Fort Frances Power Corporation

Distribution System Plan

For the Period

2014 to 2018

Filed with FFPC's 2014 Cost of Service Rate Application

Case Number EB-2013-0130

Submitted December 20, 2013

Table of Contents

5.2 FFPC Distribution System Plan

FFPC has organized its Distribution System Plan (DS Plan) according to the suggested format contained within the March 28, 2013 "Chapter 5 Consolidated Distribution System Plan Filing Requirements Guide". Considerable additional subsections have been added to expand on relevant topics of discussion, as well as for ease of reference. This is FFPC's first DS Plan, and as such there are no available comparisons to any previously filed DS Plans.

5.2.1 Distribution System Plan Overview

5.2.1.1 The History of our Community and Customers We Serve

The settlement now known as the town of "Fort Frances", was the first European settlement west of Lake Superior. The settlement was established by French Canadian Pierre Gaultier de Varennes et de La Vérendrye, first commander of the western district. In 1731 he built Fort St. Pierre near the settlement, as support for the fur trade with native peoples.

In 1817, following the War of 1812 and redefinition of borders between Canada and the United States, the Hudson's Bay Company (HBC) also built a fort here. Officials named the subsequent settlement after Lady Frances Simpson, wife of then Hudson's Bay Company Governor George Simpson, who visited the fort many times. In 1903 the settlement was incorporated as "the Corporation of the Town of Fort Frances", in honour of Lady Frances Simpson.

The main employer in Fort Frances up until recently, was a pulp and paper mill which was established in the early 1900s by Edward Wellington Backus. The mill is now owned by Resolute Forest Products, and currently employs approximately 250 employees. At its peak operation, the mill employed just over 1,000 employees.

Fort Frances is a town in, and the seat of, Rainy River District in Northwestern Ontario, Canada. The population as of the 2011 census was 7,952. Fort Frances is a popular fishing destination and it hosts the annual Fort Frances Canadian Bass Championship. Located on the international border with the United States where Rainy Lake narrows to become Rainy River, it is connected to International Falls, Minnesota, by the Fort Frances-International Falls International Bridge. The town is currently the third largest community of Northwestern Ontario, after Thunder Bay and Kenora. Fort Frances offers many shopping and dining outlets for local and outlying residents, as well to many tourists.

5.2.1.2 Introduction to the Fort Frances Power Corporation

The Fort Frances Power Corporation (FFPC) is a municipally owned local distribution company serving the residents and customers of the town of Fort Frances. FFPC is currently licensed to distribute electricity within the confines of the municipal boundaries of town of Fort Frances. FFPC is one of the last local distribution companies in Ontario to operate under the principle of “Power at Cost”, which was the philosophy under which the province was electrified. As such, FFPC operates under a rate-minimization model with a target Return-on-Equity of zero percent (0%).

FFPC’s distribution system was meticulously designed and constructed accordingly, during a complete system wide voltage conversion project that lasted from the mid 1970’s until the mid 1980’s. During this time, the entire distribution system was converted from a 2400 Volt system to a 7200 Volt system. Essentially all of FFPC’s distribution assets were replaced as a result of this initiative. To this day, FFPC owns and operates a very well built, reliable, safe and efficient electrical distribution system. Due to the entire system being rebuilt over a relatively short timeframe, FFPC has had the luxury of operating in a “maintenance mode” for the last few decades. Over the 2014 to 2018 planning horizon, FFPC is transitioning out of its maintenance mode into a capital rebuild mode. The transition is driven by the results of the newly implemented asset management and capital planning processes, which have given FFPC improved oversight and understanding of the state of its distribution system.

In 2008, FFPC contracted EnerSpectrum Group to perform a distribution system analysis for loss optimization. The analysis reported the following conclusions:

> “The results from this analysis indicate marginal if not negative implications of any attempts to rebalance the system by changing individual load phase connections. This is a reflection of the quality of the work undertaken by operations staff over several years to sustain a well balanced distribution network.”
>
> “Although additional options for loss reduction were considered briefly (eg. Increasing conductor size), the costs would greatly outweigh any benefits that would accrue, again representation of a well designed, constructed and maintained system.”

Fort Frances Power Corporation, System Loss Optimization, EnerSpectrum Group, August 2008

It is also important to note that FFPC also owns and operates a greater than 50 KV transformer station called “Fort Frances MTS” (FFMTS), which steps down the incoming 115 kV transmission supply to 7.2 kV, which is suitable for distribution. The station was also built to coincide with the voltage conversion initiative and as such it was built in two phases during the 1970’s. FFMTS replaced five individual transformer stations that were located throughout Fort Frances. All five stations have been decommissioned and returned to natural green spaces. From a replacement cost perspective, the transformer station “Fort Frances MTS” (High Voltage Asset) represents approximately 20% of FFPC’s entire asset base.

5.2.1.3 Planning Process

FFPC operates under a rate minimization philosophy with the objective of balancing necessary distribution system maintenance and reinvestment, with providing customers with a safe and reliable supply of electricity at the lowest possible rates. FFPC has taken a “just-in-time” asset replacement approach, under which assets will be replaced on a proactive manner, as they approach their high probability of failure zone of their lifecycle, as established by FFPC's asset management process. FFPC's strategy is to replace end-of-life assets under planned and coordinated circumstances, as opposed to under emergency or afterhours circumstances which add unnecessary risk and expense.

Over the last eight years, FFPC has exerted significant effort in quantifying and characterizing its property, plant and equipment with the assistance of a Geographic Information System (GIS). FFPC now has a very detailed asset register that contains both quantitative data such as the age of individual assets, as well as key qualitative data, such as inspection and condition testing results. This wealth of data has enabled FFPC to project when individual assets are expected to reach the end of their useful service life, at which time the assets have a high probability of failure.

The GIS system has become one of FFPC's most relied upon day-to-day core business systems. The tool has allowed FFPC to gain improved oversight of its entire asset base at the individual asset level, thereby enabling data driven decision making for improved long range planning. FFPC's DS Plan is built on the foundation of data contained within the GIS tool, and as such the DS Plan has been built based on a "bottom up" approach. This approach has allowed FFPC to transition from planning projects in general areas such as streets or blocks, to pin-pointing individual assets throughout the distribution system. As such, FFPC's budgets are now largely driven by the needs of individual assets, their lifecycle and replacement cost.

FFPC has also incorporated the OEB's principles for good planning with a focus of achieving performance outcomes as per the renewed regulatory framework for electricity. As such, FFPC is committed to Customer Focus, Operational Effectiveness, Public Policy Responsiveness and Financial Performance. Throughout this submission, FFPC aims to demonstrate the functionality of its asset management and capital planning processes, that underpin delivering value to customers.

FFPC's planning objectives are to deliver on the following performance outcomes over the 2014 to 2018 planning horizon and beyond:

- Customer Focus
    - To provide services in alignment with customer preferences and needs
- Operational Effectiveness
    - Keep pace with distribution system deterioration through reinvestments as determined by FFPC's asset management process
    - Minimize future rate instability by smoothing the age profile of distribution asset classes/groups
    - Support the achievement of customer and regulatory reliability & service quality expectations
    - Support the achievement of performance measures contained in the OEB's Distributor Scorecard
    - Support future objectives of Regional Planning (unknown at this time)
- Support Public Policy Objectives:
    - Support the connection of renewable generation to the distribution system, as well as directly to the transformer station
    - Support the deployment of a smart grid and the achievement of associated objectives

- Support the achievement of conservation and demand management targets
  - Support the mandated elimination of Long Term Load Transfer Arrangements
- Financial Performance:
  - To ensure that financial viability is maintained in consideration of operating under a zero-percent rate-of-return on equity

5.2.1.4 Key Elements of the DS Plan

FFPC utilized its newly developed Asset Management and Capital Planning Processes to develop its 2014 to 2018 Capital Investment Plan. Since 2005, FFPC has dedicated tremendous resources towards the development of a Geographical Information System (GIS). The system has been invaluable for building the foundation of this data driven DS Plan. The system was heavily relied upon for the lifecycle analysis of essentially all assets owned, including General Plant assets. Lifecycle sustaining capital reinvestments account for $2,775,966 or 78.8% of the total $3,522,205 capital investment need identified for the 2014 to 2018 planning period. FFPC conducted detailed asset category specific lifecycle needs analyses to determine expenditure requirements. The detailed analysis summaries are included as part of the DS Plan throughout Section 5.3. It is very important to note that FFPC's entire distribution system, including its greater than 50 kV transformer station, was rebuilt from the mid 1970s to mid 1980s, and as such FFPC operated in a "maintenance mode" for several decades, with relatively low requirements for capital reinvestments. Many assets owned are now aging and will be approaching the end of their useful service life over the course of the 2014 to 2018 planning period. The oncoming wave of aging assets has prompted FFPC to transition from its maintenance mode to a capital rebuild mode, to keep pace with the disproportionate high volume of assets posing high risks of failure.

