The Plan indicates that SLHI has no FIT projects, and 9 microFIT projects totalling 86.16 kW connected to its distribution system.

According to the IESO's information, as of December 31, 2016, the IESO has offered contracts to 9 microFIT projects totalling 70.74 kW of capacity. The renewable energy generation connections information in SLHI's Plan is therefore substantially consistent with that of the IESO.

---

[1] On January 1, 2015, the Ontario Power Authority ("OPA") merged with the Independent Electricity System Operator ("IESO") to create a new organization that will combine the OPA and IESO mandates. The new organization is called the Independent Electricity System Operator.

Independent Electricity System Operator
1600 – 120 Adelaide Street West, Toronto, ON M5H 1T1
t 416 967-7474 f 416 967-1947 toll free 1-800-797-9604 customer.relations@ieso.ca www.ieso.ca

Consultation / Participation in Planning Meetings; Coordination with Distributors / Transmitters / Others; Consistency with Regional Plans

For regional planning purposes, SLHI is part of the "Group 1" Northwest Ontario Region, which contains the West of Thunder Bay sub-region.

On January 28, 2015, the IESO posted the Northwest Region Scoping Assessment Outcome Report and subsequently kicked off the Integrated Regional Resource Planning ("IRRP") process for the West of Thunder Bay sub-region.

As a Technical Working Group member for the West of Thunder Bay sub-region, SLHI has been actively involved in the development of the IRRP along with the IESO, Hydro One Networks Inc. (Transmission and Distribution) Atikokan Hydro Inc., Kenora Hydro Electric Corporation Ltd., and Fort Frances Power Corporation. The IRRP was prepared by the IESO on behalf of the Technical Working Group and published on July 27, 2016.[2]

SLHI's Plan indicates that there is sufficient capacity to connect at least 2 MW of renewable generation facilities. Based on modest uptake of FIT and microFIT projects over the last couple of years, SLHI does not expect substantial interest in renewable generation facilities development in its service area over the planning period. As such, no investments are planned to enable renewable energy generation connections at this time.

The IESO looks forward to working further with Sioux Lookout Hydro Inc. on regional planning for the Northwest Ontario Region, and appreciates the opportunity to comment on the information it received as part of SLHI's Distribution System Plan.

[2] West of Thunder Bay sub-region IRRP, July 27, 2016, http://www.ieso.ca/Documents/Regional-Planning/Northwest_Ontario/West_of_Thunder_Bay/2016-West-of-Thunder-Bay-IRRP.pdf

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Appendix D – 2014 Customer Survey

2014 Customer Satisfaction Survey

October 2014

SIOUX LOOKOUT HYDRO INCORPORATED
25 FIFTH AVENUE, P.O. BOX 908
SIOUX LOOKOUT, ON P8T 1B3

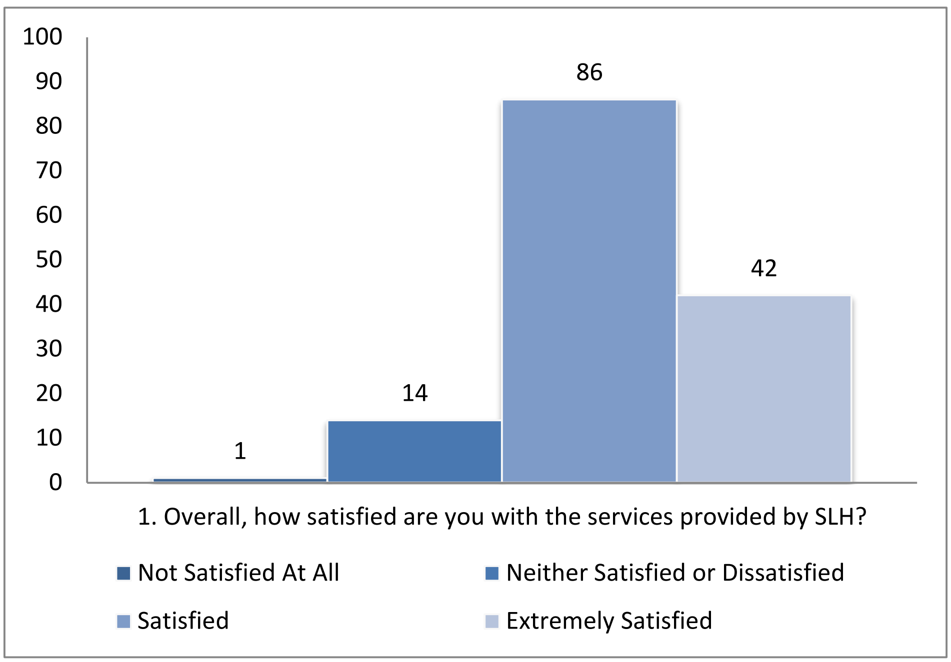
Management Response

Approach:

In October of 2014, Sioux Lookout Hydro (SLH) conducted a customer satisfaction survey. All customers were given the opportunity to comment on SLH's performance, voice concerns and present their opinion on present and future services. SLH distributed the survey as a bill stuffer commencing October 6, 2014 and finishing October 27, 2014. Also, a message was included on the bills for e-billing customers, who could download the survey from our website. SLH is pleased with the results of the survey based on 144 out of a possible 2,785 (October customer count) responses which is 5.17% of its entire customer base.

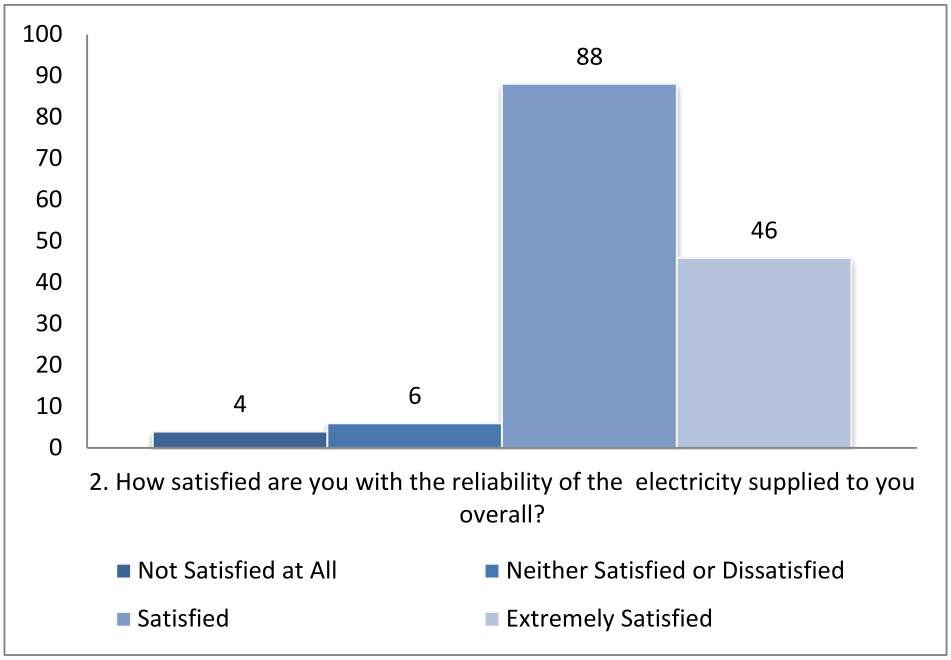
Overall Customer Satisfaction:

Overall, customers were either satisfied (60.14%) or extremely satisfied (29.37%) with the services provided by SLH. Out of the 144 respondents only 1 was not satisfied at all.



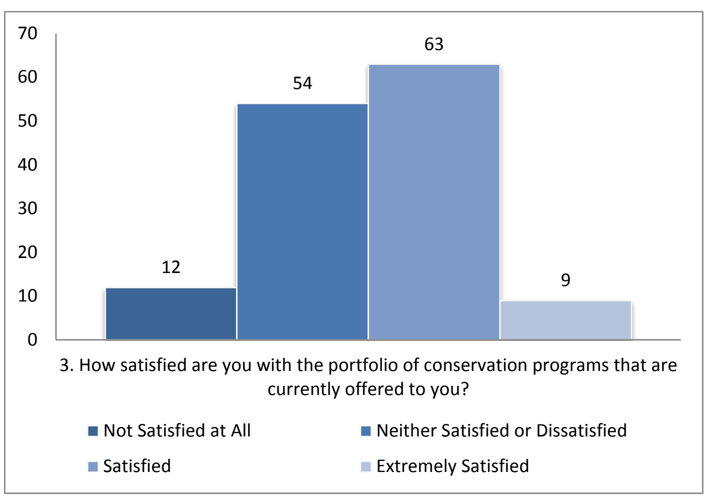
Reliability of Electricity Supplied:

Customers overall were satisfied (61.11%) and extremely satisfied (31.94%) with the reliability of the electricity supplied.



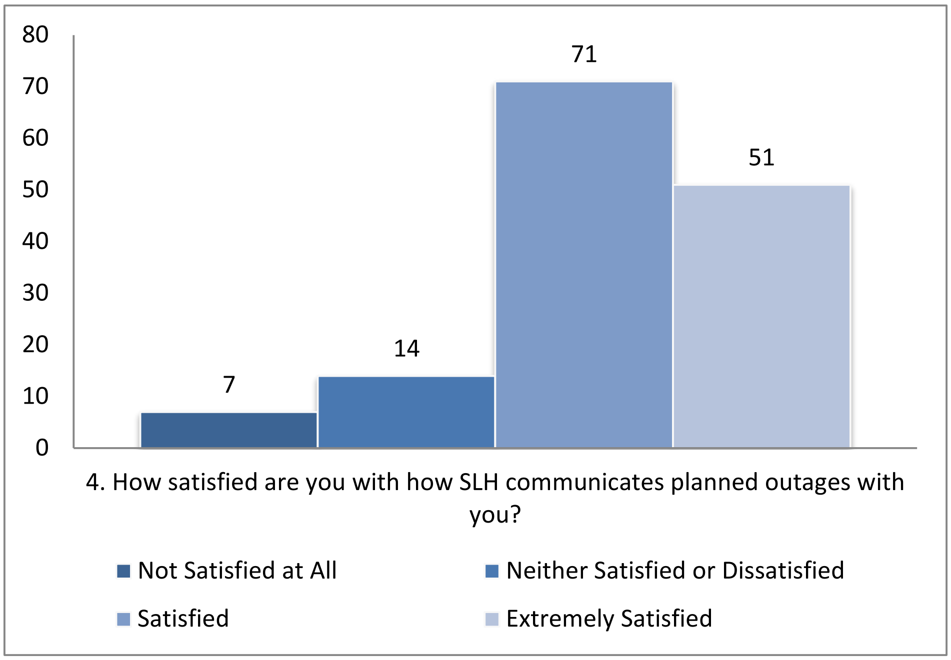
Conservation Programs Offered:

Over half (52.17%) of the respondents were either satisfied or extremely satisfied with the portfolio of conservation programs offered. However, 39.13% of the respondents were neither satisfied or dissatisfied. SLH will be implementing its 2015-2020 Conservation First Plan in 2015 and plans to increase awareness of the programs offered through the use of a roving energy manager shared amongst the Northwest District Local Distribution Companies.



Planned Outage Communication:

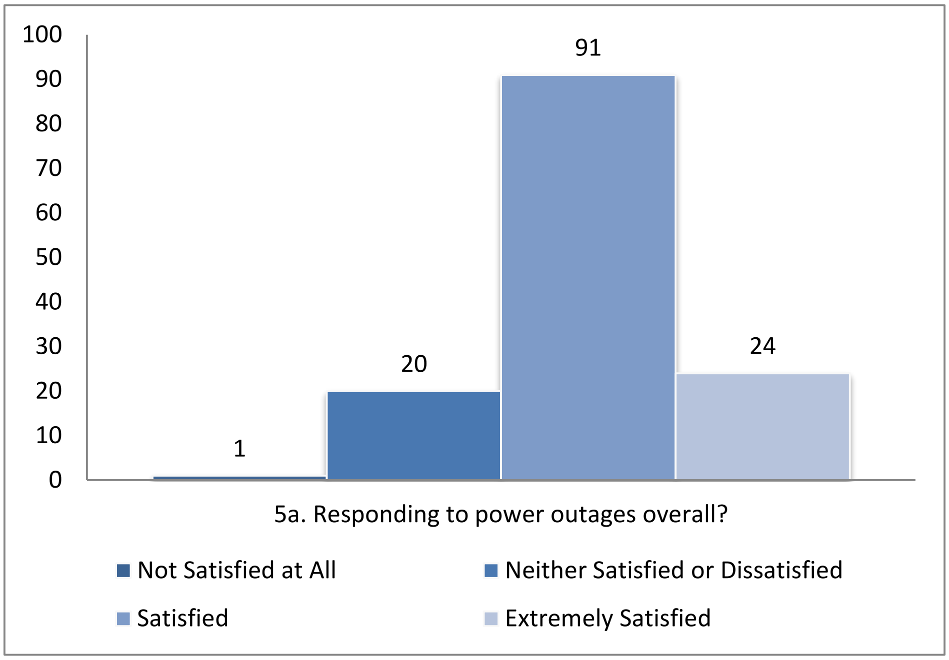
A very high percentage of respondents were Satisfied (49.65%) and Extremely Satisfied (35.66%) with how SLH communicates planned outages. Due to our small customer base our process on communicating planned outages is to hand deliver notices of any planned outages that affect a small number of customers as well as post a notice on our website. For larger planned outages which are usually pre-empted by Hydro One performing maintenance on the sole transmission line which feeds Sioux Lookout, SLH advertises in the local newspaper and on our website well in advance of the scheduled outage, and distributes notices by email and fax to all businesses in the area. Management recommends continuing with its current practice of communicating planned outages.