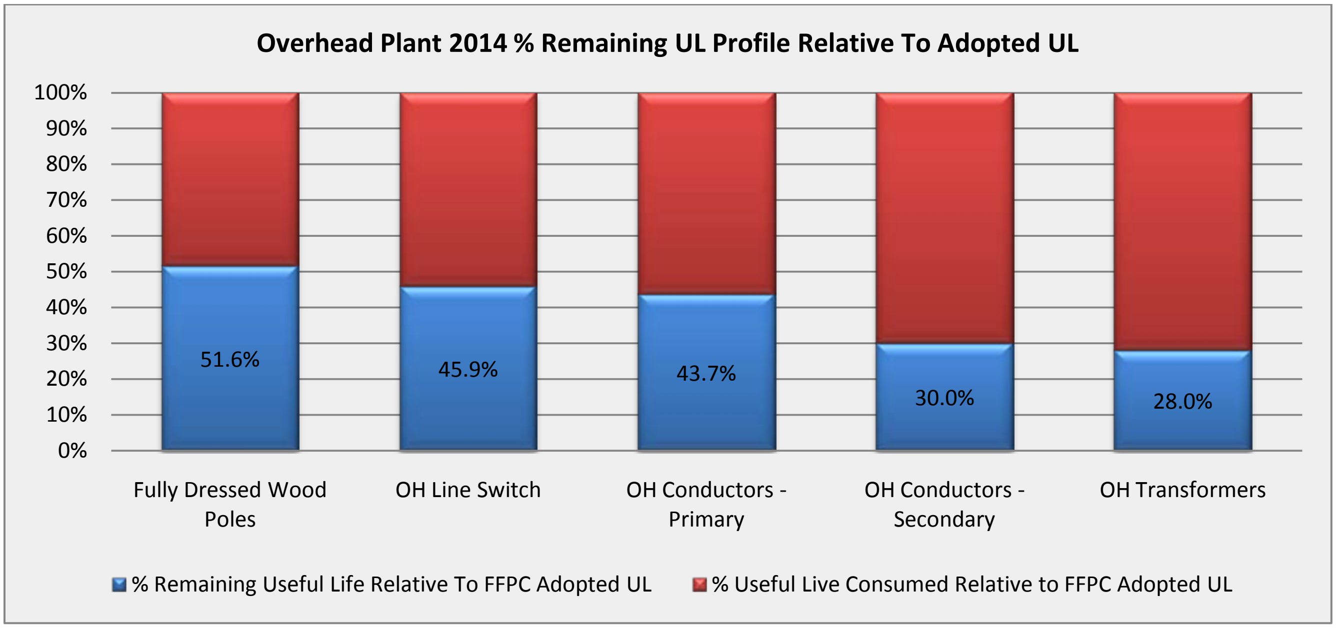
FFPC's asset management process has established a total asset replacement cost of $24,379,821 for all existing assets managed, based on FFPC's current cost structure (relative to 2013 pricing). Based on FFPC's adopted useful life values for each asset category, the average annual reinvestment needed to keep pace with asset deterioration is $618,169. The overall % remaining useful life (relative to FFPC's adopted UL and replacement cost) of all assets owned is 41.4%. FFPC's long term objective is to maintain a 50% "Remaining UL" profile where possible, to smooth long term spending requirements in the interest of long term rate stability. As such, FFPC's optimal annual capital reinvestment rate is $618,169, which is necessary to sustain the lifecycles of all assets managed, thereby keeping pace with asset deterioration. FFPC recognizes; however, that its' Greater than 50 kV Transformer Stations is made up of a small number of high priced assets that require sporadic long term investments. FFPC has therefore adjusted its optimal annual reinvestment rate, to only include costs related to necessary Transformer Station reinvestments over the planning period, as identified through the asset management process (lifecycle analyses). As such, FFPC's optimal annual reinvestment rate is $568,857 and FFPC has targeted an average annual reinvestment rate of $555,193. The actual average reinvestment rate is approximately 2.5% lower than the optimal; as FFPC is targeting overall cost reductions of 2.5% attributed to improved planning and asset oversight. The following table summarizes FFPC's assets, Useful Life Assessments, Investment Boundaries and Capital Budget Allocations for all lifecycle sustaining reinvestments:

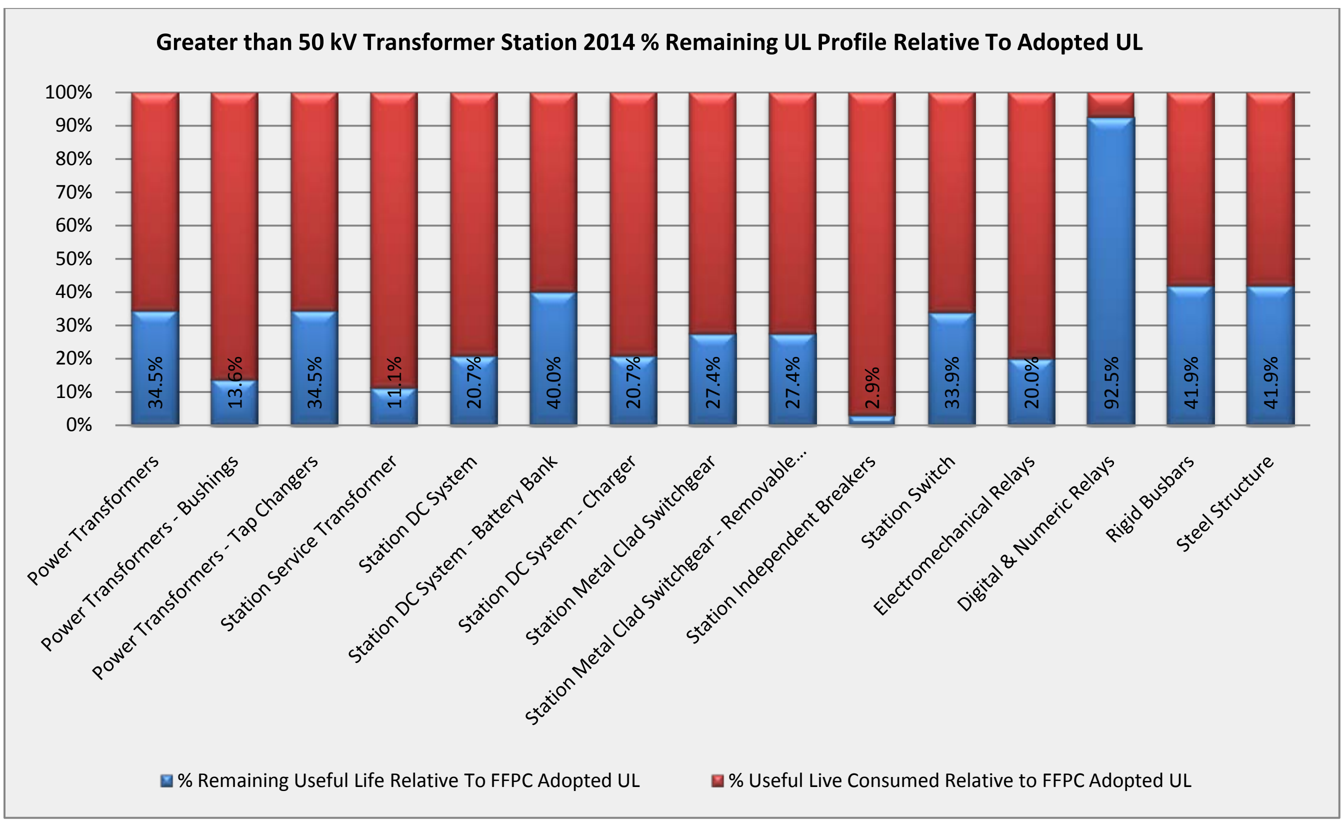
FFPC Asset Summary, Useful Life Assessment, Investment Boundaries and Capital Budget Allocations

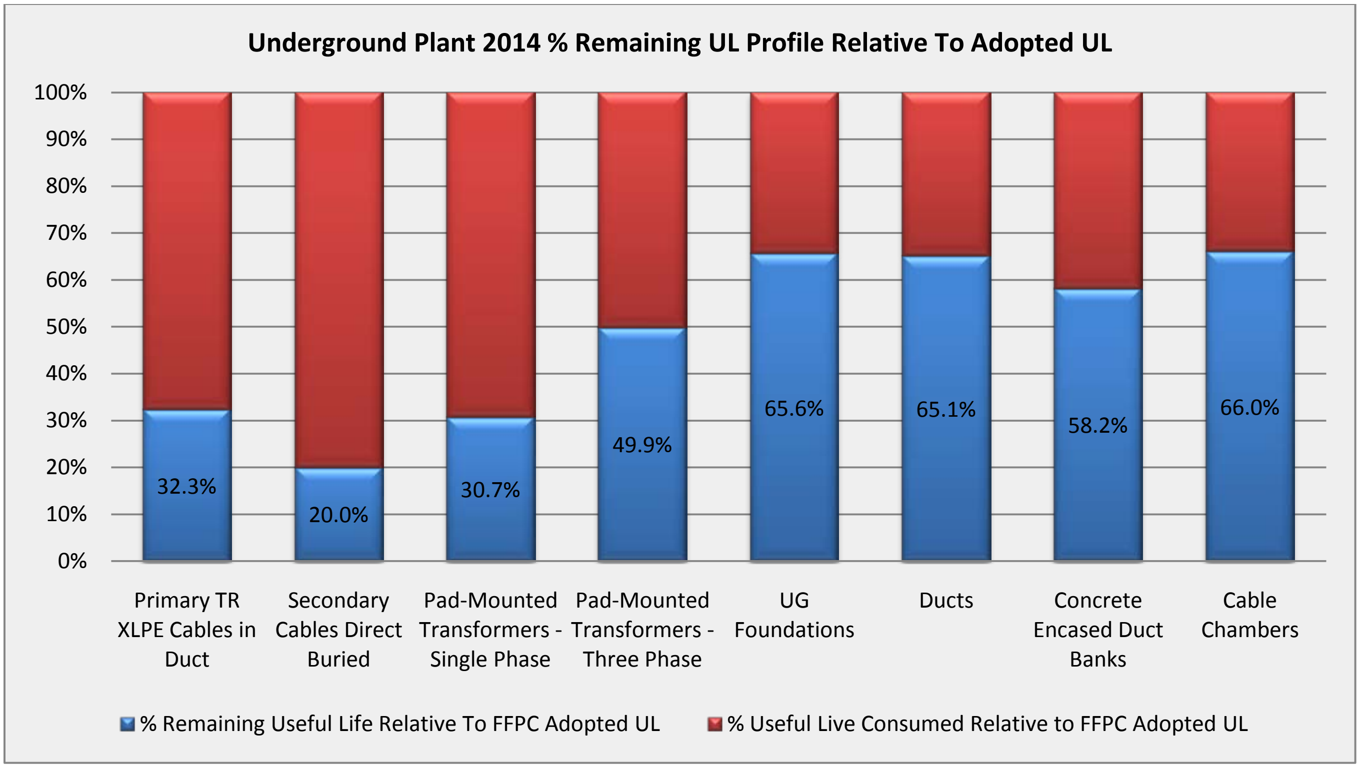
		Asset Details			FFPC Assets			Kinectrics Useful Life			Useful Life Assessment					Reinvestment Needs Assessment					Capital Budget Allocation		
Parent*	#	Category| Component | Type			Count	Units	Average Age of Population (Years)	MIN UL	TUL	MAX UL	FFPC Adopted Useful Life (UL)	Remaining Useful Life Relative to Kinectrics TUL	% Remaining Useful Life Relative to Kinectrics TUL	Remaining Useful Life Relative to FFPC Adopted UL	% Remaining Useful Life Relative To FFPC Adopted UL	Total Replacement Cost of Asset Group	Average Annual Reinvestment Need Based on Kinectrics Min UL	Average Annual Reinvestment Need Based on Kinectrics TUL	Average Annual Reinvestment Need Based on Kinectrics Max UL	Average Annual Reinvestment Need Based on FFPC Adopted UL	Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation	Average Annual Capital Allocation (2044 to 2018)	% of Total DS Plan Capital Expenditures
OH	1	Fully Dressed Wood Poles	Overall		1776	Each	21.79	35	45	75	45	23.21	51.58%	23.21	51.6%	$ 5,850,761	$ 167,165	$ 130,017	$ 78,010	**$ 130,017**	$ 679,638	$ 135,928	19.3%
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	2	Fully Dressed Concrete Poles	Overall		N/A			50	60	80													
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	3	Fully Dressed Steel Poles	Overall		N/A			60	60	80													
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	4	OH Line Switch (Expressed as sets of 3 Phase Switches)			35	Each	24.34	30	45	55	45	20.66	45.90%	20.66	45.9%	$ 254,409	$ 8,480	$ 5,654	$ 4,626	**$ 5,654**	$ 32,500	$ 6,500	0.9%
	5	OH Line Switch Motor			N/A			15	25	25													
	6	OH Line Switch RTU			N/A			15	20	20													
	7	OH Integral Switches			N/A			35	45	60													
	8	OH Conductors	Primary Conductor		224.2	km	33.77	50	60	75	60	26.23	43.72%	26.23	43.7%	$ 676,409	$ 13,528	$ 11,273	$ 9,019	**$ 11,273**	$ -	$ -	0.0%
			Secondary Conductor		114.8	km	28.00	25	35	40	40	7.00	20.00%	12.00	30.0%	$ 1,033,603	$ 41,344	$ 29,532	$ 25,840	**$ 25,840**	$ 50,000	$ 10,000	1.4%
	9	OH Transformers			629	Each	28.79	30	40	60	40	11.21	28.02%	11.21	28.0%	$ 2,751,265	$ 91,709	$ 68,782	$ 45,854	**$ 68,782**	$ 491,617	$ 98,323	14.0%
	10	OH Shunt Capacitor Banks			N/A			25	30	40													
	11	Reclosers			N/A			25	40	55													
TS & MS	12	Power Transformers	Overall		2	Each	38.00	30	45	60	58	7.00	15.56%	20.00	34.5%	$ 1,930,575	$ 64,352	$ 42,902	$ 32,176	**$ 33,286**	$ -	$ -	0.0%
			Bushing		12	Each	38.00	10	20	30	44	0.00	0.00%	6.00	13.6%	$ 68,351	$ 6,835	$ 3,418	$ 2,278	**$ 1,553**	$ -	$ -	0.0%
			Tap Changer		2	Each	38.00	20	30	60	58	0.00	0.00%	20.00	34.5%	$ 1,127,792	$ 56,390	$ 37,593	$ 18,797	**$ 19,445**	$ -	$ -	0.0%
	13	Station Service Transformer			1	Each	40.00	30	45	55	45	5.00	11.11%	5.00	11.1%	$ 8,544	$ 285	$ 190	$ 155	**$ 190**	$ -	$ -	0.0%
	14	Station Grounding Transformer			N/A	Each		30	40	40													
	15	Station DC System	Overall		2	Each	23.00	10	20	30	29	0.00	0.00%	6.00	20.7%	$ 85,439	$ 8,544	$ 4,272	$ 2,848	**$ 2,946**	$ -	$ -	0.0%
			Battery Bank		2	Each	9.00	10	15	15	15	6.00	40.00%	6.00	40.0%	$ 51,263	$ 5,126	$ 3,418	$ 3,418	**$ 3,418**	$ 10,000	$ 2,000	0.3%
			Charger		2	Each	23.00	20	20	30	29	0.00	0.00%	6.00	20.7%	$ 34,176	$ 1,709	$ 1,709	$ 1,139	**$ 1,178**	$ 22,000	$ 4,400	0.6%
	16	Station Metal Clad Switchgear	Overall		11	Each	45.00	30	40	60	62	0.00	0.00%	17.00	27.4%	$ 845,844	$ 28,195	$ 21,146	$ 14,097	**$ 13,643**	$ -	$ -	0.0%
			Removable Breaker		11	Each	45.00	25	40	60	62	0.00	0.00%	17.00	27.4%	$ 205,053	$ 8,202	$ 5,126	$ 3,418	**$ 3,307**	$ -	$ -	0.0%
	17	Station Independent Breakers			1	Each	67.00	35	45	65	69	0.00	0.00%	2.00	2.9%	$ 138,411	$ 3,955	$ 3,076	$ 2,129	**$ 2,006**	$ 150,000	$ 30,000	4.3%
	18	Station Switch			5	Each	41.00	30	50	60	62	9.00	18.00%	21.00	33.9%	$ 68,351	$ 2,278	$ 1,367	$ 1,139	**$ 1,102**	$ -	$ -	0.0%
	19	Electromechanical Relays			34	Each	36.00	25	35	50	45	0.00	0.00%	9.00	20.0%	$ 131,576	$ 5,263	$ 3,759	$ 2,632	**$ 2,924**	$ -	$ -	0.0%
	20	Solid State Relays			N/A	Each		10	30	45													
	21	Digital & Numeric Relays			8	Each	1.50	15	20	20	20	18.50	92.50%	18.50	92.5%	$ 56,390	$ 3,759	$ 2,819	$ 2,819	**$ 2,819**	$ -	$ -	0.0%
	22	Rigid Busbars			3	Each	36.00	30	55	60	62	19.00	34.55%	26.00	41.9%	$ 42,719	$ 1,424	$ 777	$ 712	**$ 689**	$ -	$ -	0.0%
	23	Steel Structure			1	Each	36.00	35	50	90	62	14.00	28.00%	26.00	41.9%	$ 136,702	$ 3,906	$ 2,734	$ 1,519	**$ 2,205**	$ 25,000	$ 5,000	0.7%
UG	24	Primary Paper Insulated Lead Covered (PILC) Cables			N/A			60	65	75													
	25	Primary Ethylene-Propylene Rubber (EPR) Cables			N/A			20	25	25													
	26	Primary Non-Tree Retardant (TR) Cross Linked Polyethylene (XLPE) Cables Direct Buried			N/A			20	25	30													