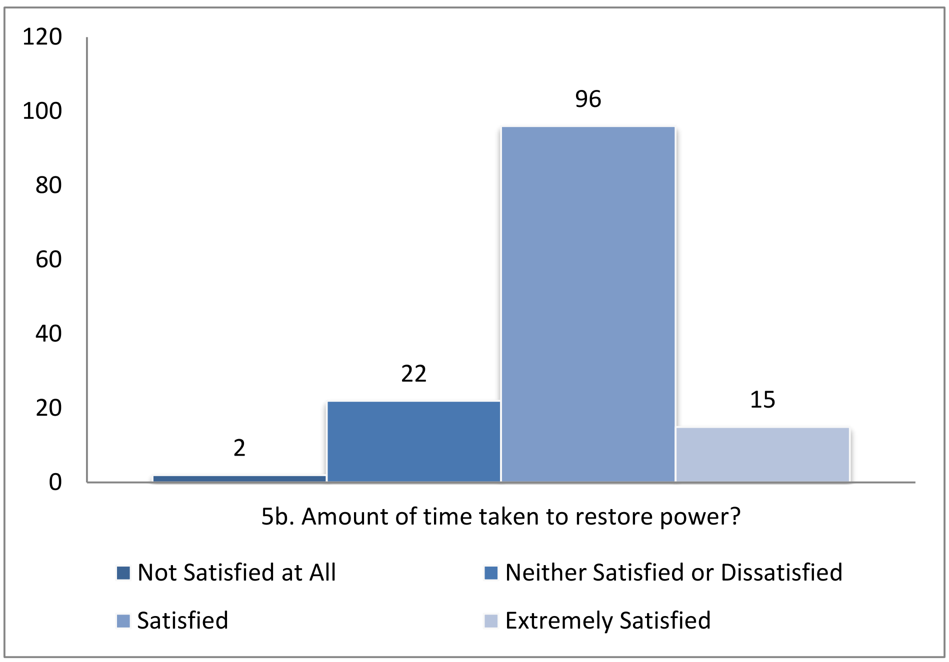


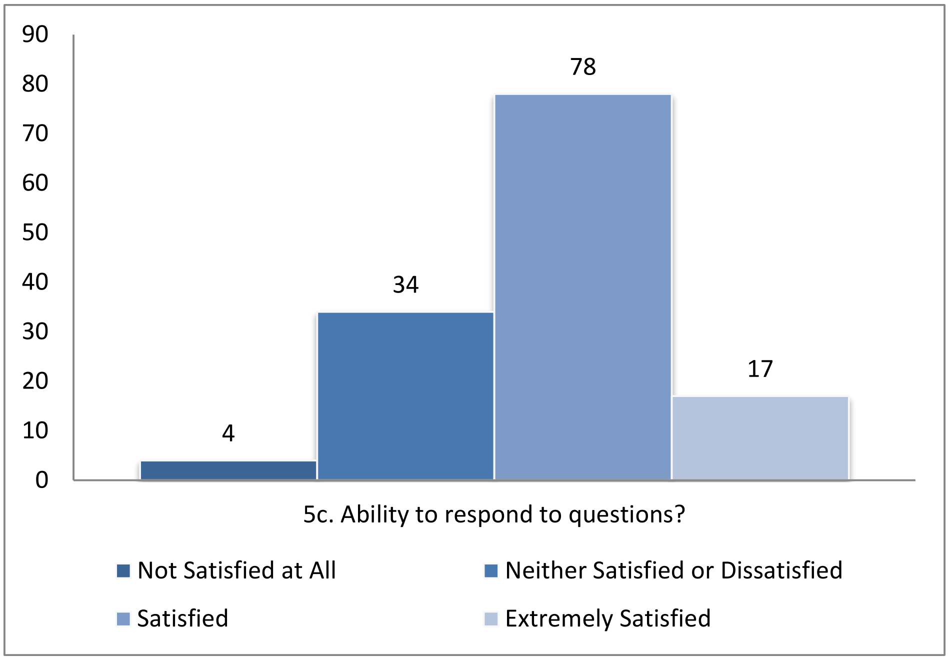
Satisfaction with Unplanned Outages:

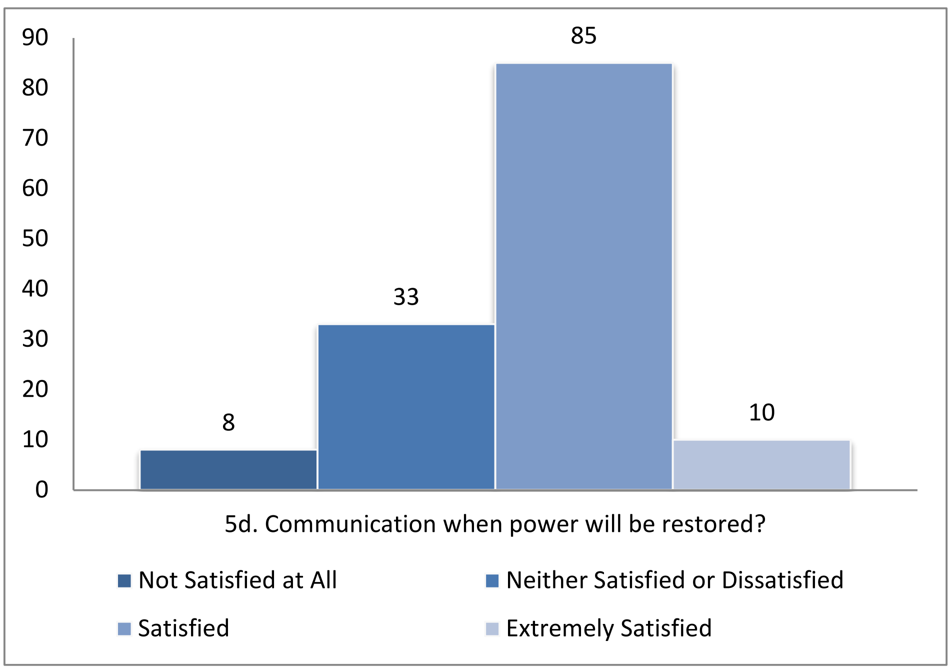
Overall customers were satisfied (66.91%) with SLH's response to unplanned outages. Specifically, 71.11% of respondents were satisfied with the amount of time taken to restore power, 11.11% were extremely satisfied. When asked about SLH's ability to answer questions regarding unplanned outages, 58.65% were satisfied, 12.78 % were extremely satisfied, and 25.56% were neither satisfied or dissatisfied. This could mean that these people do not call in when there is a power outage, and simply wait for the power to be restored. The numbers were similar for communication on when the power will be restored and why an outage occurred. The specific questions and results are shown in the tables below.

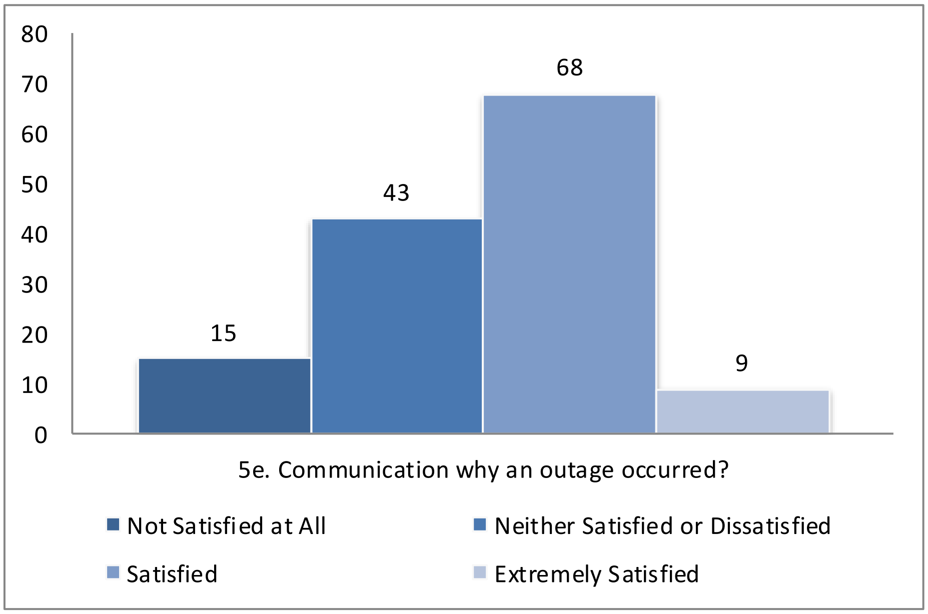
5. Now thinking specifically about Unplanned outages, how satisfied are you with SLH:






90
80
70
60
50
40
30
20
10
0
4
34
78
17
5c. Ability to respond to questions?
Not Satisfied at All
Neither Satisfied or Dissatisfied
Satisfied
Extremely Satisfied


90
80
70
60
50
40
30
20
10
0
8
33
85
10
5d. Communication when power will be restored?
Not Satisfied at All
Neither Satisfied or Dissatisfied
Satisfied
Extremely Satisfied

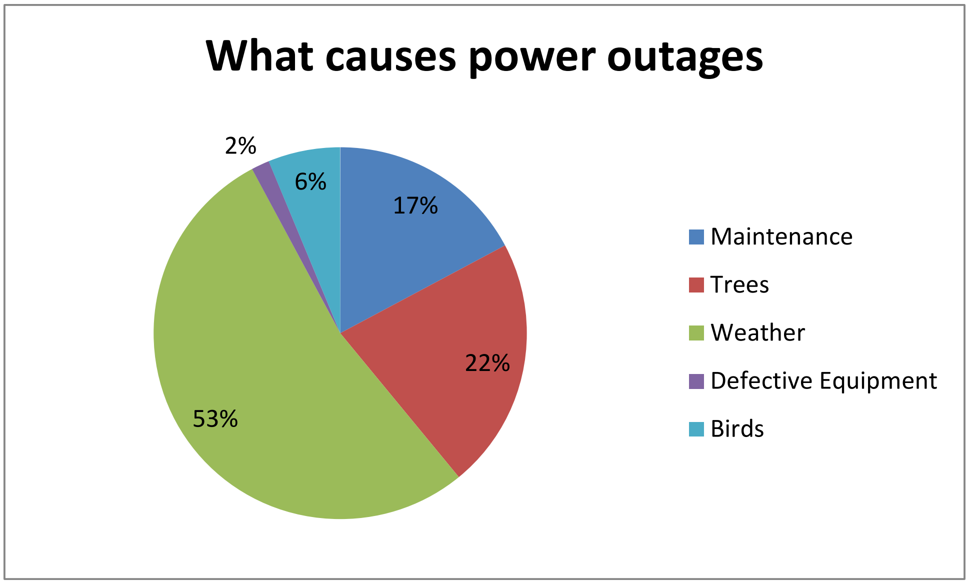


Experience with Power Outages:

Out of the 144 respondents, 58 (40%)supplied a number for how may minutes power outages last. 74 customers did not know how long outages last, and 12 customers left the answer blank. Of the 40% that supplied a response, the average number of minutes a power outage lasted was 161. This seems high, however, SLH is subject to scheduled Hydro One outages which result in a loss of supply to the entire area for periods up to 8 hours. This survey was conducted for the most part in October 2014, and Hydro One had just completed a scheduled outage that lasted 8 hours on September 28, 2014.

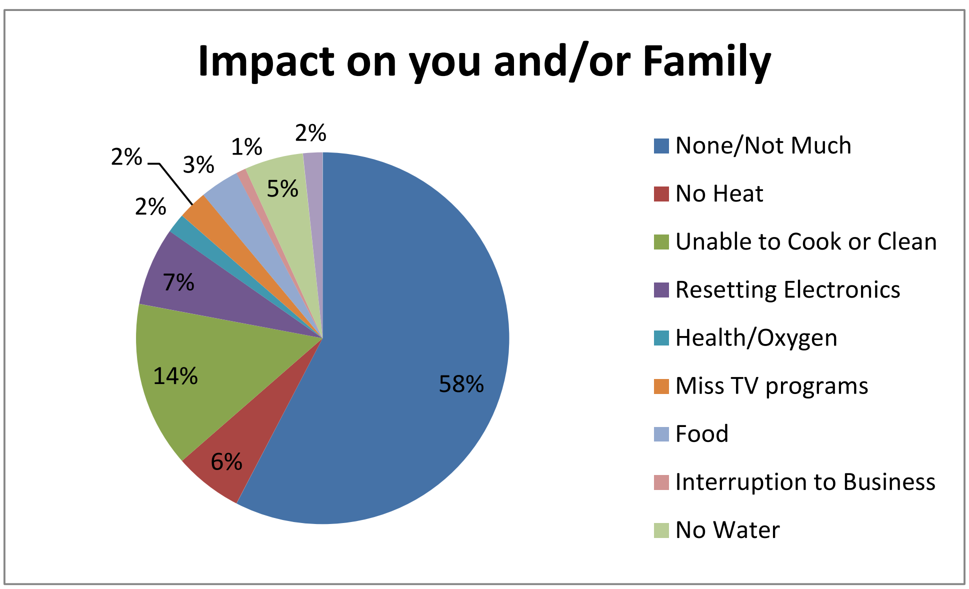
Customer Perception of Causes of Power Outages:

The number one answer for the cause of power outages was weather, lightning and tree contact. The second was due to maintenance. When comparing each cause to the number of minutes a customer experienced a power outage, it should be noted that the numbers were much higher when the respondent reported the cause was due to maintenance (360 to 480 minutes). Sioux Lookout Hydro will continue to implement its maintenance program in order to reduce the number of outages due to defective equipment and tree contact.

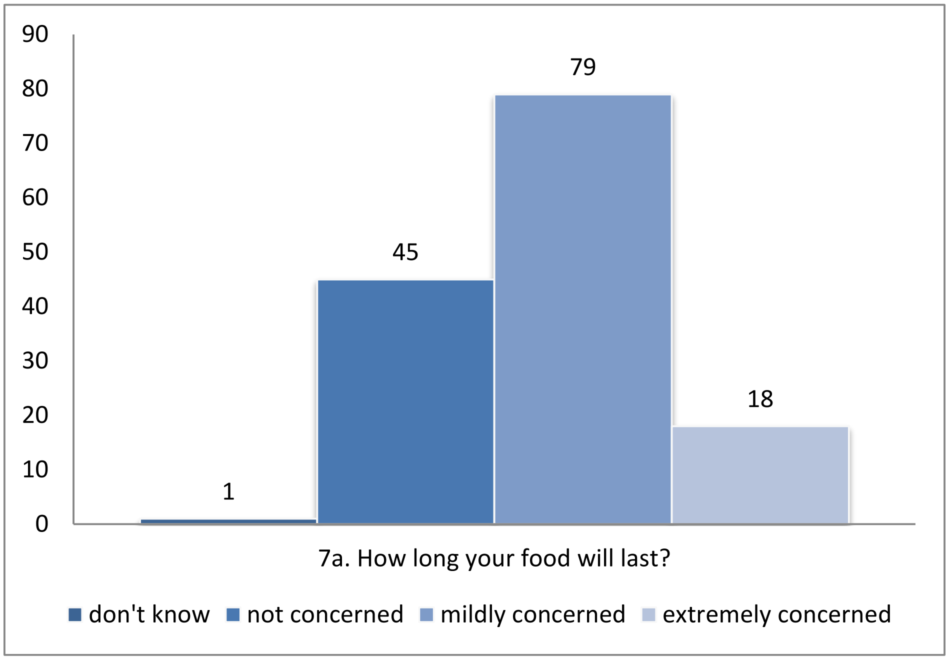


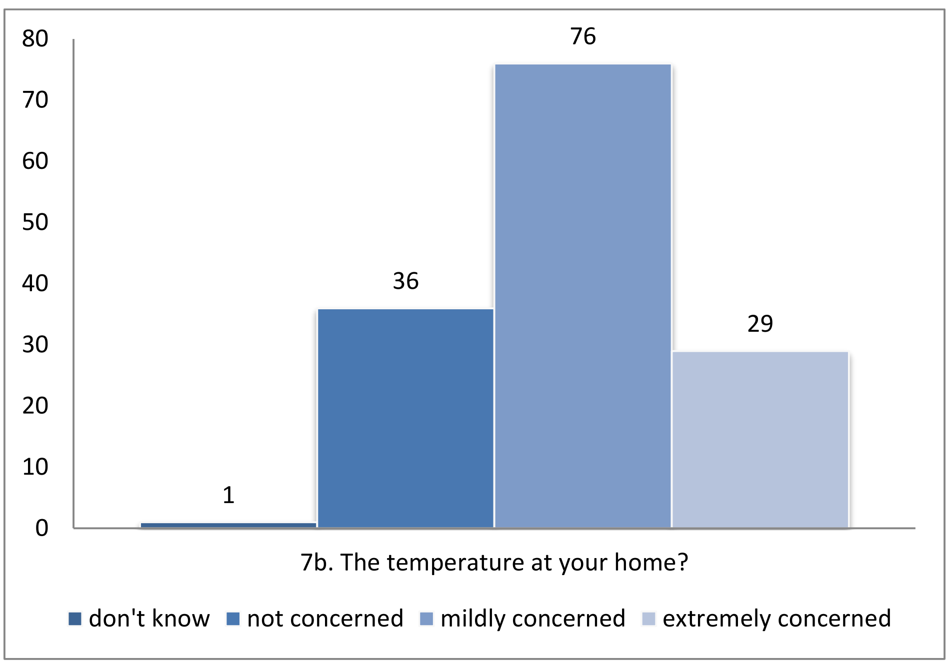
Impact of Power Outages to Customers:

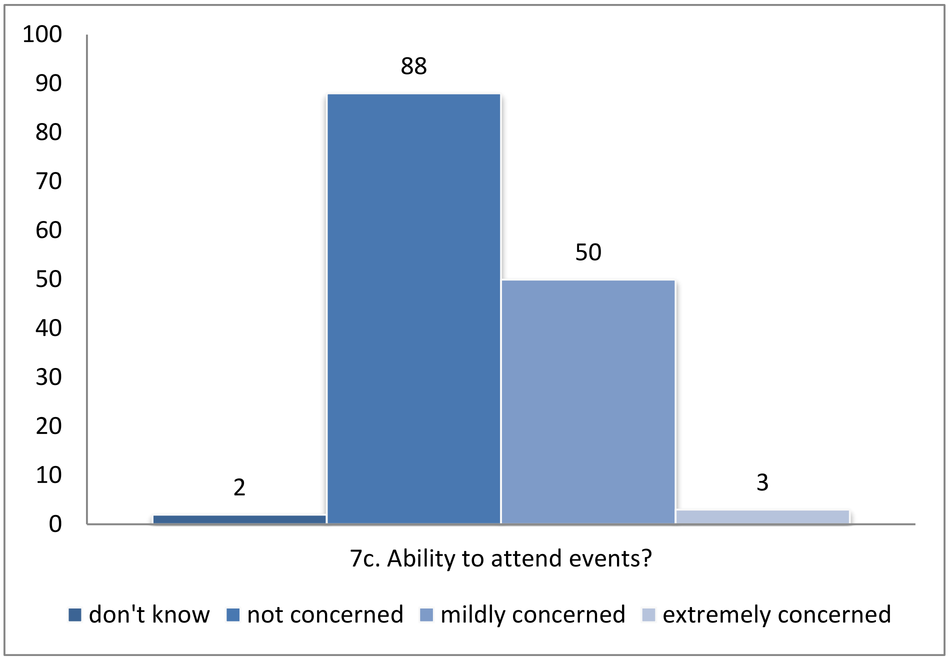
The most common concern reported was not being able to cook, clean or use their appliances. It is worth noting that 58% of the respondents indicated "none", "minimal" or minor inconvenience" in their comments.

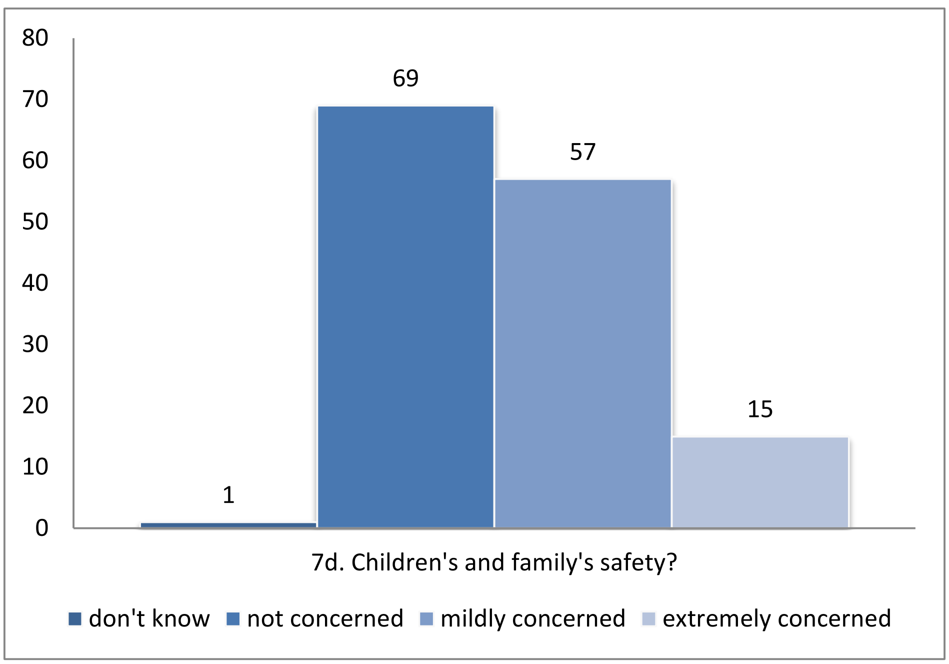


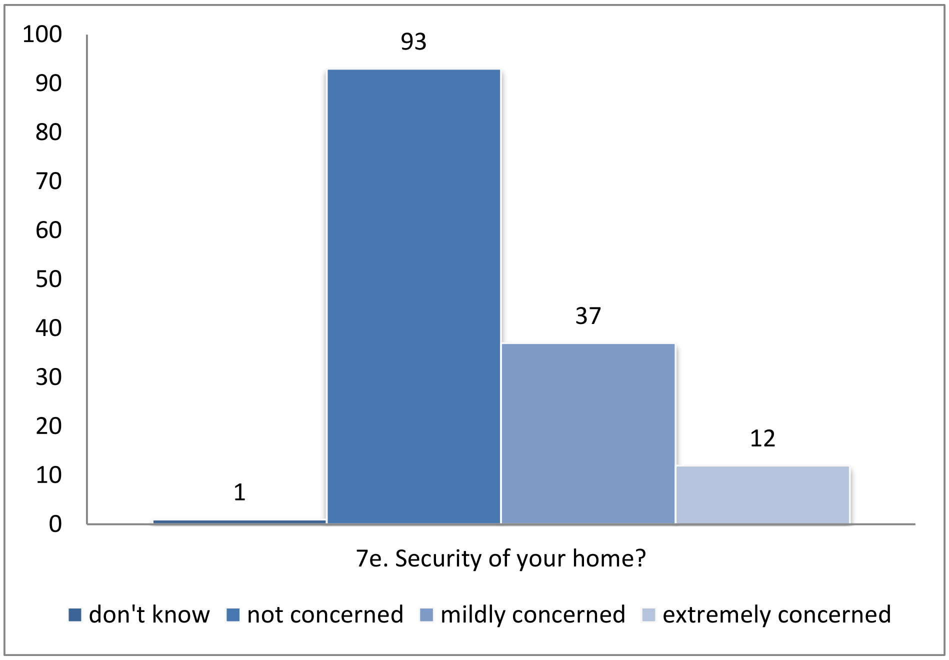
Overall 46% of respondents were not concerned about the impact power outages would have in their lives, 42% were mildly concerned, and 11% were extremely concerned. Specifically 20% of respondents were extremely concerned about the temperature of their home during a power outage, and 54% were mildly concerned. Due to the extremely cold temperatures in the winter months in the Northwest and the fact that a large percentage of SLH customers heat their homes by electricity, this is not unexpected. Thirteen percent (13%) were concerned about how long their food would last, 11% were extremely concerned about their children's and family's safety, 8% about the safety of their home, and only 2% were extremely concerned about their ability to attend events. The responses are detailed in the graphs below:





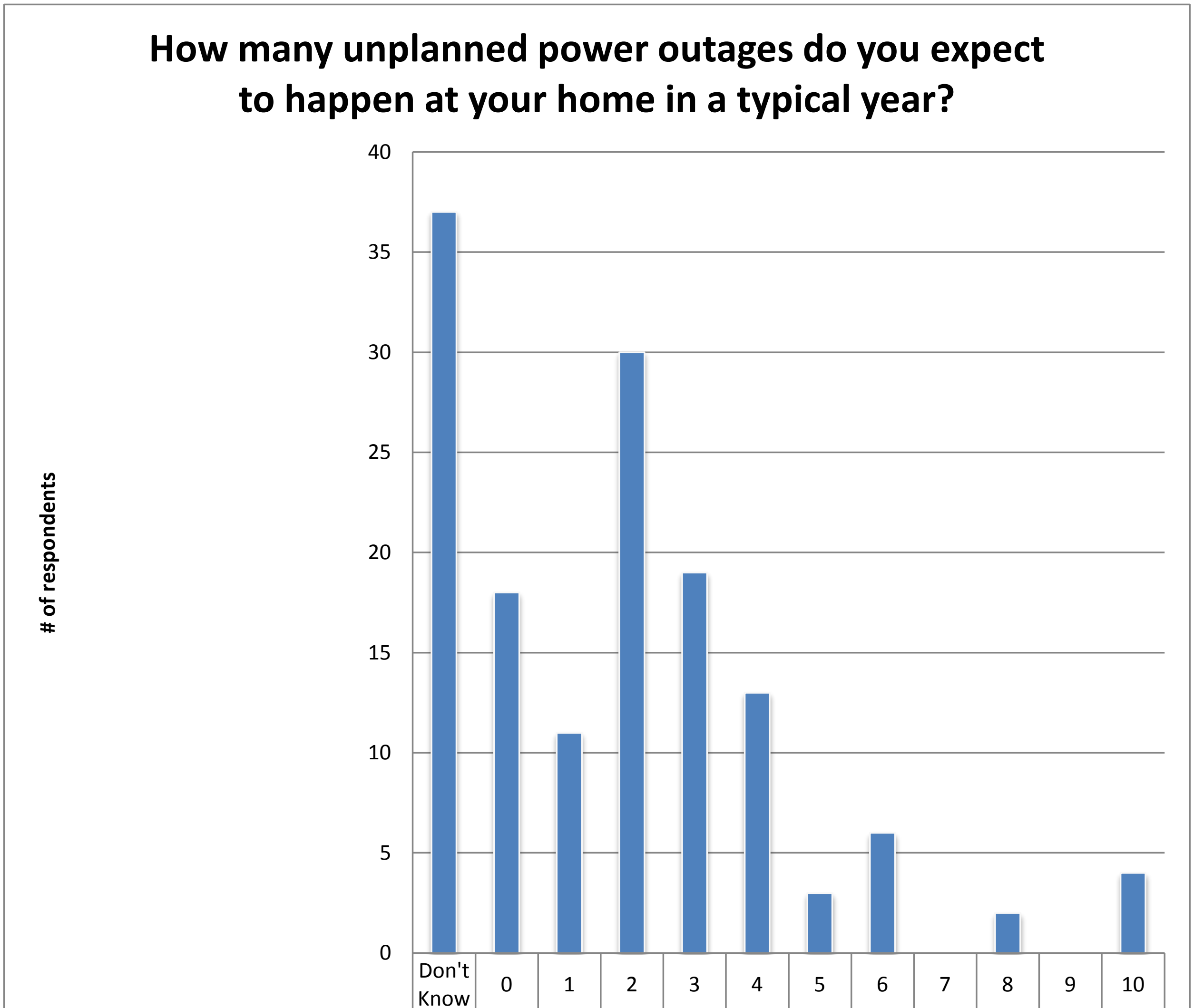

100
90
80
70
60
50
40
30
20
10
0
88
50
2
3
7c. Ability to attend events?
don't know
not concerned
mildly concerned
extremely concerned


80
70
60
50
40
30
20
10
0
69
57
15
1
7d. Children's and family's safety?
don't know
not concerned
mildly concerned
extremely concerned