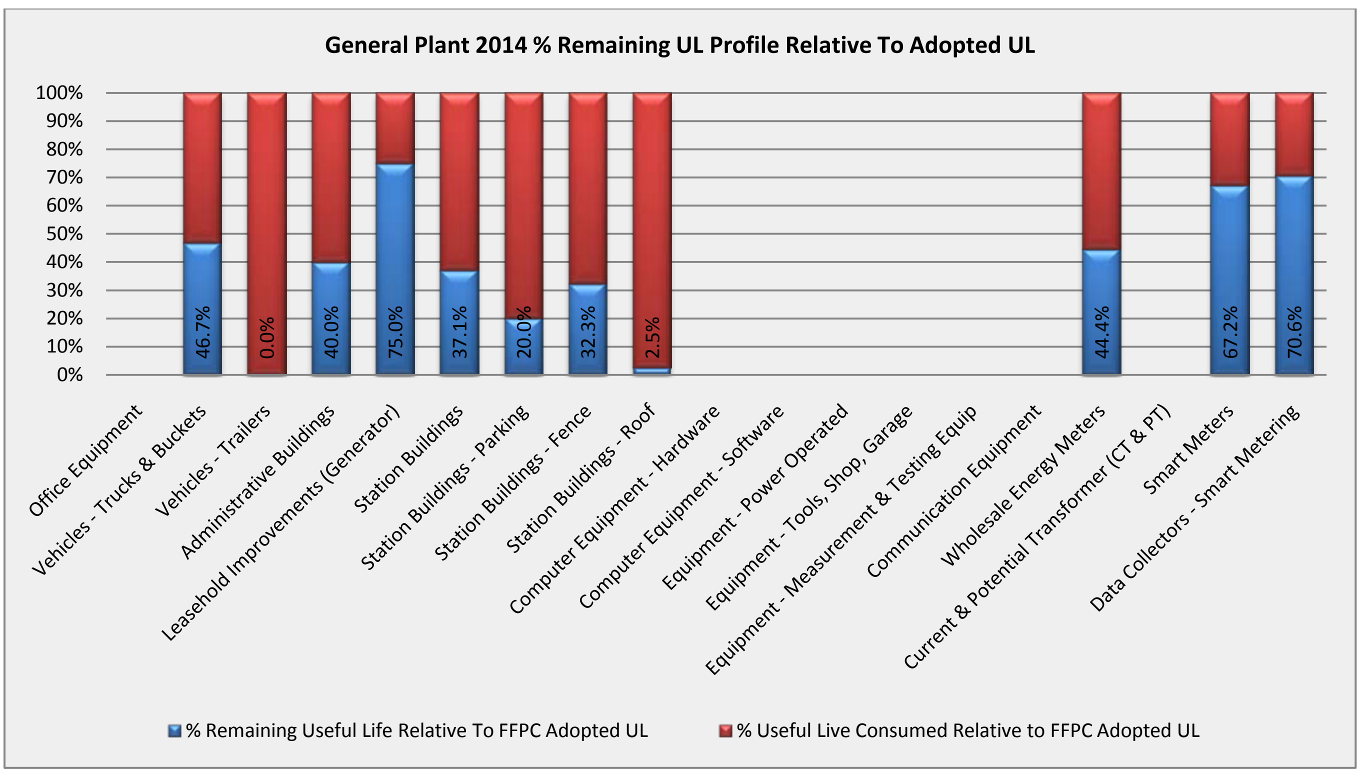
	27	Primary Non-TR XLPE Cables in Duct		N/A			20	25	30													
	28	Primary TR XLPE Cables Direct Buried		N/A			25	30	35													
	29	Primary TR XLPE Cables in Duct		30.7	km	27.07	35	40	55	40	12.93	32.32%	12.93	32.3%	$ 931,695	$ 26,620	$ 23,292	$ 16,940	**$ 23,292**	$ 180,537	$ 36,107	5.1%
	30	Secondary PILC Cables		N/A			70	75	80													
	31	Secondary Cables Direct Buried		3.8	km	28.00	25	35	40	35	7.00	20.00%	7.00	20.0%	$ 68,366	$ 2,735	$ 1,953	$ 1,709	**$ 1,953**	$ 10,000	$ 2,000	0.3%
	32	Secondary Cables in Duct		N/A			35	40	60													
	33	Network Transformers	Overall	N/A			20	35	50													
			Protector	N/A			20	35	40													
	34	Pad-Mounted Transformers	Single Phase	215	Each	27.70	25	40	45	40	12.30	30.74%	12.30	30.7%	$ 2,218,967	$ 88,759	$ 55,474	$ 49,310	**$ 55,474**	$ 368,761	$ 73,752	10.5%
			Three Phase	38	Each	20.05	25	40	45	40	19.95	49.87%	19.95	49.9%	$ 808,033	$ 32,321	$ 20,201	$ 17,956	**$ 20,201**	$ 147,163	$ 29,433	4.2%
	35	Submersible/Vault Transformers		N/A			25	35	45													
	36	UG Foundation		170	Each	27.52	35	55	70	80	27.48	49.97%	52.48	65.6%	$ 814,956	$ 23,284	$ 14,817	$ 11,642	**$ 10,187**	$ -	$ -	0.0%
	37	UG Vaults	Overall	N/A			40	60	80													
			Roof	N/A			20	30	45													
	38	UG Vault Switches		N/A			20	35	50													
	39	Pad-Mounted Switchgear		N/A			20	30	45													
	40	Ducts		23.5	km	27.95	30	50	85	80	22.05	44.10%	52.05	65.1%	$ 322,801	$ 10,760	$ 6,456	$ 3,798	**$ 4,035**	$ -	$ -	0.0%
	41	Concrete Encased Duct Banks		1.9	km	33.46	35	55	80	80	21.54	39.16%	46.54	58.2%	$ 712,998	$ 20,371	$ 12,964	$ 8,912	**$ 8,912**	$ -	$ -	0.0%
	42	Cable Chambers		5	Each	20.40	50	60	80	60	39.60	66.00%	39.60	66.0%	$ 35,000	$ 700	$ 583	$ 438	**$ 583**	$ -	$ -	0.0%
S	43	Remote SCADA		N/A			15	20	30													
General Plant	1	Office Equipment		Unknown	Each	Unknown	*5*	*10.0*	*15*	15	Unknown	Unknown	Unknown	Unknown	$ 60,000	$ 12,000	$ 6,000	$ 4,000	**$ 4,000**	$ 15,000	$ 3,000	0.4%
	2	Vehicles	Trucks & Buckets	7	Each	8.00	*5*	*10.0*	*15*	15	2.00	20.00%	7.00	46.7%	$ 801,000	$ 160,200	$ 80,100	$ 53,400	**$ 53,400**	$ 328,000	$ 65,600	9.3%
			Trailers	2	Each	26.00	*5*	*12.5*	*20*	20	0.00	0.00%	0.00	0.0%	$ 75,000	$ 15,000	$ 6,000	$ 3,750	**$ 3,750**	$ 75,000	$ 15,000	2.1%
			Vans	N/A			*5*	*7.5*	*10*													
	3	Administrative Buildings		1	Each	45.00	*50*	*62.5*	*75*	75	17.50	28.00%	30.00	40.0%	$ 550,000	$ 11,000	$ 8,800	$ 7,333	**$ 7,333**	$ 65,000	$ 13,000	1.8%
	4	Leasehold Improvements (Generator)		1	Each	5.00	*20*	*20.0*	*20*	20	15.00	75.00%	15.00	75.0%	$ 86,122	$ 4,306	$ 4,306	$ 4,306	**$ 4,306**	$ -	$ -	0.0%
	5	Station Buildings	Station Buildings	2	Each	39.0	*50*	*62.5*	*75*	62	23.50	37.60%	23.00	37.1%	$ 368,375	$ 7,368	$ 5,894	$ 4,912	**$ 5,942**	$ 31,000	$ 6,200	0.9%
			Parking	1	Each	24.00	*25*	*27.5*	*30*	30	3.50	12.73%	6.00	20.0%	$ 5,000	$ 200	$ 182	$ 167	**$ 167**	$ -	$ -	0.0%
			Fence	1	Each	42.00	*25*	*42.5*	*60*	62	0.50	1.18%	20.00	32.3%	$ 22,500	$ 900	$ 529	$ 375	**$ 363**	$ -	$ -	0.0%
			Roof	2	Each	39.00	*30*	*30.0*	*30*	40	0.00	0.00%	1.00	2.5%	$ 30,000	$ 1,000	$ 1,000	$ 1,000	**$ 750**	$ -	$ -	0.0%
	6	Computer Equipment	Hardware	Unknown	Each	Unknown	*3*	*4.0*	*5*	5	Unknown	Unknown	Unknown	Unknown	$ 32,000	$ 10,667	$ 8,000	$ 6,400	**$ 6,400**	$ 35,500	$ 7,100	1.0%
			Software	Unknown	Each	Unknown	*2*	*3.5*	*5*	5	Unknown	Unknown	Unknown	Unknown	$ 76,000	$ 38,000	$ 21,714	$ 15,200	**$ 15,200**	$ -	$ -	0.0%
	7	Equipment	Power Operated	Unknown	Each	Unknown	*5*	*7.5*	*10*	7	Unknown	Unknown	Unknown	Unknown	$ 7,000	$ 1,400	$ 933	$ 700	**$ 1,000**	$ 30,500	$ 6,100	0.9%
			Stores	N/A			*5*	*7.5*	*10*													
			Tools, Shop, Garage Equip.	Unknown	Each	Unknown	*5*	*7.5*	*10*	10	Unknown	Unknown	Unknown	Unknown	$ 10,000	$ 2,000	$ 1,333	$ 1,000	**$ 1,000**			
			Measurement & Testing Equip	Unknown	Each	Unknown	*5*	*7.5*	*10*	8	Unknown	Unknown	Unknown	Unknown	$ 65,000	$ 13,000	$ 8,667	$ 6,500	**$ 8,125**			
	8	Communication	Towers	N/A			*60*	*65.0*	*70*													
			Wireless	Unknown	Each	Unknown	*2*	*6.0*	*10*	10	Unknown	Unknown	Unknown	Unknown	$ 9,600	$ 4,800	$ 1,600	$ 960	**$ 960**	$ -	$ -	0.0%
	9	Residential Energy Meters		N/A			*25*	*30.0*	*35*													
	10	Industrial/Commercial Energy Meters		N/A			*25*	*30.0*	*35*													
	11	Wholesale Energy Meters		2	Each	5.00	*15*	*22.5*	*30*	9	17.50	77.78%	4.00	44.4%	$ 18,000	$ 1,200	$ 800	$ 600	**$ 2,000**	$ -	$ -	0.0%
	12	Current & Potential Transformer (CT & PT)		479	Each	Unknown	*35*	*42.5*	*50*	40	Unknown	Unknown	Unknown	Unknown	$ 85,262	$ 2,436	$ 2,006	$ 1,705	**$ 2,132**	$ 12,500	$ 2,500	0.4%
	13	Smart Meters		3966	Each	4.92	*5*	*10.0*	*15*	15	5.08	50.76%	10.08	67.2%	$ 650,543	$ 130,109	$ 65,054	$ 43,370	**$ 43,370**	$ 16,250	$ 3,250	0.5%
	14	Repeaters - Smart Metering		N/A			*10*	*12.5*	*15*													
	15	Data Collectors - Smart Metering		7	Each	5.00	*15*	*17.5*	*20*	17	12.50	71.43%	12.00	70.6%	$ 17,972	$ 1,198	$ 1,027	$ 899	**$ 1,057**	$ -	$ -	0.0%
Totals															$ 24,379,820.51	$ 1,144,782	$ 739,250	$ 519,907	**$ 618,169**	**$ 2,775,966**	**$ 555,193**	**78.8%**

The following graphs illustrate the percentage of remaining and consumed useful life of FFPC's asset base, by asset category (Please note that the age profiles for Equipment categories are not known at this time, and as such they have been left blank. FFPC plans to obtain the missing age profile data over the course of the planning horizon):