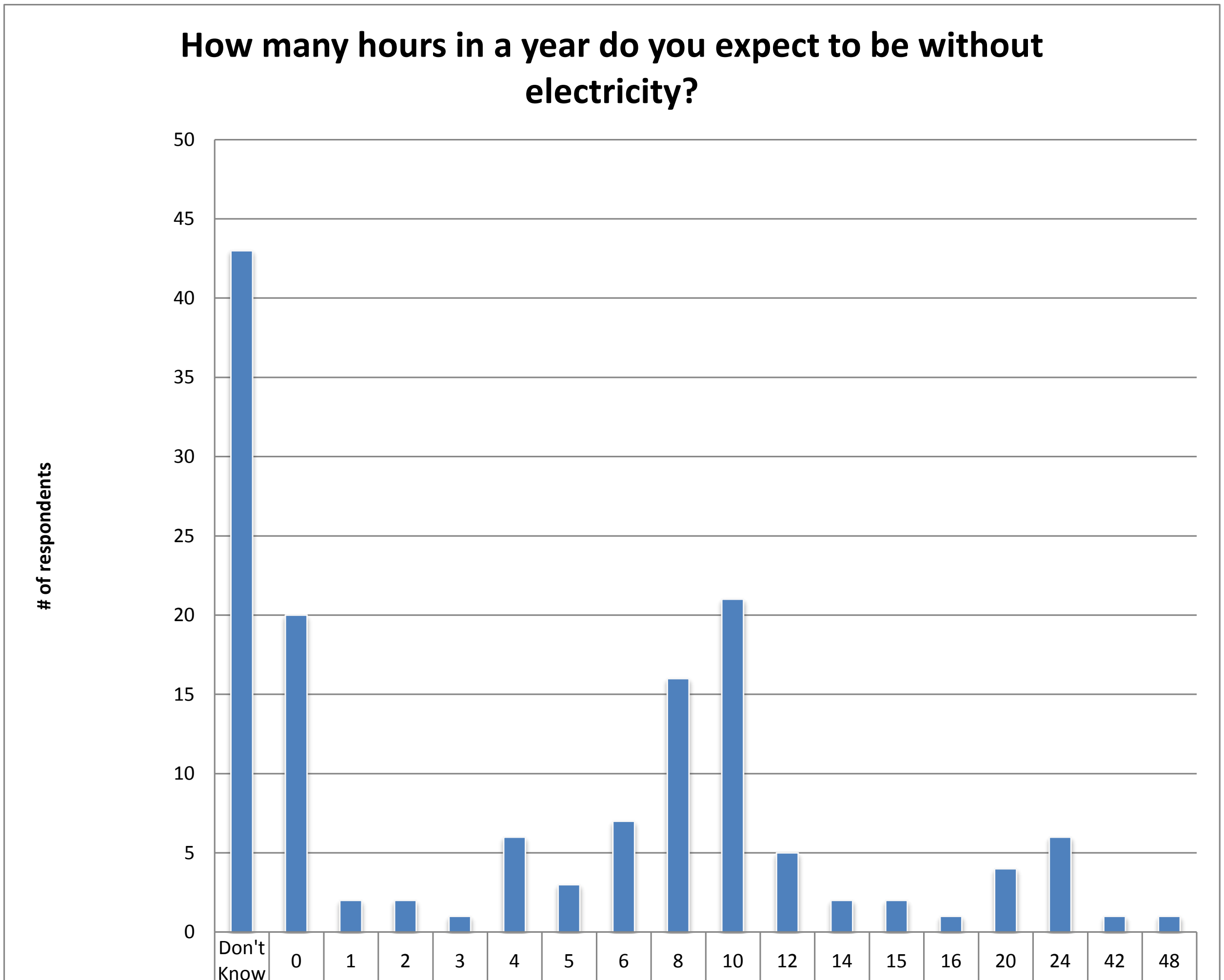

100
90
80
70
60
50
40
30
20
10
0
93
37
12
1
7e. Security of your home?
don't know
not concerned
mildly concerned
extremely concerned

Customer Expectations – Unplanned Outages:

Of the number of responses received, customers on average expect to experience 3 power outages per year. The average number of hours customers expect to be without power was 9.66 hours. SLH will use these customer expectations to establish customer driven reliability targets, and will commit to achieve the targets of 3 or fewer unplanned outages per customer per year as a result of SLH's distribution system and lasting no longer than 9.66 hours.



	Don't Know	0	1	2	3	4	5	6	7	8	9	10
8. How many unplanned power outages do you expect to happen at your home in a typical year?	37	18	11	30	19	13	3	6	0	2	0	4



	Don't Know	0	1	2	3	4	5	6	8	10	12	14	15	16	20	24	42	48
# of respondents	43	20	2	2	1	6	3	7	16	21	5	2	2	1	4	6	1	1

Customer Needs:

Electrical Vehicles

When asked whether or not SLH customers intended to purchase an electric car in the next five years, a very low percentage (2%) of respondents indicated their intent to purchase one. Given the low level of interest, SLH does not plan to undertake related activities or expenditures in the next five years.

Renewable Generation

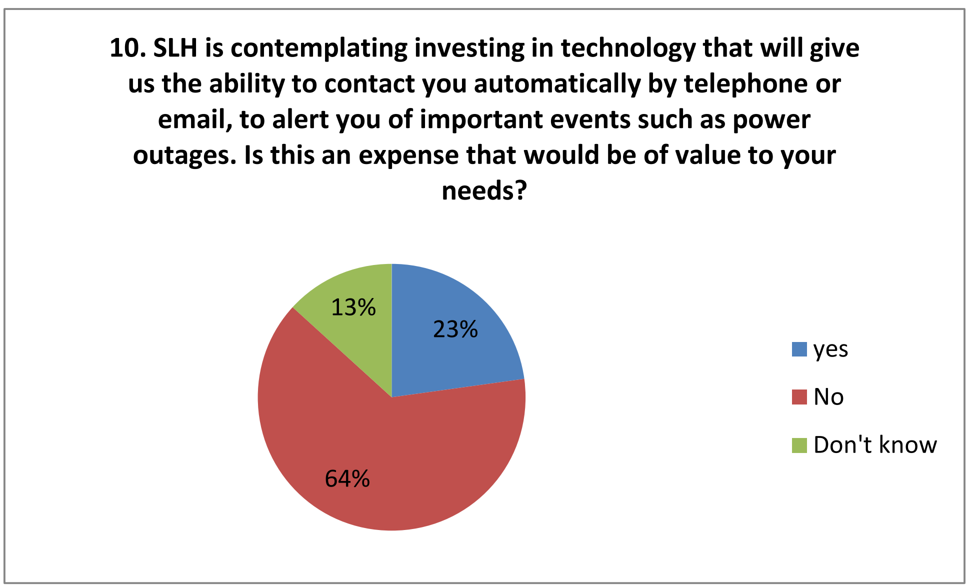
Currently SLH has 8 microFit customers with solar generation. Only 7.9% of respondents indicated they were planning on installing small scale renewable generation systems for their home. This amounts to around eleven customers. Due to the low level of interest from customers and the fact that SLH has sufficient capacity to connect a minimum of 2 MW of additional renewable generation no additional plans are being made to invest in additional infrastructure for renewable generation.

Energy Storage System

Respondents indicated a relatively low desire to install an energy storage system in the next five years. Overall, only 5% of respondents answered yes to this question. SLH does not foresee any major change in its business needs in order to be able to accommodate home energy storage systems. However, SLH does not have any practical experience to date with these systems.

Outage Management System

When asked if an outage management system would be of value to their needs, 63.9% percent indicated that they would not want this if there would be an additional cost to them. Only 22.8% indicated that "yes" the expense would be of value to their needs and 13.2% indicated they didn't know. SLH plans to do some preliminary research on how to improve their outage management system as there may be opportunities within the current rate base/revenue requirement in order to improve reliability and response times as well as diagnostic services which could be utilized in order to reduce the length of outages. This would allow SLH to improve on customer service through better communication and response times at no extra cost to the customer.



Online Account Management

SLH launched its online management tool in June 2014. By the time the survey was sent out in October 2014 29.2% of the respondents were aware of the option. Of the customers who were aware of the option, 15% had created an account. All of these customers were either satisfied or extremely satisfied with the sign-up process and the website. All (100%) of the respondents thought that the website made them more aware of their energy usage. And 83% felt that it helped them to conserve energy. Going forward, SLH will continue to promote the website to encourage customers to take advantage of this valuable tool.

Customer Identified Energy or Electricity Related Issues:

When asked what the most important energy or electricity related issue facing Sioux Lookout was, the number one answer was the cost of energy or high rates. Of the 121 customers who provided a response to this question, 66 indicated that the cost is the most important. The second most important issue identified was concerns regarding only one transmission line into Sioux Lookout, reliability of power and frequent power outages. Eleven respondents indicated they were concerned that there was only one source of power into town. Also, 11 customers indicated that reliability, power outages and continuous supply were the most important issues.

Other issues identified were weather and climate change, better street lighting and conservation.

Given that the most important issue identified was the cost, SLH will stay committed to managing the costs in its control and creating efficiencies through sharing costs with the other Northwest District Local Distribution Companies. Also, pursuing an outage management system as discussed above will address the concerns about the reliability of power and frequent power outages.

Customer Suggestions for Improvements:

When asked about specific things that SLH could improve on to serve them better, 35 of the 88 customers who provided a response indicated that there was nothing. A summary of the most frequent responses is listed below:

Are there any specific things that SLH could improve on to serve you better?	% (#) of respondents
Nothing/Can't think of anything	40% (35)
Lower Costs	23% (20)
Check or improve street lights	6%(5)
Explain costs to customers	2% (2)
Twin E1C/backup powerline	2% (2)
Planned outages should be shorter	2% (2)

General Comments Received:

Overall 56 general comments were received. Of these, 32 contained positive comments, 12 were suggestions and 12 were negative comments.

<u>Some of the positive comments were:</u>

"Very friendly, efficient office staff"

"Very satisfied considering extreme weather"

"staff are wonderful, friendly & knowledgeable"

"By and large service is excellent"

“SLH always provides quick and courteous service”

“We think you do a fantastic job!”

“<u>The negative comments were:</u>

“High cost of electricity rapidly rising”

“Delivery Charges & HST are too high”

“Don’t waste money on technology, focus on lowering costs”

“Pricing & what we pay for (the extras) are not part of the energy we use.”

Summary:

SLH is very pleased with the customer feedback received. SLH will continue to promote its online management tool in order to increase the awareness of this option which will aid our customers in conservation as well as decrease costs through providing e-billing. We take pride in our customer service. As a small community we are able to connect with people much better than in large communities with larger customer bases, and through the general comments were told that our efforts are very much appreciated.

SLH is committed to further pursue smart grid options which will improve reliability while at the same time provide our customers added benefits at little or no additional cost to them. The issue of cost was the most important issue facing our customers, therefore we strive to increase operational efficiencies in order to minimize distribution rate increases.

Appendix E – 2016 Customer Survey

Management Response

Approach:

In July of 2016, Sioux Lookout Hydro (SLH) conducted a customer satisfaction survey. The survey used was developed by Innovative Research Group for the EDA in January 2016. Overall Customer satisfaction and five key areas were addressed. They were: Power Quality and Reliability, Price, Billing and Payment, Communications and the Customer Service Experience. A Customer Satisfaction Index Score was determined based on the results from each area.

All residential and small business customers were given the opportunity to comment on SLH's performance, voice concerns and present their opinion on present and future services. SLH performed the survey via telephone calls and customers were also given the option to complete the survey online through a link on the SLH website until September 30, 2016. SLH is pleased with the results of the survey based on 216 out of a possible 2,740 low volume customers or 8%.

Total Low Volume Customer Satisfaction Index Score: 82.99%

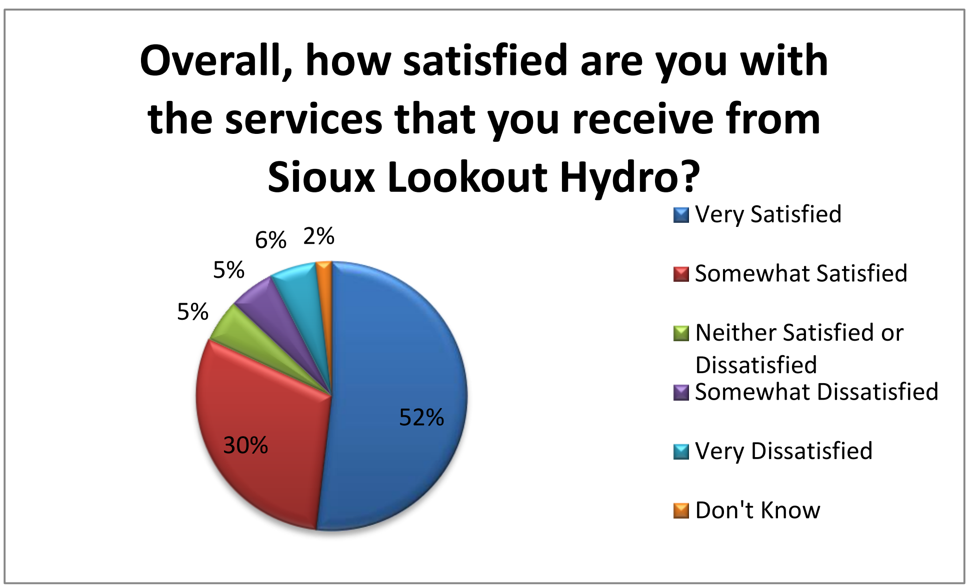
Consisting of:

Residential: 82.54% (194 responses)

Small Business (General Service < 50 kW): 86.96% (22 responses)

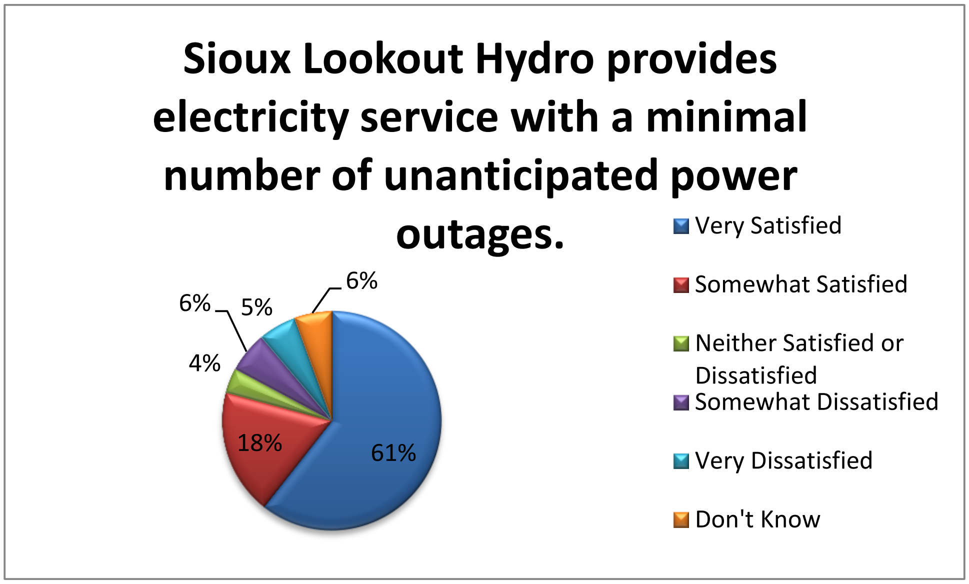
Overall Customer Satisfaction:

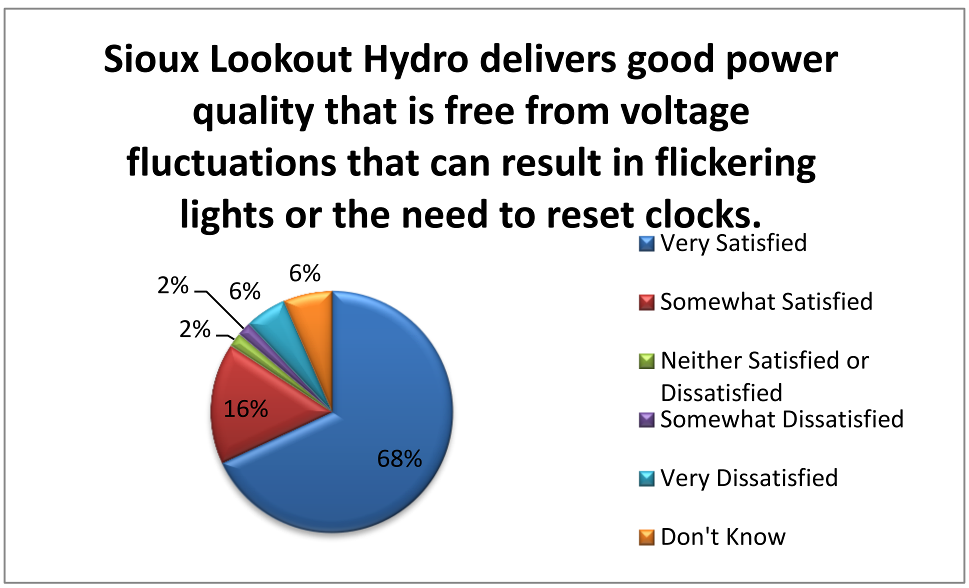
Overall, customers were either somewhat satisfied (30%) or very satisfied (52%) with the services provided by SLH. The score in this area was 79.3%.

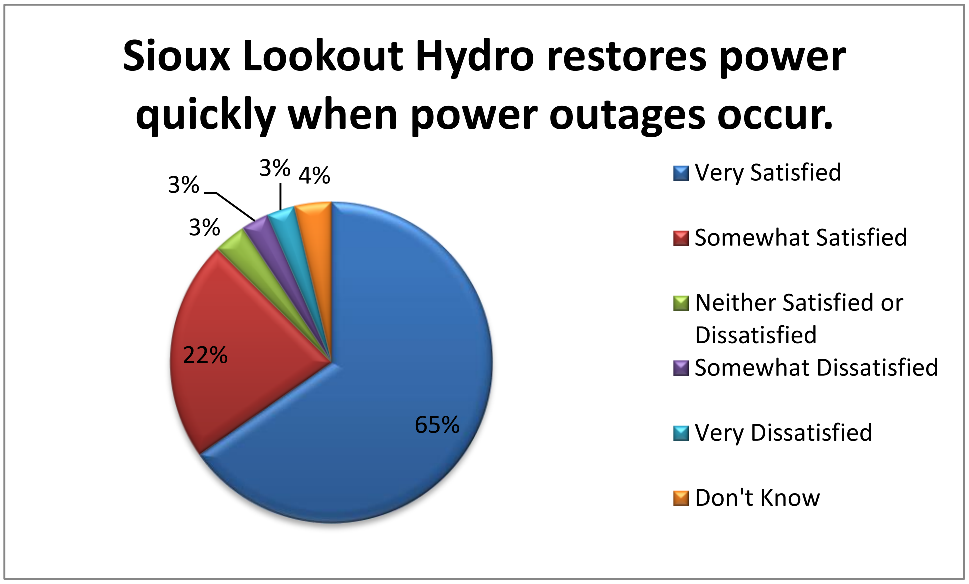


Power Quality and Reliability:

Customers overall were satisfied (61.1%) and extremely satisfied (31.9%) with the reliability of the electricity supplied. The total score in this area was 83.9%.

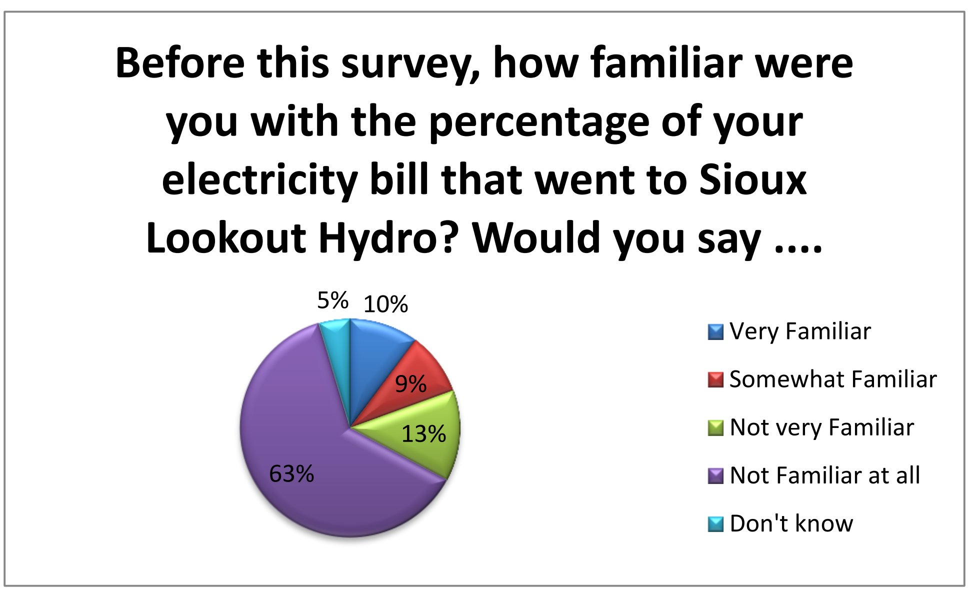


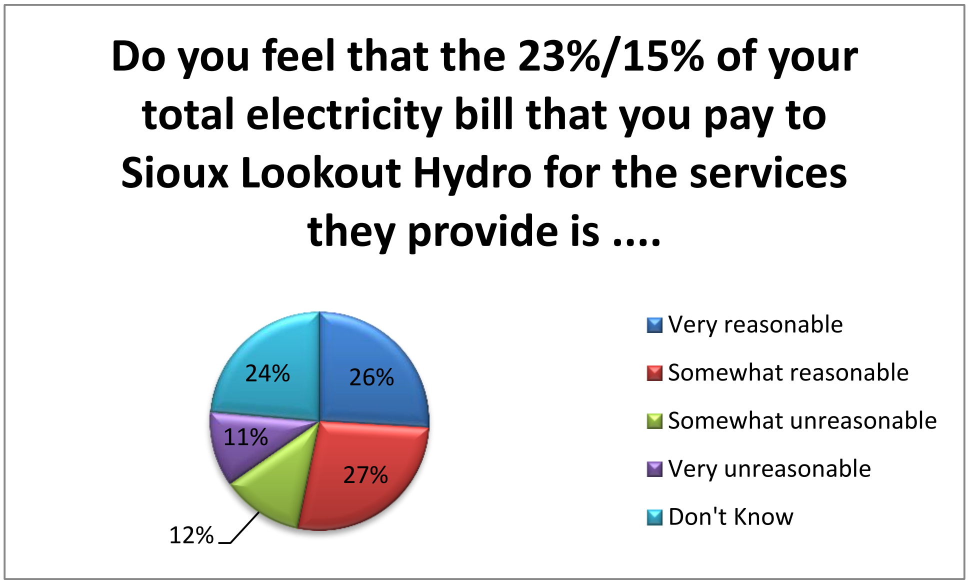




Price:

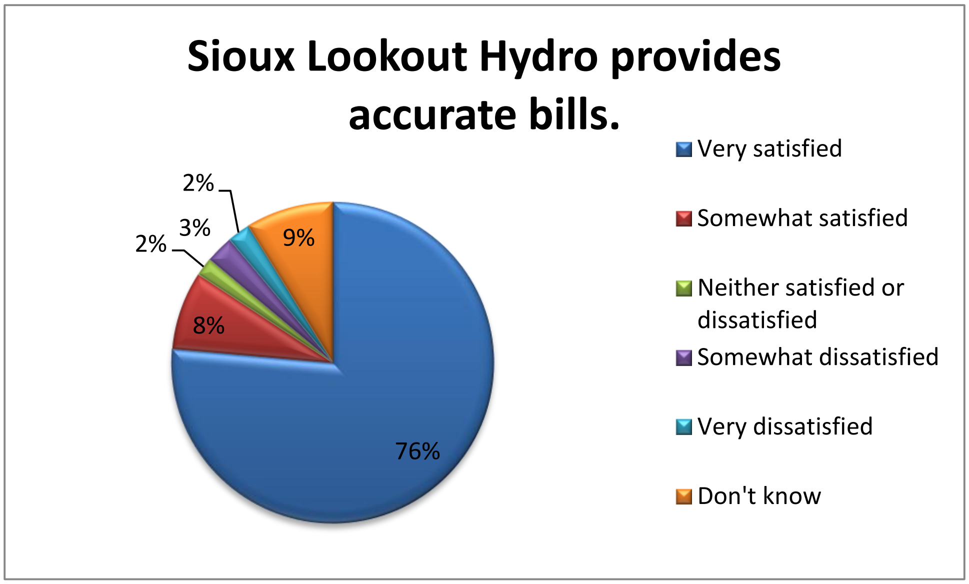
Customer Satisfaction with price was the lowest at a score of 59.7%. It was discovered during the survey that there was some confusion as to the intent of the answers. Some customers indicated an answer of "Very unreasonable" when asked whether or not the portion of the bill that went to SLH was reasonable or unreasonable. Then stated that they felt it was not enough. Therefore it can be concluded that this question is somewhat misleading as there are two interpretations, one favourable and one unfavourable, of the meaning.

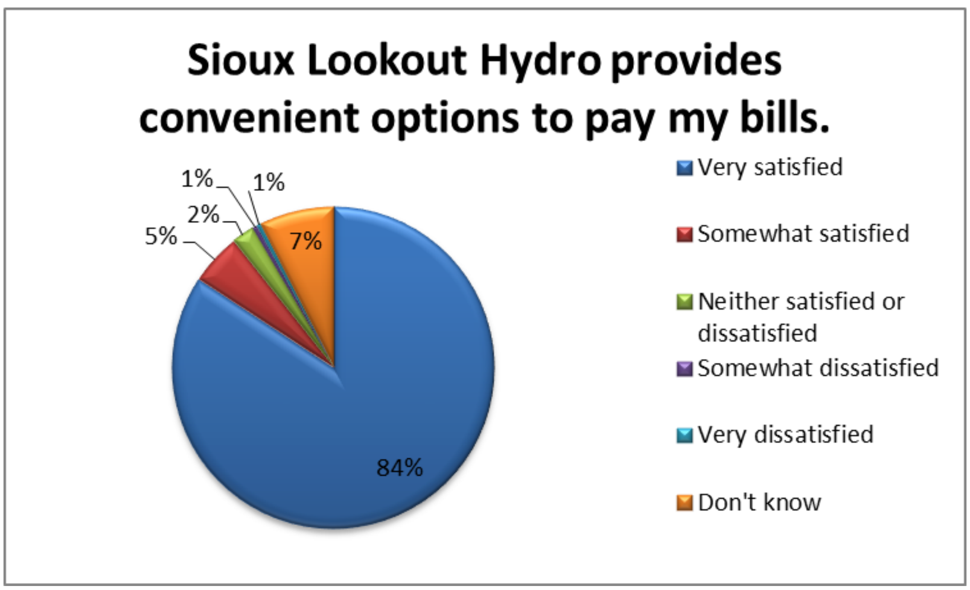


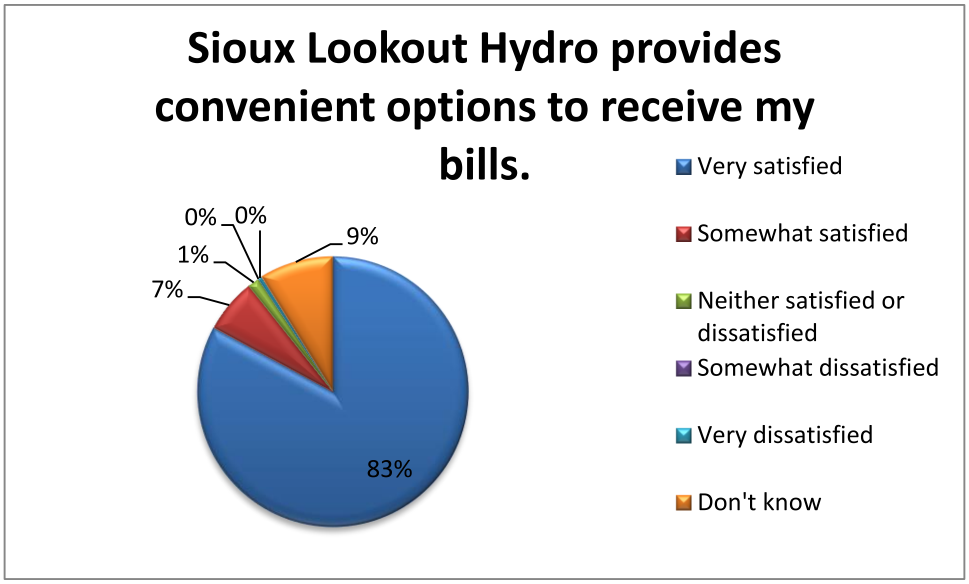

Do you feel that the 23%/15% of your total electricity bill that you pay to Sioux Lookout Hydro for the services they provide is ....
26%
27%
12%
11%
24%
Very reasonable
Somewhat reasonable
Somewhat unreasonable
Very unreasonable
Don't Know

Billing and Payment:

SLH received very positive feedback on their Billing and Payment options. Overall the satisfaction for this area was 91.4%.