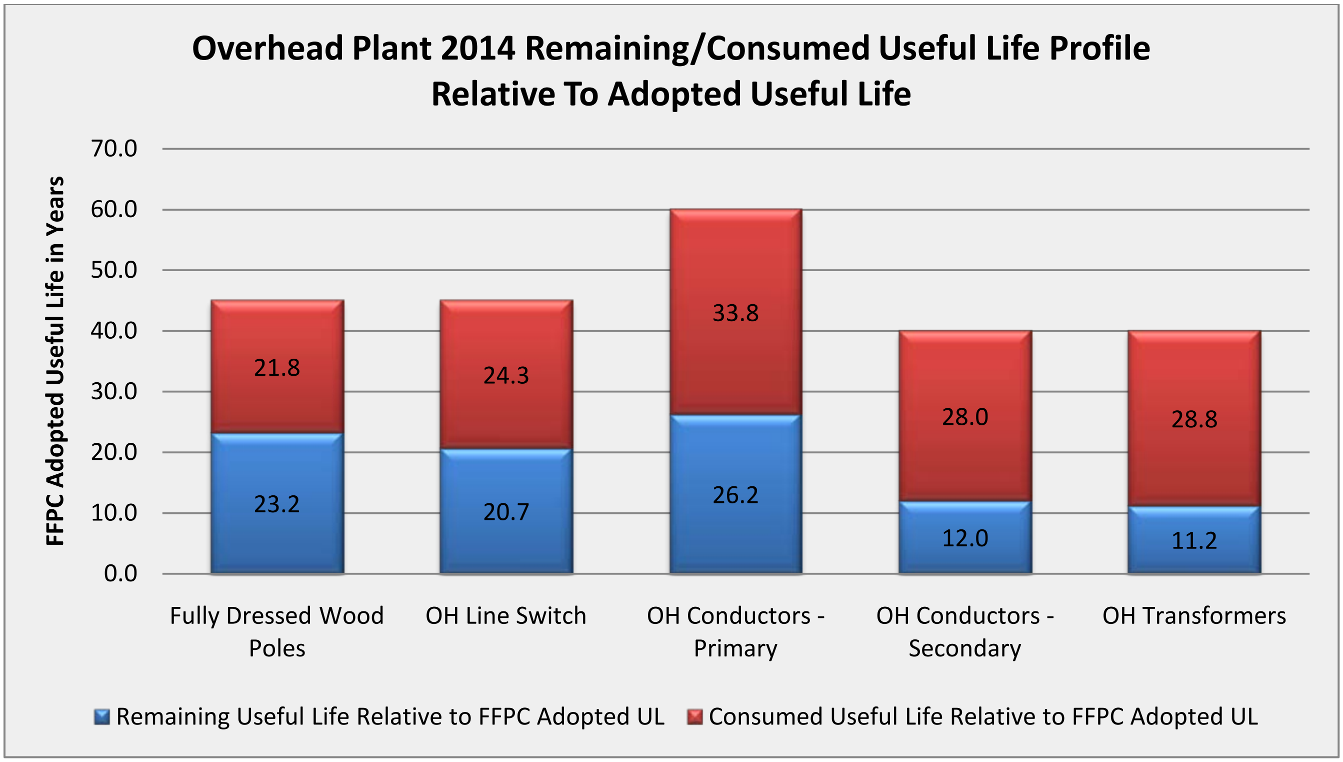


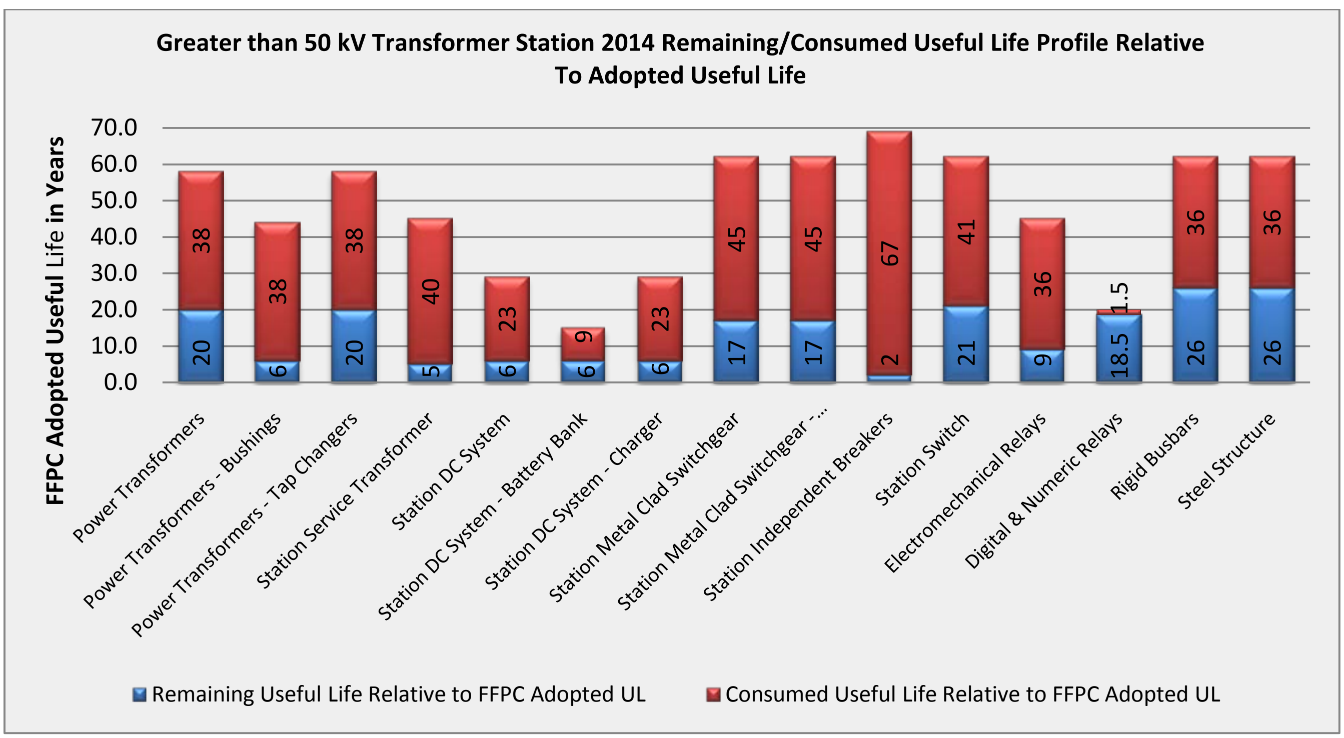


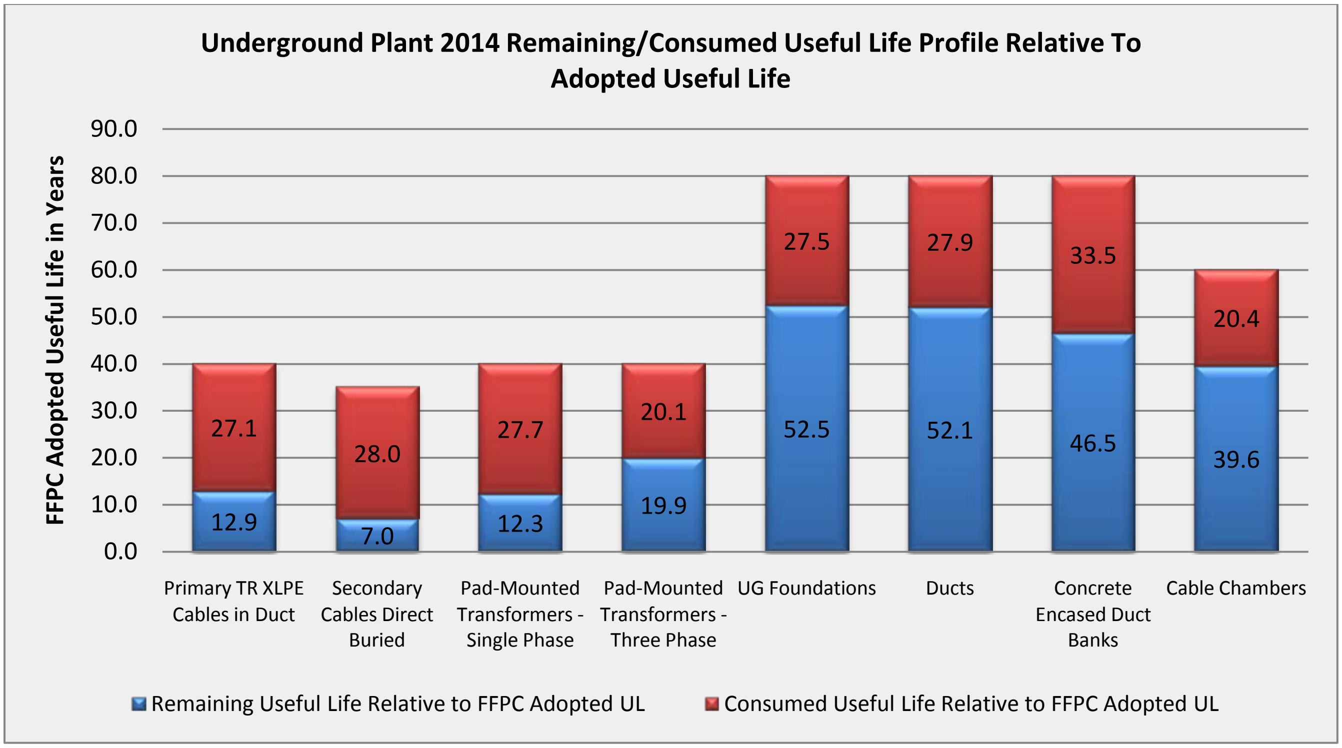


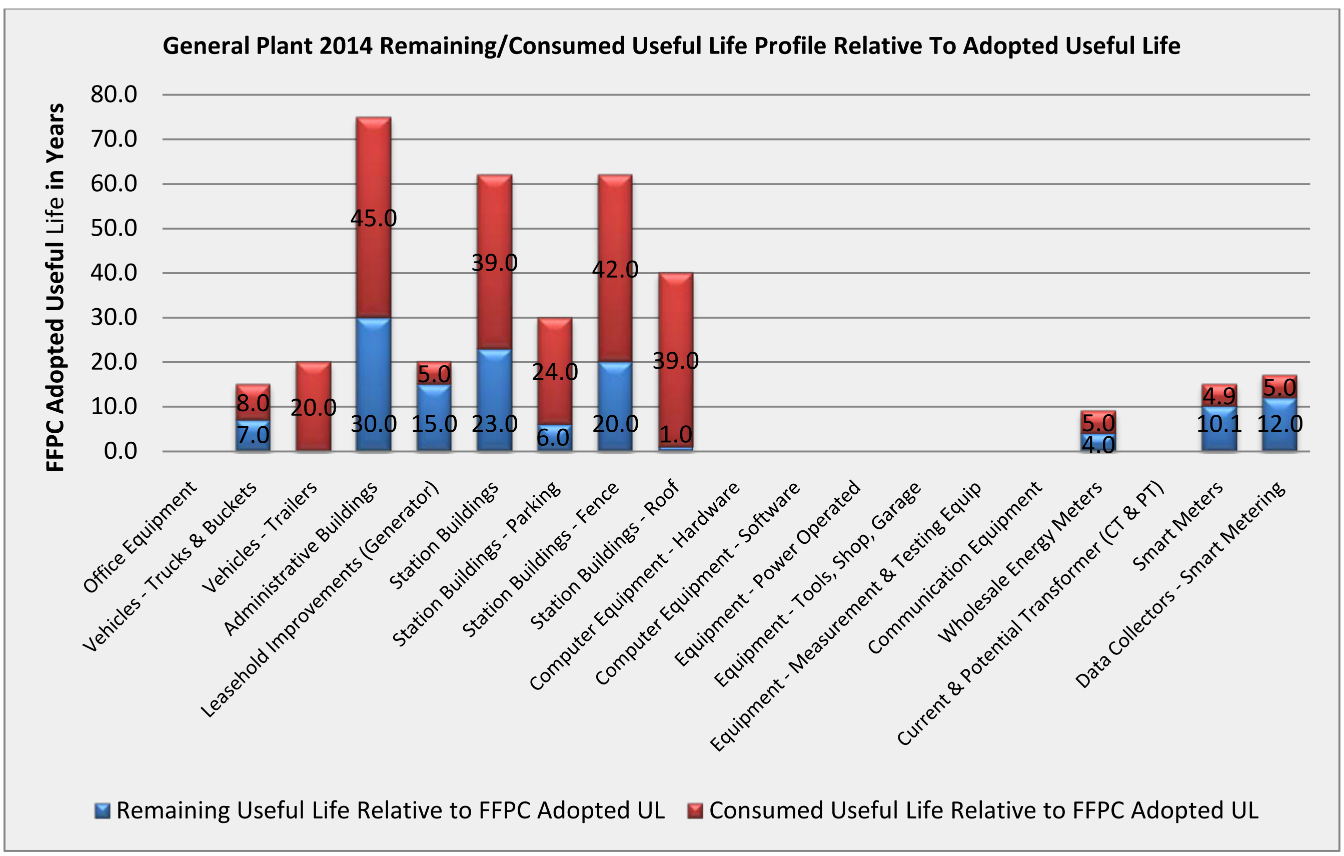
Note: Age profiles are not yet available for the Equipment related categories.

The following graphs illustrate the remaining and consumed years of useful life of FFPC's asset base, by asset category:









Note: Age profiles are not yet available for the Equipment related categories.