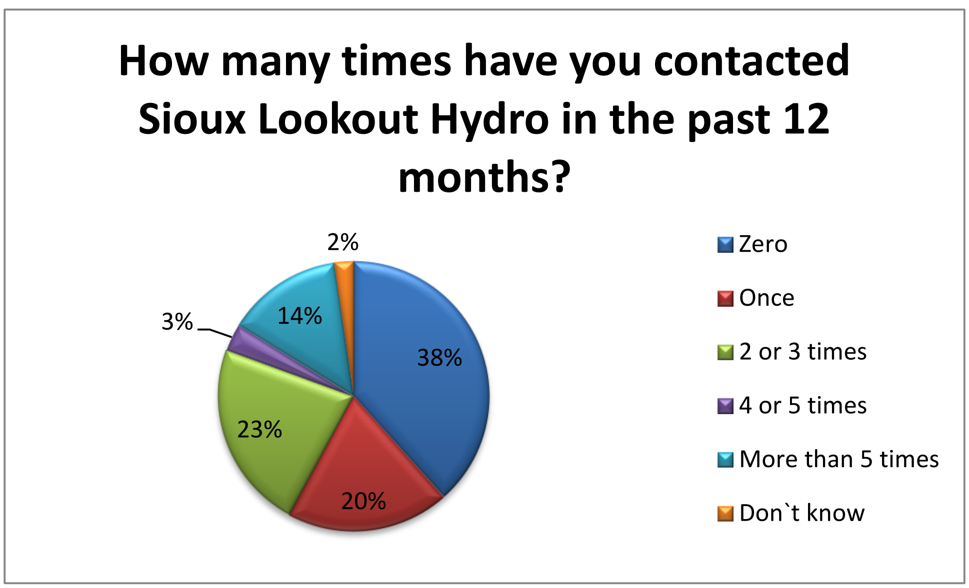


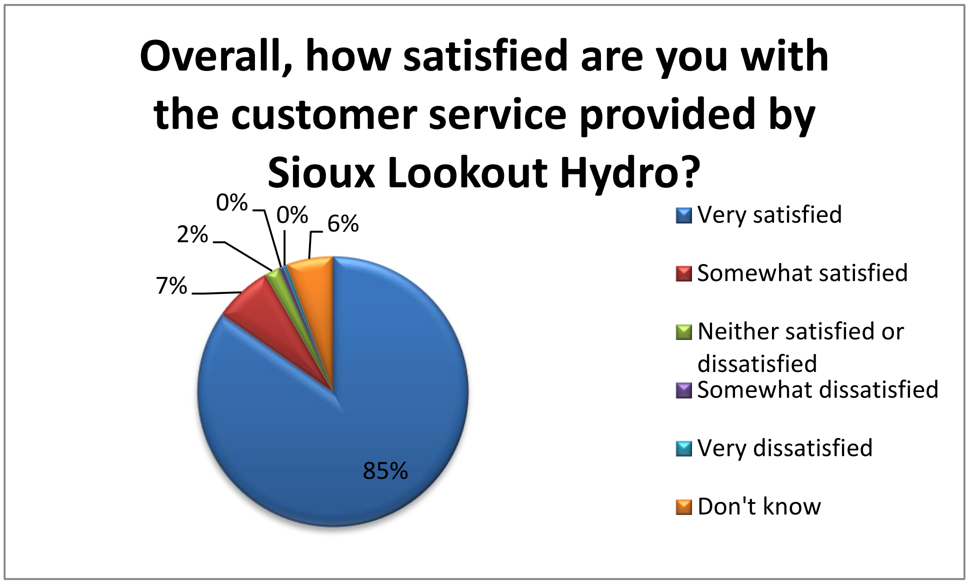




Customer Service Experience:

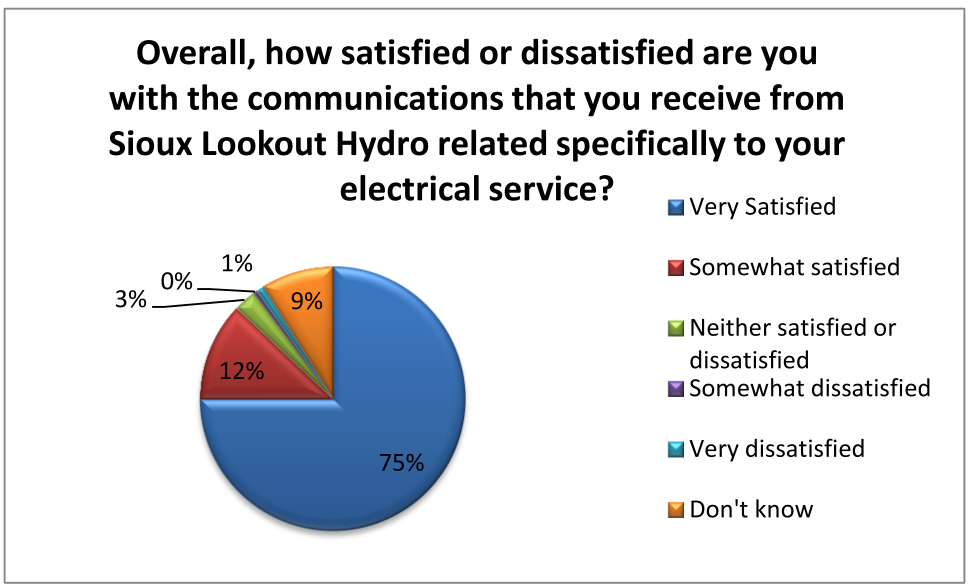
SLH scored exceptionally high in the Customer Service area. The overall score in this area was 93.8%. SLH feels that our ability to connect with our customers due to our small size it a great advantage over other larger LDCs.





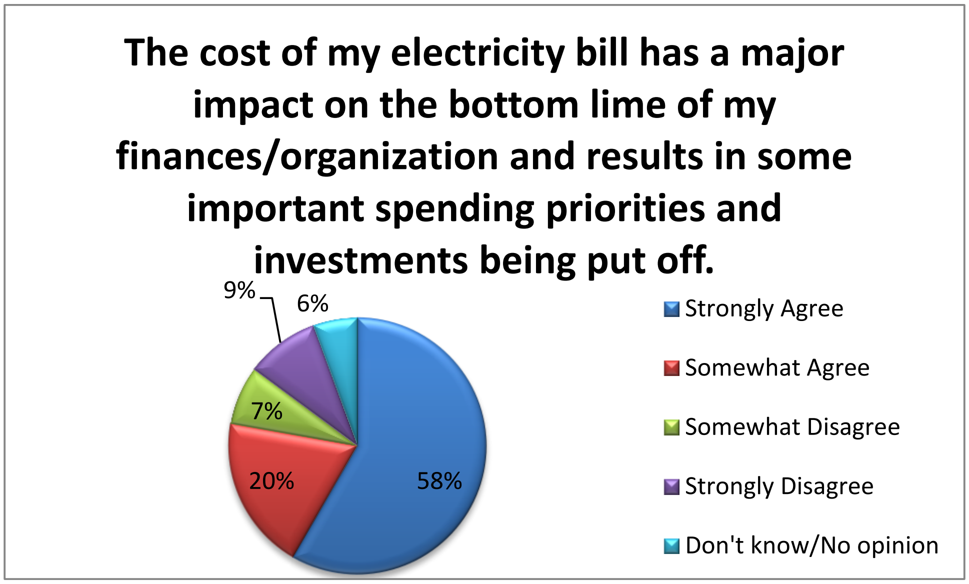
Communications:

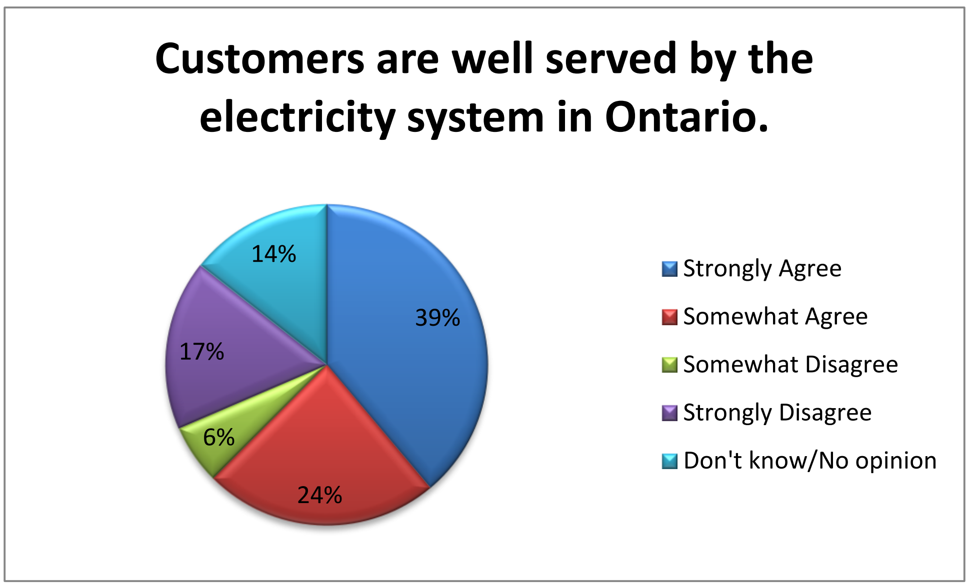
Overall SLH's customers were very satisfied with the communications they receive. The overall score for this area was 89.9%.



Environmental Controls:

Although this area was not a part of the overall score, customers were asked how the cost of their electricity bill impacted them, as well as whether or not they felt that they were well served by the electricity system in Ontario. 78% of respondents felt that the cost of electricity had an impact on their spending priorities and investments.





Customer Suggestions for Improvements:

When asked about specific things that SLH could improve on to serve them better, the top answer was costs/prices/lower rates. Below is a table outlining comments received more than once.

Is there anything in particular you would like Sioux Lookout Hydro to do to improve its service to you?	% (#) of responses
Lower Costs/prices/lower rates/Delivery too high	(77)
Reduce outages	(20)
Disagreed with paying charges when no hydro is used	(2)
Timing of Scheduled Outages (i.e. not on weekends, shorter, less frequent)	(5)

As demonstrated cost is by far SLH's customers' top concern. And when referring back to the question on price, 76% of the customers surveyed were not very familiar or not familiar at all with the percentage of the electricity bill that Sioux Lookout Hydro receives, and has control over. However, SLH will continue to look for ways to decrease their costs through efficiencies and taking advantage of new technologies and maintaining our partnerships with bordering local distribution companies.

A few customers commented that they would like to see a fewer number of scheduled and shorter scheduled outages in Sioux Lookout. Sioux Lookout Hydro experienced three long outages in 2016 scheduled by our host distributor, Hydro One. Since we are supplied by one radial feed into the community these outages affected the entire town. Hydro One was performing maintenance and upgrades to the transmission line and station which required these outages scheduled for 5, 6 and 6 hours, each on a Sunday. In prior years, there have been at least one such outage either/and in the spring and/or fall each year. This was the first year that Hydro One required three, and was fresh in our customers' minds since they occurred just before the survey was conducted.

Conclusion:

SLH is very pleased with the customer feedback received. We take pride in our customer service. As a small community we are able to connect with people much better than in large communities with larger customer bases. Price and reliability continue to be our customers' highest concern. Therefore SLH will continue to strive to increase operational efficiencies in its control in order to minimize distribution rate increases. One of the top challenges SLH faces due to its size and remote location is attracting businesses and contractors to the area in order to provide specialized services. However, SLH is committed to further pursue smart grid options which will improve reliability while at the same time provide our customers added benefits at little or no additional cost to them.

Appendix F – Reliability Comparator Data

Service Quality Indicators – SLHI's Comparator LDCs

2012	Atikokan	Fort Frances	Kenora	Chapleau	Espanola
Including LOS					
SAIDI	4.31	0.3	0.73	0.44	1.13
SAIFI	1.47	0.3	1.46	0.28	0.5
CAIDI	2.92	1.02	0.5	1.54	2.24
Excluding LOS					
SAIDI	0.3	0.3	0.43	0.44	1.13
SAIFI	0.47	0.3	0.46	0.28	0.5
CAIDI	0.64	1.02	0.94	1.54	2.25

2013	Atikokan	Fort Frances	Kenora	Chapleau	Espanola
Including LOS					
SAIDI	3.43	11.37	1.42	2.32	1.05
SAIFI	1.12	3.19	1.11	2.85	0.4
CAIDI	3.07	3.56	1.28	0.81	2.66
Excluding LOS					
SAIDI	3.43	0.1	0.36	2.18	1.05
SAIFI	1.12	0.14	0.11	2.58	0.4
CAIDI	3.07	0.74	3.12	0.85	2.66

2014	Atikokan	Fort Frances	Kenora	Chapleau	Espanola
Including LOS					
SAIDI	0.37	1.18	0.53	5.09	1.27
SAIFI	0.09	1.17	0.29	2.46	2.29
CAIDI	-	-	-	-	-
Excluding LOS					
SAIDI	0.37	1.18	0.53	0.28	0.29
SAIFI	0.09	1.17	0.29	0.38	0.15
CAIDI	-	-	-	-	-

2015	Atikokan	Fort Frances	Kenora	Chapleau	Espanola
Including LOS					
SAIDI	4.15	10.27	1.34	14.72	0.9
SAIFI	1.04	2.67	4.35	3.98	0.18
CAIDI					
Excluding LOS					
SAIDI	0.13	1.02	0.61	4.75	0.28
SAIFI	0.03	1.21	0.35	1.07	0.03
CAIDI					

SAIFI Inc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	1.47	0.3	1.46	0.28	0.05	3.56	0.712
2013	1.12	3.19	1.11	2.85	0.4	8.67	1.734
2014	0.09	1.17	0.029	2.46	2.29	6.039	1.2078
2015	1.04	2.67	4.35	3.98	0.18	12.22	2.444

SAIDI Inc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	4.31	0.3	0.73	0.44	1.13	6.91	1.382
2013	3.43	11.37	1.42	2.32	1.05	19.59	3.918
2014	0.37	1.18	0.53	5.09	1.27	8.44	1.688
2015	4.15	10.27	1.34	14.72	0.9	31.38	6.276

CAIDI Inc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	2.92	1.02	0.5	1.54	2.24	8.22	1.644
2013	3.07	3.56	1.28	0.81	2.66	11.38	2.276
2014	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-

SAIDI Exc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	0.3	0.3	0.43	0.44	1.18	2.65	0.53
2013	3.43	0.1	0.36	2.18	1.05	7.12	1.424
2014	0.37	1.18	0.53	0.28	0.29	2.65	0.53
2015	0.13	1.02	0.61	4.75	0.28	6.79	1.358

SAIFI Exc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	0.47	0.3	0.46	0.28	0.5	2.01	0.402
2013	1.12	0.14	0.11	2.58	0.4	4.35	0.87
2014	0.09	1.17	0.29	0.38	0.15	2.08	0.416
2015	0.03	1.21	0.35	1.07	0.03	2.69	0.538

CAIDI Exc LOS	Atikokan	Fort Frances	Kenora	Chapleau	Espanola	Total	Average
2012	0.64	1.02	0.94	1.54	2.25	6.39	1.278
2013	3.07	0.74	3.12	0.85	2.66	10.44	2.088
2014	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-

All data derived from the OEB Electricity Distributors Yearbooks

Appendix G – SLHI GEA Plan 2012

GREEN ENERGY ACT PLAN

SEPTEMBER 2012

SIOUX LOOKOUT HYDRO INCORPORATED
25 FIFTH AVENUE, P.O. BOX 908
SIOUX LOOKOUT, ON P8T 1B3

TABLE OF CONTENTS

SIOUX LOOKOUT HYDRO INCORPORATED
25 FIFTH AVENUE, P.O. BOX 908
SIOUX LOOKOUT, ON P8T 1B3

INTRODUCTION

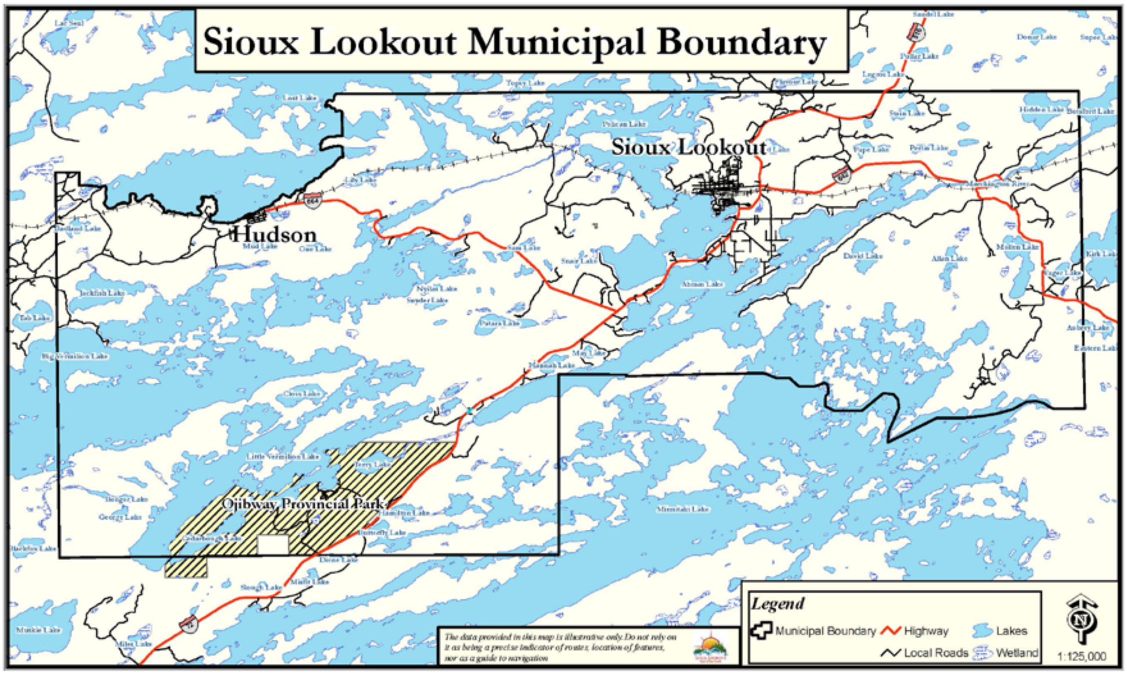
Sioux Lookout Hydro Inc. (SLHI) is a licensed electricity distributor for the Municipality of Sioux Lookout servicing approximately 2,750 customers. As a condition of license and in accordance with the Ontario Energy Board's (OEB) filing requirements of EB-2009-0397, Distribution System Plans – Filing under Deemed Conditions of License, SLHI has prepared a basic Green Energy Act Plan (GEA Plan) for its franchise area for the 2013 to 2017 period.

The GEA Plan is intended to provide information to the OEB and interested stakeholders regarding the preparedness of SLHI's distribution system to accommodate the connection of renewable generation and the expansion or reinforcement necessary to accommodate renewable generation and the development of the smart grid.

Sioux Lookout is located in northwestern Ontario as shown in Figure 1. Below. The service territory for SLHI is the municipal boundaries of the town and is shown in figure 2.

Figure 1

Figure 2



In preparing this document SLHI consulted with Hydro One Networks Inc. (HONI) & the Ontario Power Authority.

OVERVIEW OF SIOUX LOOKOUT HYDRO'S DISTRIBUTION SYSTEM

SLHI operated a 25 kV distribution system connected to the Sam Lake DS. The Sam Lake DS is owned and operated by Hydro One Networks Inc.

Description of Sioux Lookout Hydro's Feeders

The Sam Lake DS provides four feeders to the SLHI system. Their usage is explained below:

F1: This feeder stretches West from the station to the town of Hudson. This community represents most of the load on this feeder. Some additional load exists between the community and station where small pockets of residences are found. This feeder also supplies a Hydro One load transfer to Frenchman's Head, a small community across the lake from Hudson. Submarine cable is used for this load Transfer.

F2: This feeder extends South East of the station to provide power for the South half of Sioux Lookout including the South Shore of Sturgeon River. The blue phase of this feeder branches South into rural areas on Highway 72.

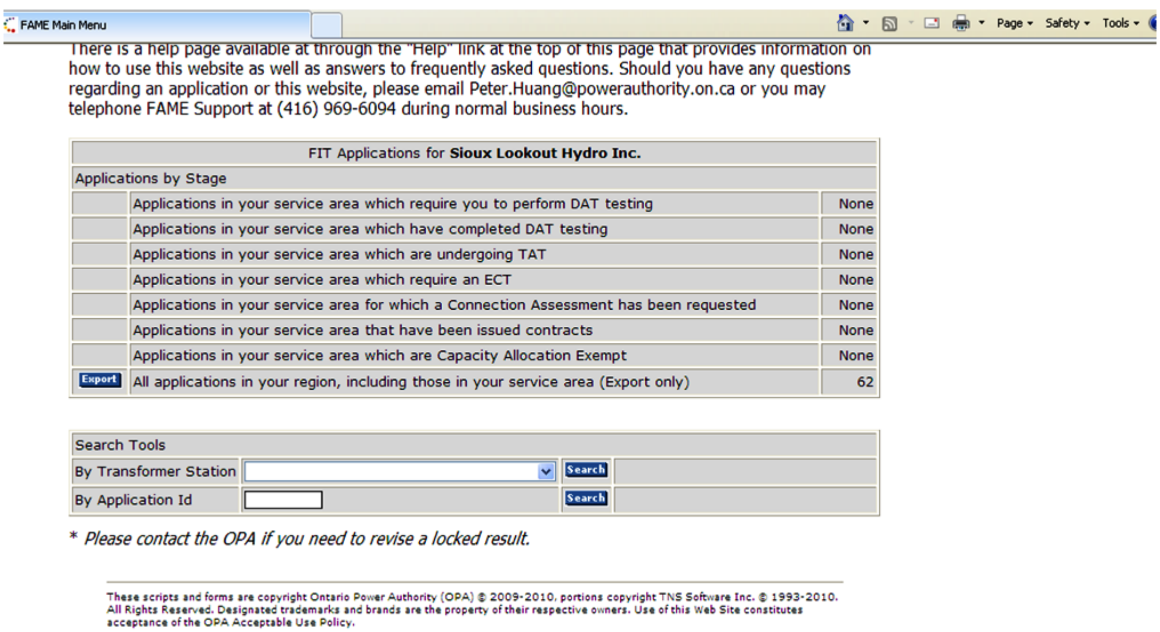
F3: This feeder travels East of the station to the community of Sioux lookout where it feeds the upper half of the community. This stretch includes some of the heavier loads in the town including the airport and hospital. This blue phase of this feeder continues East of the town to provide a rural area on Highway 642 and load transfer for Hydro One.

F4: This feeder does not currently carry any load. Previously it had been a dedicated feeder for the Hudson Saw Mill. With the mill's closure the load has been removed.

APPLICATIONS FROM RENEWABLE GENERATORS OVER 10 KW

SLHI does not have any applications from renewable generators over 10 kW for connection, and the OPA has not received any applications for renewable generators over 10 kW for the FIT Program for SLHI's service territory. See Figure 3 below taken from the OPA Fame website September 10, 2012.

Figure 3



FAME Main Menu

There is a help page available at through the "Help" link at the top of this page that provides information on how to use this website as well as answers to frequently asked questions. Should you have any questions regarding an application or this website, please email Peter.Huang@powerauthority.on.ca or you may telephone FAME Support at (416) 969-6094 during normal business hours.

FIT Applications for **Sioux Lookout Hydro Inc.**		
Applications by Stage		
	Applications in your service area which require you to perform DAT testing	None
	Applications in your service area which have completed DAT testing	None
	Applications in your service area which are undergoing TAT	None
	Applications in your service area which require an ECT	None
	Applications in your service area for which a Connection Assessment has been requested	None
	Applications in your service area that have been issued contracts	None
	Applications in your service area which are Capacity Allocation Exempt	None
Export	All applications in your region, including those in your service area (Export only)	62

Search Tools		
By Transformer Station		Search
By Application Id		Search

* *Please contact the OPA if you need to revise a locked result.*

OVERALL POTENTIAL FOR DEVELOPING RENEWABLE GENERATION

Currently SLHI has 6 solar MicroFit projects connected, consisting of one (1) ground mount and five (5) rooftop mounted, for a total capacity of 59.41 kW. There are two (2) applications in pending connection status as well as one (1) in submitted status.

PLANNED DEVELOPMENT AND CONSTRAINTS WITHIN THE DISTRIBUTOR'S SYSTEM RELATED TO THE CONNECTION OF RENEWABLE GENERATION

The Sam Lake DS currently has 16MW of station availability to accommodate additional renewable generation. As an embedded distributor to Hydro One, SLHI will have to communicate and receive authorization from Hydro One before undertaking any FIT projects.

The following information was received from the OPA regarding SLHI's ability to connect FIT projects:

"For Sam Lake DS, this station has 16 MW of station availability to accommodate additional renewable generation. Please note this availability is based only on the station's ability to connect. For a project to be issued a FIT contract, the project must be accommodated at all levels, including distribution system, station, local transmission circuits, and area transmission. As you notice the TAT Table also list a Northwest area availability of 0 MW. This means the Northwest is fully subscribed and no FIT project will be offered a contract due to limitations on the bulk transmission system (the East-West Tie).

Currently the OPA is actively participating in the OEB's Transmission Designation Process to designate a transmitter to develop the East-West Tie expansion. The project has a planned in-service date of 2017. You can find further information on OEB's web site. There is also an on-going effort for transmission system expansion to accommodate additional load increases in the area North of Dryden."

See Table 1 below for an excerpt of the OPA's Transmission Availability Table for small FIT 2012:

Table 1

		Capability for Small FIT 2012					
Station Name	Bus Name	Thermal Capacity (MW) (See note 1)	Short Circuit Capacity (MVA) (See note 1)	Limited by Known Upstream Transmission	Area	Area Availability (MW)	Station Owner
SAM LAKE DS	Total	16	92		Northwest	0	HYDRO ONE NETWORKS INC.

Note 1: Capability values indicated reflect the reservation of 2 MW of capacity for microFIT projects at each station (2 MW per bus at stations with more than one bus).

The full Transmission Availability Table can be found using the link below:

http://fit.powerauthority.on.ca/sites/default/files/TAT%20Table%20Final%20-%20April%205%20for%20posting.pdf

CONCLUSION

Sioux Lookout Hydro will continue to monitor the capacity for the Northwest Region. Given the OPA’s information regarding the Northwest’s limitations, SLHI will not be applying for rates to support investments for FIT installations for at least another 5 years. However, SLHI will continue to assist and work with MicroFit applicants to ensure timely connections.

Appendix H – Fleet Information

Planned Replacements - 2018-2022

Make	Model	Year	Planned Replacements
Chevrolet	CK10753 4x4 EC	2010	2021
International	AM55E	2013	2020
Freightliner	FL80	2001	2018
Ford	F-S/Duty	2008	2019
GMC	Sierra 4x4 2500	2015	
Ski-Doo	Skandic SWT	2016	
Polaris	Ranger 6x6	2005	
Bobcat	E50	2012	

SLHI Vehicle Replacement Assessment Guidelines

Assessment Year	2016
Unit #	H-3
Year	2001
Description	Freightliner
Classification	Heavy
Original Cost	$228,000

Light or Heavy

Variable	Point Allocation	Performance factors	Points
Age	1 point for each year of age	15 years	15
Kilometers	1 point for each 25,000 km of use	68,209 km	2.73
Engine Hours	1 point for each equivalent 25,000km of use (1 engine hour ~ 50km)	2,418 hrs	4.84
Type of Service (duties or driving conditions)	1, 3 or 5 points based on type of service (ie harsh/offroad = 5; paved/daily use = 3; paved/non-daily use = 1)		3
Reliability	1, 3 or 5 points depending on frequency that vehicle is in shops for repair (ie. 2-3x/month = 5; 1x/3 months = 1)		1
Maintenance and Repair Costs	1, 3 or 5 points based on total life costs. (ie. lifetime costs > original vehicle cost = 5; lifetime costs <20% original vehicle cost = 1)	70%	4
Condition	1, 3 or 5 points based on body condition, rust, interior condition, accident history , anticipated repairs,etc. (ie.		5
Other	1 - 5 points for any other condition criteria not covered above		
		Total Points	**35.57**

Points evaluation	Light	Heavy
Very Good Condition	<20 pts	<18 pts
Good Condition	20 - 24 pts	18 - 22 pts
Fair Condition	24 - 29 pts	23 - 28 pts
Replacement condition	30+ points	29+ points

Condition Assessment | **Note 2**

Notes

Received Memo from mechanic that the vehicle is recommended for replacement due to rust issues.