As previously mentioned, lifecycle sustaining capital reinvestments account for $2,775,966 (78.8%) of the total $3,522,205 capital investment needs identified, for the 2014 to 2018 planning period. The remaining portion of capital investment needs is required to address meeting other business objectives, addressing mandatory or legal obligations, as well as accommodating stakeholder needs (customer engagement activities). FFPC has allocated the following capital: $149,500 to address meeting business objectives, $538,739 to address meeting mandated service obligations, as well as $58,000 in response to customer preference. For filing purposes, FFPC has grouped and summarized its investment projects according to Section 5.1.1 of the Chapter 5 filing guide. As such, the following table summarizes the planned capital investments by category and investment driver, as well as the subsequent table illustrates the relative importance of each investment driver based on its percentage of the total planned investments:

FFPC 2014 to 2018 Planned Capital Expenditures by Investment Category							
Investment Category	**Investment Driver**	**2014**	**2015**	**2016**	**2017**	**2018**	**2014 - 2018 Total**
		Planned Expenditures	Planned Expenditures	Planned Expenditures	Planned Expenditures	Planned Expenditures	Total Planned Expenditures
System Access	Mandated Service Obligations	$ 421,739	$ 40,000	$ 20,000	$ 45,000	$ 12,000	$ 538,739
	3rd Party Infrastructure Development	$ -	$ -	$ -	$ -	$ -	$ -
	Customer Service Requests	$ -	$ -	$ -	$ -	$ -	$ -
System Renewal	EOL - Failure	$ 20,568	$ 8,608	$ 8,608	$ 8,608	$ 8,608	$ 54,999
	EOL - Failure Risk	$ 231,009	$ 408,255	$ 471,723	$ 520,363	$ 350,116	$ 1,981,466
	EOL - Functional Obsolescence	$ -	$ -	$ -	$ -	$ -	$ -
	EOL - High Performance Risk	$ 2,000	$ 2,000	$ 24,000	$ 2,000	$ 2,000	$ 32,000
	EOL - Substandard Performance	$ -	$ -	$ -	$ -	$ -	$ -
System Service	Customer Preference	$ -	$ 15,000	$ -	$ 43,000	$ -	$ 58,000
	Obj - Imp Performance/Functionality	$ -	$ -	$ -	$ -	$ -	$ -
	Obj - Power Quality	$ -	$ -	$ -	$ -	$ -	$ -
	Obj - Reliability	$ 14,500	$ 87,000	$ 40,000	$ 15,000	$ 15,000	$ 171,500
	Obj - Safety	$ 34,500	$ -	$ -	$ -	$ -	$ 34,500
	Obj - System Efficiency	$ 4,000	$ -	$ -	$ -	$ -	$ 4,000
General Plant	Non-System Physical Plant	$ 78,000	$ 50,500	$ 50,000	$ 23,000	$ 51,500	$ 253,000
	Business Operation Efficiency	$ 2,500	$ 40,000	$ 30,000	$ -	$ -	$ 72,500
	Other Performance/Functionality	$ 2,500	$ -	$ -	$ -	$ -	$ 2,500
	System Cap / Maintenance Support	$ 9,000	$ 25,000	$ 16,000	$ 10,000	$ 259,000	$ 319,000
Total Annual Capital Budget		$ 820,316	$ 676,363	$ 660,331	$ 666,971	$ 698,224	$ 3,522,205

FFPC 2014 to 2018 Planned Capital Expenditures by % Investment Driver							
Investment Category	Investment Driver	**2014**	**2015**	**2016**	**2017**	**2018**	**2014 - 2018 Total**
		% of Planned Expenditures	% of Planned Expenditures	% of Planned Expenditures	% of Planned Expenditures	% of Planned Expenditures	% of Total Planned Expenditures
System Access	Mandated Service Obligations	51.4%	5.9%	3.0%	6.7%	1.7%	15.3%
	3rd Party Infrastructure Development	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Customer Service Requests	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
System Renewal	EOL - Failure	2.5%	1.3%	1.3%	1.3%	1.2%	1.6%
	EOL - Failure Risk	28.2%	60.4%	71.4%	78.0%	50.1%	56.3%
	EOL - Functional Obsolescence	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	EOL - High Performance Risk	0.2%	0.3%	3.6%	0.3%	0.3%	0.9%
	EOL - Substandard Performance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
System Service	Customer Preference	0.0%	2.2%	0.0%	6.4%	0.0%	1.6%
	Obj - Imp Performance/Functionality	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Obj - Power Quality	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Obj - Reliability	1.8%	12.9%	6.1%	2.2%	2.1%	4.9%
	Obj - Safety	4.2%	0.0%	0.0%	0.0%	0.0%	1.0%
	Obj - System Efficiency	0.5%	0.0%	0.0%	0.0%	0.0%	0.1%
General Plant	Non-System Physical Plant	9.5%	7.5%	7.6%	3.4%	7.4%	7.2%
	Business Operation Efficiency	0.3%	5.9%	4.5%	0.0%	0.0%	2.1%
	Other Performance/Functionality	0.3%	0.0%	0.0%	0.0%	0.0%	0.1%
	System Cap / Maintenance Support	1.1%	3.7%	2.4%	1.5%	37.1%	9.1%
	Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

The following tables illustrate FFPC's total planned capital expenditures by Investment Category:

Investment Category	2014	2015	2016	2017	2018	2014 - 2018 Total
	Planned Expenditures ($'000)	Planned Expenditure s ($'000)	Planned Expenditure s ($'000)	Planned Expenditure s ($'000)	Planned Expenditure s ($'000)	Planned Expenditures ($'000)
System Access	421.7	40.0	20.0	45.0	12.0	538.7
System Renewal	253.6	418.9	504.3	531.0	360.7	2068.5
System Service	48.5	142.0	60.0	58.0	15.0	323.5
General Plant	96.5	75.5	76.0	33.0	310.5	591.5
Total	820.3	676.4	660.3	667.0	698.2	3522.2
System O&M	24.3	13.0	7.1	7.8	2.5	54.7

Investment Category	2014	2015	2016	2017	2018	2014 - 2018 Total
	% of Planned Expenditures	% of Planned Expenditures	% of Planned Expenditures	% of Planned Expenditures	% of Planned Expenditures	% of Total Planned Expenditures
% System Access	51.4%	5.9%	3.0%	6.7%	1.7%	15.3%
% System Renewal	30.9%	61.9%	76.4%	79.6%	51.7%	58.7%
% System Service	5.9%	21.0%	9.1%	8.7%	2.1%	9.2%
% General Plant	11.8%	11.2%	11.5%	4.9%	44.5%	16.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Of the total $3,522,205 in total planned capital expenditures over the 2014 to 2018 planning period, 58.7% are towards System Renewal, 16.3% are towards General Plant, 15.3% are towards System Access and 9.2% are towards System Service.

The "Kinectrics Asset Depreciation Study for the Ontario Energy Board" was of great assistance in the development of this DS Plan, as well as in the development of FFPC's Asset Management Process. FFPC would like to give credit to the authors of the report for the valuable body of work, as well as to the OEB for having the foresight to undertake the project. The following table illustrates FFPC's 2014 to 2018 planned capital investments by asset class, as per the Kinectrics Report.

FFPC 2014 - 2018 Capital Expenditure Summary By Kinectrics Asset Class						
Kinectrics Asset Class	**2014**	**2015**	**2016**	**2017**	**2018**	**2014 - 2018 Total**
	Planned Expenditures	Planned Expenditures	Planned Expenditures	Planned Expenditures	Planned Expenditures	Total Planned Expenditures
1 - Fully Dressed Wood Poles	$ 434,609	$ 134,928	$ 134,928	$ 134,928	$ 134,928	$ 974,319
4 - OH Line Switch	$ 32,500	$ -	$ -	$ -	$ -	$ 32,500
8 - OH Conductors	$ 11,180	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 59,180
9 - OH Transformers	$ 98,086	$ 104,894	$ 68,081	$ 129,709	$ 129,428	$ 530,197
Overhead Totals	**$ 576,375**	**$ 251,821**	**$ 215,009**	**$ 276,636**	**$ 276,355**	**$ 1,596,197**
12 - Power Transformers	$ -	$ -	$ -	$ -	$ -	$ -
13 - Station Service Transformer	$ -	$ -	$ -	$ -	$ -	$ -
15 - Station DC System	$ 2,000	$ 2,000	$ 24,000	$ 2,000	$ 2,000	$ 32,000
16 - Station Metal Clad Switchgear	$ -	$ -	$ -	$ -	$ -	$ -
17 - Station Independent Breakers	$ -	$ -	$ 150,000	$ -	$ -	$ 150,000
18 - Station Switch	$ -	$ -	$ -	$ -	$ -	$ -
19 - Electromechanical Relays	$ -	$ -	$ -	$ -	$ -	$ -
21 - Digital & Numeric Relays	$ 50,000	$ -	$ 20,000	$ -	$ -	$ 70,000
22 - Rigid Busbars	$ -	$ -	$ -	$ -	$ -	$ -
23 - Steel Structure	$ -	$ -	$ 25,000	$ -	$ -	$ 25,000
TS & MS Totals	**$ 52,000**	**$ 2,000**	**$ 219,000**	**$ 2,000**	**$ 2,000**	**$ 277,000**
29 - Primary TR XLPE Cables in Duct	$ 18,549	$ 36,609	$ 6,573	$ 79,915	$ 41,189	$ 182,835
30 - Secondary PILC Cables	$ -	$ -	$ -	$ -	$ -	$ -
31 - Secondary Cables Direct Buried	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 10,000
33 - Network Tranformers	$ -	$ -	$ -	$ -	$ -	$ -
34 - Pad-Mounted Transformers	$ 36,142	$ 135,682	$ 115,999	$ 179,670	$ 48,430	$ 515,923
36 - UG Foundation	$ -	$ -	$ -	$ -	$ -	$ -
40 - Ducts	$ 27,000	$ -	$ -	$ -	$ -	$ 27,000
41 - Concrete Encased Duct Banks	$ -	$ -	$ -	$ -	$ -	$ -
42 - Cable Chambers	$ -	$ -	$ -	$ -	$ -	$ -
UG Totals	**$ 83,691**	**$ 174,292**	**$ 124,572**	**$ 261,585**	**$ 91,619**	**$ 735,758**