Assessed by: Terry Baker, Accounting & Regulatory Clerk

Date

Note 1 - Adapted from Guide to Vehicle Replacement and Right Sizing - Saskatchewan Ministry of Government Services

Note 2 - Box shade "red" - Replace; Box shade "yellow" - Fair; Box shade "green" - Good or Very Good

RECEIVED MAR 1 6 2017

CORPORATION OF THE MUNICIPALITY OF SIOUX LOOKOUT
PUBLIC WORKS DEPARTMENT

M E M O R A N D U M

TO: Deane Kulchyski, CEO – Sioux Lookout Hydro

FROM: Jeff Farliner, Chief Mechanic

DATE: March 15, 2017

SUBJECT: Condition Report – 2000 Freightliner (Auger) – Hydro Unit H-3

On performing the safety inspection on January 27, 2017, I noted a great deal of rust and scale on the frame rails (cab back) and auger deck underside. It is to the point that the metal is coming off in pieces. The deck underside support beams are getting thin. Possibly by next year, there could be perforation through them. I had to change one brake air reservoir because of the rust, as part of the safety.

The recommendation for this unit is replacement.

Regards,
Jeff Farlinger
Chief Mechanic

Jeff Farlinger

SLHI Vehicle Replacement Assessment Guidelines[1]

Assessment Year	2016
Unit #	H-5
Year	2008
Description	Ford F350
Classification	Heavy
Original Cost	$68,430

Light or Heavy

Variable	Point Allocation	Performance factors	Points
Age	1 point for each year of age	8 years	8
Kilometers	1 point for each 25,000 km of use	122,160 kms	4.89
Engine Hours	1 point for each equivalent 25,000km of use (1 engine hour ~ 50km)	n/a	
Type of Service (duties or driving conditions)	1, 3 or 5 points based on type of service (ie harsh/offroad = 5; paved/daily use = 3; paved/non-daily use = 1)		3
Reliability	1, 3 or 5 points depending on frequency that vehicle is in shops for repair (ie. 2-3x/month = 5; 1x/3 months = 1)		3
Maintenance and Repair Costs	1, 3 or 5 points based on total life costs. (ie. lifetime costs > original vehicle cost = 5; lifetime costs <20% original vehicle cost = 1)		3
Condition	1, 3 or 5 points based on body condition, rust, interior condition, accident history , anticipated repairs,etc. (ie.		3
Other	1 - 5 points for any other condition criteria not covered above		
		Total Points	**24.89**

Points evaluation	Light	Heavy
Very Good Condition	<20 pts	<18 pts
Good Condition	20 - 24 pts	18 - 22 pts
Fair Condition	24 - 29 pts	23 - 28 pts
Replacement condition	30+ points	29+ points

Condition Assessment **Note 2**

Notes

Assessed by: Terry Baker, Accounting & Regulatory Clerk

Date

Note 1 - Adapted from Guide to Vehicle Replacement and Right Sizing - Saskatchewan Ministry of Government Services

Note 2 - Box shade "red" - Replace; Box shade "yellow" - Fair; Box shade "green" - Good or Very Good

SLHI Vehicle Replacement Assessment Guidelines[1]

Assessment Year	2016
Unit #	
Year	2010
Description	Chev Silverado
Classification	Light
Original Cost	$31,183

Light or Heavy

Variable	Point Allocation	Performance factors	Points
Age	1 point for each year of age	6 years	6
Kilometers	1 point for each 25,000 km of use	104,580 kms	4.18
Engine Hours	1 point for each equivalent 25,000km of use (1 engine hour ~ 50km)	n/a	
Type of Service (duties or driving conditions)	1, 3 or 5 points based on type of service (ie harsh/offroad = 5; paved/daily use = 3; paved/non-daily use = 1)		3
Reliability	1, 3 or 5 points depending on frequency that vehicle is in shops for repair (ie. 2-3x/month = 5; 1x/3 months = 1)		1
Maintenance and Repair Costs	1, 3 or 5 points based on total life costs. (ie. lifetime costs > original vehicle cost = 5; lifetime costs <20% original vehicle cost = 1)		1
Condition	1, 3 or 5 points based on body condition, rust, interior condition, accident history , anticipated repairs,etc. (ie.		3
Other	1 - 5 points for any other condition criteria not covered above		
		Total Points	**18.18**

Points evaluation	Light	Heavy
Very Good Condition	<20 pts	<18 pts
Good Condition	20 - 24 pts	18 - 22 pts
Fair Condition	24 - 29 pts	23 - 28 pts
Replacement condition	30+ points	29+ points

Condition Assessment **Note 2**

Notes

Assessed by: xxxxxxxxx,Title

Date

Note 1 - Adapted from Guide to Vehicle Replacement and Right Sizing - Saskatchewan Ministry of Government Services

Note 2 - Box shade "red" - Replace; Box shade "yellow" - Fair; Box shade "green" - Good or Very Good

SLHI Vehicle Replacement Assessment Guidelines[1]

Assessment Year	**2016**
Unit #	
Year	2013
Description	International 7400 Bucket Truck
Classification	Heavy
Original Cost	$274,855

Light or Heavy

Variable	Point Allocation	Performance factors	Points
Age	1 point for each year of age	3 years	3
Kilometers	1 point for each 25,000 km of use	40,836 Km	1.63
Engine Hours	1 point for each equivalent 25,000km of use (1 engine hour ~ 50km)	1.285 hrs	2.57
Type of Service (duties or driving conditions)	1, 3 or 5 points based on type of service (ie harsh/offroad = 5; paved/daily use = 3; paved/non-daily use = 1)		5
Reliability	1, 3 or 5 points depending on frequency that vehicle is in shops for repair (ie. 2-3x/month = 5; 1x/3 months = 1)		3
Maintenance and Repair Costs	1, 3 or 5 points based on total life costs. (ie. lifetime costs > original vehicle cost = 5; lifetime costs <20% original vehicle cost = 1)		1
Condition	1, 3 or 5 points based on body condition, rust, interior condition, accident history , anticipated repairs,etc. (ie.		3
Other	1 - 5 points for any other condition criteria not covered above		
		Total Points	**19.2**

Points evaluation	**Light**	**Heavy**
Very Good Condition	<20 pts	<18 pts
Good Condition	20 - 24 pts	18 - 22 pts
Fair Condition	24 - 29 pts	23 - 28 pts
Replacement condition	30+ points	29+ points

Condition Assessment **Note 2**

Notes

Assessed by: Terry Baker, Accounting & Regulatory Clerk

Date

Note 1 - Adapted from Guide to Vehicle Replacement and Right Sizing - Saskatchewan Ministry of Government Services

Note 2 - Box shade "red" - Replace; Box shade "yellow" - Fair; Box shade "green" - Good or Very Good

Appendix 2B – DSP Compliance Letter

www.aesi-inc.com
aesi@aesi-inc.com

June 26, 2017

Deanne Kulchyski, CPA, CGA
President/CEO
Sioux Lookout Hydro Inc.
25 5th Ave, Sioux Lookout, ON P8T 1B3

Dear Ms. Kulchyski

Re: Consolidated Distribution System Plan

As part of the filing requirements set out by the Ontario Energy Board (OEB) for Distributor's, Sioux Lookout Hydro Inc. has prepared the attached Consolidated Distribution System Plan. The Plan was prepared in accordance with Good Asset Management Practice, Good Utility Practice and the current Chapter 5 Filing Requirements. Sioux Lookout Hydro Inc., with the assistance of Costello Utility Consultants, prepared the data and furnished the information contained in the plan.

AESI critiqued this plan and confirms that it addresses the goals and achieves the purpose of the OEB *Chapter 5 Consolidated Distribution System Plan Filing Requirements* dated March 28, 2013.

Sincerely,

N. Sandford.

Neil J. Sandford, P. Eng.
Senior Vice President

775 Main Street E
Suite 1B
Milton, Ontario
Canada L9T 3Z3
P· 905.875.2075
F · 905.875.2062

1990 Lakeside Pkwy
Suite 250
Tucker, Georgia
USA 30084
P· 770.870.1630
F ·770.870.1629

Appendix 2C: SLHI Capitalization Policy

7 General

7.1 Capitalization

Effective January 1, 2012 Sioux Lookout Hydro Inc. will account for the investment in its property, plant and equipment and the changes in such investments in accordance with Canadian Generally Accepted Accounting Principles (CGAAP) and International Financial Reporting Standard (IFRS), auditor requirements and Ontario Energy Board's Accounting Procedures Handbook (APH).

7.1.1 Overview

Effective January 1, 2012, SLHI has adopted a change in accounting estimate for capitalization based on a study of useful lives performed by an independent third party. With respect to capitalization of certain expenses, SLHI follows the guidance provided by IAS 16.16, whereby capital cost includes the following:

- Purchase price, including duties and non-refundable taxes and excluding trade discounts and rebates
- All expenditures directly attributable to bringing the asset to a working condition for its "intended use"
  - Directly attributable need not be incremental or external
  - Capable of being operated in the manner intended by management
- Cost of the obligation of its dismantlement, removal or restoration

A capital asset is broadly defined as being one that will provide future economic benefits to the organization. The definition in the OEB APH includes items which:

1. are held for use in the production or supply of goods and services, for rental to others, for administrative purposes or for the development, construction, maintenance or repair of other capital assets
2. have been acquired, constructed or developed with the intention of being used on a continuing basis, **and**
3. are not intended for sale in the ordinary course of business.

7.1.2 Capitalization Policy

SLHI capitalizes directly attributable expenses related to the construction of distribution system assets comprising of material, direct labour, engineering and vehicle costs. In determining which expenses are eligible for capitalization, SLHI uses the following guidelines:

Directly attributable:

- Employee costs and benefits incurred by employees working directly on construction or acquisition of asset
- Major Equipment as defined in SLHI 's Equipment Approval Process
- Cost of site preparation

- Initial delivery and assembly
- Testing costs
- Professional fees

Not directly attributable

- Administrative and other general overhead costs
- Non-major equipment
- Feasibility studies
- Start-up or pre-opening costs
- Training costs
- Abnormal waste
- Costs incurred when construction is interrupted, unless certain criteria are met
- Cost of opening a new facility
- Relocation costs
- Costs incurred in using or redeploying an item

Other guidelines are as follows:

- Fixed assets have a useful life of more than one year and are subject to depreciation. Any directly attributable expenditures to acquire, construct or better that asset should therefore be capitalized. All other expenditures should be expensed as a period expense in the year they occur.
- Professional judgment must be used to determine when an expense is classified as capital or an operating expense. A betterment (capitalized) will enhance the service potential of an existing asset by increasing its service capacity, lowering the operational costs associated with the asset, extend the useful life of the asset, or improving the output of that asset. If the expenditure does not meet these tests, it will likely be considered an expense. Period expenses generally do not result in an improvement to the existing asset. The expense would have been required to keep the asset operating in the same capacity as it was originally.
- In order to be capitalized, an item must meet the minimum threshold requirement of two hundred dollars (<u>$200.00</u>).

7.1.3 Major Spare Parts and Stand-by Equipment

Major Spare Parts and Stand-by Equipment will be accounted for as property, plant and equipment capital assets, as per Article 410 of the OEB APH as follows:

- Major Spare Parts and Stand-by Equipment will be accounted for as property, plant and equipment capital assets.
- Depreciation of the Major Spare Parts and Stand-by Equipment will begin when the equipment is capable of operating in the manner that is intended by management, which will usually be when the major spare parts are installed and brought into service.

7.1.4 Residual Value & Useful Life

Sioux Lookout Hydro Inc. will review at least annually the residual value and useful life of each asset. Reviews ensure that the carrying amount does not differ materially from what would be determined using fair value at the balance sheet date.

Increases and decreases in capital assets during reviews will be reported as a profit or loss in equity. If expectations differ from previous estimates the changes shall be accounted for as a change in estimate and be applied prospectively.

The following factors will be considered when determining the useful life of an asset:

a) Expected usage of the asset. Usage is assessed by reference to the asset's expected capacity or physical output.
b) Expected physical wear and tear, which depends on operational factors such as the number of shifts for which the asset is to be used and the repair and maintenance program, and the care and maintenance of the asset while idle.
c) Technical or commercial obsolescence arising from changes or improvements in production, or from a change in the market demand for the product or service output of the asset.
d) Legal or similar limits on the use of the asset, such as the expiry dates of related leases.

If the expected life of a specific asset differs significantly, the useful life can be modified.

The standard useful lives of capital assets are:

PARENT	**OEB Account #**	**ASSET DETAILS Category/Component/Type**		**USEFUL LIFE(years)**
Overhead Lines	1830	Poles*		45
	1835	OH Conductors & Devices		45
	1850	OH Transformer & Voltage Regulators		40
Underground	1845	Conductors and Devices		40
	1840	Conduit		50
	1850	Pad Mount Transformers		40
Non-Distribution Assets	1915	Office Equipment		5-15
	1930	Vehicles	Trucks & Trailers	5-15
	1930		Trailers	5-20
	1920	Computer Equipment	Hardware	3-5
	1925		Software	2-5
	1950	Equipment	Power operated	5-10
	1955		Communication	5-10
	1940		Tools, Shop &	5-10

			Garage		
	1945		Measurement Equipment and Testing		5-10
	1985	Sentinel Lights			10-15
	1860	Industrial/Commercial Energy Meters			25-30
	1860	Current & Potential Transformer (CT & PT)			25-50
	1860	Smart Meters			5-15
	1860	Repeaters – Smart Metering			10-15
	1860	Data Collectors – Smart Metering			15-20

*All poles are classified in one pool, but certain factors contribute to the useful life of any given pole, such as stress on the pole and the geographical area in which the pole is situated. The average useful life will be used for all poles.

Approved: October 25, 2012
Ref: 34-12