43 - Remote SCADA	$ -	$ 20,000	$ -	$ 45,000	$ 12,000	$ 77,000
G1 - Office Equipment	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 15,000
G2 - Vehicles	$ 50,000	$ 38,000	$ 40,000	$ -	$ 275,000	$ 403,000
G3 - Administrative Buildings	$ 11,000	$ 21,500	$ 15,000	$ 8,000	$ 9,500	$ 65,000
G4 - Leasehold Improvements (Generator)	$ -	$ -	$ -	$ -	$ -	$ -
G5 - Station Buildings	$ 5,000	$ 74,000	$ 5,000	$ 5,000	$ 4,000	$ 93,000
G6 - Computer Equipment	$ 19,500	$ 46,000	$ 21,000	$ 55,000	$ 1,000	$ 142,500
G7 - Equipment	$ 14,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 34,000
G8 - Communication	$ -	$ 35,000	$ 7,000	$ -	$ 13,000	$ 55,000
G11 - Wholesale Energy Meters	$ -	$ -	$ -	$ -	$ -	$ -
G12 - Current & Potential Transformer (CT & PT)	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 12,500
G13 - Smart Meters	$ 3,250	$ 3,250	$ 3,250	$ 3,250	$ 3,250	$ 16,250
G15 - Data Collectors - Smart Metering	$ -	$ -	$ -	$ -	$ -	$ -
General Plant Totals	**$ 108,250**	**$ 248,250**	**$ 101,750**	**$ 126,750**	**$ 328,250**	**$ 913,250**
Grand Total	***$ 820,316***	***$ 676,363***	***$ 660,331***	***$ 666,971***	***$ 698,224***	***$ 3,522,205***

With respect to the Kinectrics Report asset grouping, the following asset classes are ranked in order of importance with respect to the amount of capital investment allocated towards each of them:

FFPC 2014 - 2018 Capital Expenditure Summary By Asset Class		
Kinectrics Asset Class	**2014 - 2018 Total**	
	Total Planned Expenditures	% of Total Planned Expenditures
1 - Fully Dressed Wood Poles	$ 974,319	27.7%
9 - OH Transformers	$ 530,197	15.1%
34 - Pad-Mounted Transformers	$ 515,923	14.6%
G2 - Vehicles	$ 403,000	11.4%
29 - Primary TR XLPE Cables in Duct	$ 182,835	5.2%
17 - Station Independent Breakers	$ 150,000	4.3%
G6 - Computer Equipment	$ 142,500	4.0%
G5 - Station Buildings	$ 93,000	2.6%
43 - Remote SCADA	$ 77,000	2.2%
21 - Digital & Numeric Relays	$ 70,000	2.0%
G3 - Administrative Buildings	$ 65,000	1.8%
8 - OH Conductors	$ 59,180	1.7%
G8 - Communication	$ 55,000	1.6%
G7 - Equipment	$ 34,000	1.0%
4 - OH Line Switch	$ 32,500	0.9%
15 - Station DC System	$ 32,000	0.9%
40 - Ducts	$ 27,000	0.8%
23 - Steel Structure	$ 25,000	0.7%
G13 - Smart Meters	$ 16,250	0.5%
G1 - Office Equipment	$ 15,000	0.4%
G12 - Current & Potential Transformer (CT & PT)	$ 12,500	0.4%
31 - Secondary Cables Direct Buried	$ 10,000	0.3%
Grand Total	***$ 3,522,205***	100.0%

Almost 60% of all investments planned, are allocated towards the replacement or refurbishment of Fully Dressed Wood Poles, Overhead and Pad-Mounted Transformers. With respect to the Kinectrics Report asset groupings, FFPC's total planned expenditures are: 45.3% or $1,596,197 towards Overhead Plant; 25.9% or $913,250 towards General Plant; $20.9% or $735,758 towards Underground Plant; and 7.9% or $277,000 towards Transformer Stations.

5.2.1.5 Unique Embedded OM&A Costs

FFPC's operating circumstances are unique from other distributors in that it administers a 1905 Historic Power Agreement, which is explained below in section 5.2.1.5.b, on behalf of FFPC ratepayers, as well as it owns and operates a Greater than 50 kV Transformer Station. FFPC essentially has an “expanded businesses scope” such that all three aspects are managed in a cost effective manner under one umbrella. FFPC’s management of the agreement and the station is of great benefit to ratepayers, as their cost of electricity is thereby significantly reduced as reflected on their total bill. With the inclusion of these consumer benefits, FFPC’s customers enjoy the lowest rates for electricity within the province of Ontario. The administration of both additional business aspects are deeply entrenched into the day-to-day operation of the utility, and administrative costs related to their upkeep are not segregated from regular distribution related administrative expenses.

Given the increased focus on distributor efficiency and the pressure to “bend the cost curve”, FFPC is very concerned that its unique operating circumstances which materially inflate OM&A costs, may not been taken into account when establishing cost related performance measures. As such, FFPC is concerned about being unjustly penalized in the establishment of its “Efficiency” and “Productivity Ratings”, which are also key inputs for the assignment of Stretch Factors for rate setting purposes. The methodology contained in PEG Reporting that establish OEB Rate Setting Parameters and Benchmarking under the Renewed Regulatory Framework for Ontario’s Electricity Distributors, underscore the importance of ensuring “apples to apples” benchmarking across distributors. This highlights the need for FFPC’s unique circumstances to be taken into consideration when establishing its performance measures. FFPC’s OM&A costs incurred essentially support three distinct business functions; a distribution business; a high voltage transformer station business; as well as a 1905 Historic Power Agreement business. Administrative costs; however, have historically not been segregated and allocated to each aspect. Segregation and allocation of costs is difficult due to the intertwined nature of the expense components. FFPC would like to underscore that although its OM&A expenses may appear higher than its peer group or established “targets”, they are prudently incurred in the best interest of its customers.

5.2.1.5.a. Greater Than 50 kV Transformer Station (“Fort Frances MTS”)

FFPC incurs significant expense associated with the ownership and operation of its high voltage transformer station, which in essence decreases Transmission costs and distorts distribution costs. The station represents 20.1% of FFPC’s current asset base, relative to its replacement cost divided by the total replacement cost of all assets owned (based on the replacement value obtained from FFPC’s insurance carrier). Prior to 2012, the greater than 50 kV transformer station was incorrectly classified as a “less than 50 kV Transformer Station” with respect to USoA account coding and as such all associated historic costs would be interpreted as “distribution costs”. Due to this oversight, historical benchmarking of FFPC’s performance is likely to not be accurate, as OM&A costs are significantly inflated. In addition as previously mentioned, administrative related expenses have historically not been allocated toward the upkeep and operation of the station.

5.2.1.5.b. 1905 Historic Power Agreement

As the Board is aware, the residents and small businesses of the Town of Fort Frances are beneficiaries of a 1905 Agreement entered into between the Town and the local pulp and paper mill. The 1905 Agreement obligates the mill owner, or more precisely today, the owner of the generation assets on the Rainy River (today, H2O Power LP (“H2O”)), to provide to the Town of Fort Frances, in perpetuity, 4,000 horsepower (2.984 Megawatts) at $14 per horsepower per annum (0.21416 cents per kilowatt hour) "for municipal purposes and for public utilities" [Fort Frances v Boise Cascade Canada Ltd., [1983] 1 SCR 171 at 184].

The 1905 Agreement is filed as a physical bilateral contract with the IESO and represents a financial obligation of H2O. Essentially, for 2.984 Megawatts, which represents approximately 25% of the power purchases of FFPC, H2O pays to the IESO the additional costs of power above 0.21416 cents per kilowatt hour, and the IESO credits FFPC for that amount. FFPC in turn credits its customers who, in effect, pay a blended commodity rate reflecting the benefit of the 1905 Agreement. The amount of the benefit currently exceeds $2.2 million annually, which is approximately 120% of FFPC's total annual collected distribution revenue. The administration of the agreement is deeply embedded into the day-to-day operation of many administration related matters. Some of these activities include: agreement value determination; review of regulations; adjustments to conform to regulatory reporting formats; calculation and implementation of credits and rebates; billing and customer communications. Further to this, FFPC periodically incurs significant expense to preserve the agreement in the face of regulatory and government policy changes, as well as in defending it at legal proceedings. The most notable legal proceeding lead to a Supreme Court of Canada ruling in 1983, at which time it was established that the owner of the generation assets provide to the Town of Fort Frances, in perpetuity, 4000 horsepower (2.984 Megawatts) at $14 per horsepower per annum, "for municipal purposes and for public utilities".

The agreement underpins FFPC's operating strategy, as it is the fundamental reason why FFPC operates under a zero percent rate-of-return of common equity, so as to not violate "commercialization" prohibiting clauses in the Supreme Court ruling of the agreement. As such, the agreement is a cornerstone of FFPC's business.

FFPC formally voiced its concerns regarding the measurement of its performance in light of the 1905 Historic Power Agreement, in the Board's consultation "Defining and Measuring Performance of Electricity Transmitters and Distributors" (EB-2010-0379). Please refer to Appendix 5 for the June 24, 2013 submission. FFPC would be pleased to have the opportunity to work with the Board, as well as with the Board's consultants, such as PEG Group, to address FFPC's unique performance benchmarking circumstances.

5.2.1.6 Expected Cost Savings

FFPC has developed a first class asset management process that will enable considerable cost savings to be recognized through improved oversight of assets managed, thereby enabling more effective planning and decision making. The asset management process has enabled multiyear data driven planning and decision making. FFPC's planning capabilities have improved significantly through the implementation of a GIS system, which has recently been complimented by formal asset management and capital planning processes. Good planning will result in wise spending, which will ultimately lead to customer cost savings.

FFPC performs an analysis on all of its assets by comparing the age of the assets relative to the "Typical-Useful-Life" (TUL) standards established in the July 8, 2010 "Kinectrics Asset Depreciation Study for the Ontario Energy Board" ("Kinectrics Report"). FFPC then performs further analyses to determine the likelihood of failure of every individual asset based on available condition data. Condition data sources include inspection results, condition testing results, asset performance data, employee expertise, root cause failure data from outage reports and manufacturer information such as known defects.

Utilizing these inputs, FFPC adjusts the “Typical-Useful-Life” expectancy of individual assets based on assessing their health. Favourable condition data extend the life expectancy of assets and conversely, unfavourable condition data decreases the life expectancy. Default life expectancies are set to FFPC’s adopted useful life values, which are based on the useful life ranges established in the Kinectrics Report. It is worth noting that FFPC has adopted default useful life values that are either equal to, or longer than the TUL values established in the Kinectrics Report. Longer UL’s are typically the result of FFPC’s lifecycle optimization policies. The resulting end-of-life estimations for individual assets are referred to as “Adjusted End-of-Life” projections. The “Adjusted End-of-Life” values for individual assets essentially generate a listing that reflects FFPC’s prediction as to the time of failure and the order in which assets will fail.

With the ability to project asset failures, FFPC can now make more educated decisions as to the opportune time to replace assets, balancing risk and reinvestment. With improved asset oversight, asset lifecycles can also be optimized. FFPC has aligned the lifecycles of various distribution system assets such that assets are not replaced prematurely. For example, a transformer base will be replaced every second time that the transformer mounted onto it is replaced. Similarly, underground ducts will be replaced every second time that the cables contained within them are replaced.

FFPC has quantified these cost savings based on a lifecycle costing methodology. FFPC’s asset management process has established a total replacement value for all assets owned at $24.3 million dollars. The replacement value is the product of individual asset counts and their corresponding individual replacement cost. If FFPC were to adopt the minimum useful life values determined in the “Kinectrics Report”, the normalized annual cost to sustain the lifecycles for all assets owned would be $1.14 million, whereas if FFPC was to adopt the maximum useful life values for all assets owned, the normalized annual cost to sustain the lifecycles would be reduced to $0.52 million.

Using the TUL values as determined in the “Kinectrics Report” as an industry benchmark, the normalized annual cost to sustain the lifecycles of Overhead, Underground, and General Plant owned would be $604,944. Through the implementation of FFPC’s Asset Management process and corresponding “Adjusted End-of-Life Values”, the normalized planned annual cost to sustain the lifecycles decreased to $527,458, resulting in annual savings of $77,487 or $387,433 over the planning period. FFPC has further reduced the actual average annual reinvestment amount towards sustaining the lifecycles of existing assets to $513,793. FFPC is hoping to achieve the additional reduction of $13,665 per year, through decreasing its asset base as a result of improved planning and system optimization efforts, as assets are replaced. FFPC is anticipating that transformer loading profiles, as well as other improved analytical data will become available in the near future, which will support identifying the targeted savings. Therefore, the total projected savings attributed to improved asset management and planning efforts is $455,757. The savings are expected to be realized as a result of effective planning, balancing risk and reinvestments, as well as through optimizing asset lifecycles.

The nature of Transformer Station investments is quite different from distribution plant, as they are sporadic and not conducive to annual “smoothing”, unless a large quantity of stations are owned, such that their lifecycles could be staggered. As such, planning related savings have not yet been quantified.

FFPC has utilized its own internal resources towards the development of its GIS based Asset Management Process, Capital Planning Process as well as this DS Plan. The projected savings from utilizing internal resources to develop these fundamental tools, as opposed to outsourcing their development, is estimated to be in excess of $250,000.

FFPC also uses internal resources to develop and conduct annual customer surveys. FFPC estimates that this will save customers approximately $50,000 in avoided costs over the planning period.

Additional cost saving such as reduced maintenance costs and reduced distribution losses will also be achieved; however, they are more difficult to quantify with a high degree of confidence.

5.2.1.7 Period Covered by DS Plan

FFPC performed its last Rate Rebasing in 2006, under proceeding number EB-2005-0366. As such, for the purpose of continuity, historical information as available has been provided for the period 2006 to 2012. Detailed project information for the forecast period 2014 to 2018 is also included. Individual asset class end-of-life projections have also been included. The projections are based on FFPC's asset management process and they detail one complete lifecycle for all major asset classes. The projections are relative to 2014 and reach out as far as 80 years into the future.

5.2.1.8 Vintage of Investment Driver Information

Investment driver information is current as at September 30th, 2013, although FFPC has incorporated recently received stakeholder feedback as per the below. FFPC has incorporated the following relevant stakeholder feedback:

- Customers: Results of Customer Survey conducted July & August 2013
- OPA: Letter of Comment re FFPC DS Plan received August 30th, 2013
- OPA: Update that the northwest region is no longer considered capacity constrained and that 10 MW of additional renewable generation capacity have been allocated: October 17th, 2013
- HONI: Planning Status Letter received by way of email: October 21st, 2013

Consideration has also been given to the needs of the following stakeholders although no formal responses were received:

- *Regional Planning Consultation (No formal consultations conducted yet)*
- *Municipal Planning Office*
- *Fort Frances Emergency Control Group*

5.2.1.9 Changes to Distributor Asset Management Process

FFPC's formal asset management process was developed to fulfill the needs of the "Chapter 5 Consolidated Distribution System Plan Filing Requirements" and as such, no prior version existed. FFPC is very pleased with the OEB's impetus and guidance provided for the development of a formal asset management process, as well as for the creation of a formal Distribution System Plan. Through this effort, FFPC has been able to achieve improved oversight of its asset base enabling data driven long range planning, which will ultimately result in significant customer savings.

This DS Plan is built on the foundation of FFPC's Asset Management Process which has been integrated into a Geographical Information System. Over the 2014 to 2018 planning horizon, FFPC expects to enhance its asset management process through the deployment of a formal Work Order and Asset Management Planning software tool which was purchased in 2013. The tool will assist FFPC in tracking all relevant work performed on individual assets, enable asset specific cost tracking, as well as provide an asset based analytical calculation engine (for automatic generation of Health Indexes etc.).

5.2.1.10 Aspects of DS Plant Contingent upon Ongoing & Future Outcomes

There are several aspects contained within this DS Plan that are contingent upon the outcome of ongoing and future activities. The following aspects have the potential of significantly impacting the 2014 to 2018 DS Plan:

- Elimination of Long Terms Load Transfer Arrangements: There are currently fourteen (14) customers within FFPC's licensed electrical distribution service territory that are physically connected to and serviced by Hydro One Networks Inc.'s electrical distribution system. The customers are located in three separate locations and the customer count by location is twelve (12) one (1) and one (1) respectively. Over the course of history, FFPC has been approached by several LTLT customers requesting that FFPC extend its distribution system such that they can be connected to it and served by FFPC. FFPC's LTLT circumstances are unique from other LTLT arrangements, in that the customers are entitled to receive benefits from a 1905 Historic Power Agreement. Under the current circumstances FFPC is not able to distribute the 1905 Historic Power Agreement credits to them, as FFPC does not meter or bill the LTLT customers. Upon OEB approval for the capital distribution system expansion, FFPC is planning on extending its feeders to eliminate the LTLT's in 2014, as per the requirements of the DSC. The financial impact of this project is expected to be $371,739, which is planned to be incurred in 2014. The feeder expansions will unlock access to approximately 25% of FFPC's distribution service territory that is currently not developed. As a community partner, FFPC is also hopeful that the LTLT feeder expansions will spark economic activity.
- Renewable Generation Enabling Improvements: Upon OEB approval, FFPC is planning to move forward with instrumentation and control upgrades at its greater than 50 kV transformer station "Fort Frances MTS". The upgrades are necessary to accommodate reverse power flow at the station, to enhance equipment protection and to enable individual feeder performance monitoring for constraint setting purposes. The renewable enabling improvements will also accomplish many objectives of the Smart Grid directive including Customer Control, Power System Flexibility and Adaptive Infrastructure categories. The financial impact of this aspect on FFPC's DS Plan is expected to be $167k over the period

2014 to 2018. FFPC has previously incurred approximately $62k of eligible renewable enabling expense, for which it is also seeking recovery.

- Regional Planning Consultation: The regional planning consultation has the potential of significantly impacting FFPC's DS Plan; however, the consultations have not yet formally started and as such deliverables are still unknown. Due to unknown deliverables, FFPC acknowledges a potential impact but it cannot be quantified at this time.

5.2.1.11 FFPC Transition from Maintenance Mode to Capital Rebuild Mode

FFPC's entire electrical distribution system was rebuilt from the mid 1970's to mid 1980's. As a result of this rebuild and voltage conversion, FFPC has essentially operated in a maintenance mode over the last several decades. Capital reinvestment needs were low due to the overall age of the distribution assets being relatively new. Increased capital reinvestments are now required, to keep pace with the large volumes of assets approaching the end of their useful service life, posing a high risk of failure over the 2014 to 2018 planning period. As such, FFPC is planning to increase its capital reinvestments as dictated by the age and condition of its asset base (as determined by asset management and capital planning processes).

5.2.2 Coordinated planning with third parties

5.2.2.1 Regional Planning Consultations

At the time of preparing this DS Plan, the Regional Infrastructure Planning initiative is still in the early stages of development and as such many of the elements of the planning process have not yet been implemented. As per the "Integrated Planning Requirements - Part 1: Regional Infrastructure Planning" presentation to 2014 Cost of Service Application filers, the transition and implementation to Regional Infrastructure Planning (RIP) is expected to take four (4) years. In other words, it is expected to take four (4) years to complete the first iteration of the planning cycle.

FFPC owns and operates a transmission connected transformer station "Fort Frances MTS", which transforms the incoming 115 kV transmission supply to the outgoing 7.2/12.27 kV distribution voltage. In Exhibit 1 of this COS, FFPC formally requests that this transmission asset be deemed a distribution asset. It is anticipated that future deliverables from the Regional Infrastructure Planning (RIP) process will entail modifications to the transformer station, as the majority of the station is still of original 1970's vintage, and as such lacks modern day technology and functionality. Modern day technology deployment at the transformer station supports Renewable Generation Enabling Improvement objectives, as well as Smart Grid Directive objectives.

To date, FFPC has not received formal notice advising of the RIP communication plan or the preliminary schedule that is expected to be received by LDCs and part of the roll out. For planning purposes, Ontario has been divided into 21 regions by electrical topography. Regional plans for these 21 regions have been divided into three groups: Active (Group 1), Upcoming (Group 2) and Future (Group 3). It is worth noting, that FFPC's licensed service territory is geographically located in “Active - Group 1”, which is said to have planning activities underway for some or all parts of the region. Refer to Appendix 2 for a map of the regions, as well as for a listing of electrical distributors within them.

To date, joint regional planning meetings involving FFPC, OPA, Regional Transmitter and other stakeholders have not yet transpired. As such, FFPC is not aware of any deliverables to comment on or to act upon at this time. FFPC has; however, been informed by the OPA from its Letter of Comment, that an East-West Transmission Tie Line project is proposed with an in-service date of 2017/2018. The proposed in-service date falls within FFPC’s 2014 to 2018 planning horizon, and aligns well with FFPC’s planned REG activities.

Although joint regional planning activities have not yet formally transpired, FFPC has solicited feedback from stakeholders including the Ontario Power Authority, regionally interconnected transmitters/distributor, municipal planning office, customers and the general public for the purpose of developing this DS Plan, as well as to fulfill rate application filing requirements. FFPC has incorporated stakeholder feedback and has attempted to align future service offerings and investments with the needs and priorities of all stakeholders, including consumers.

5.2.2.2 Consultations with the Ontario Power Authority

On July 12, 2013, FFPC submitted a formal "Request for Letter of Comment" to the OPA along with supporting documentation as per the criteria contained in Sections 5.1.4.1 and 5.1.4.2 of the revised OEB Chapter 5 Filing Requirements. The submission also included: a detailed description of FFPC's Planned Renewable Generation Enabling Improvements for period 2012 through 2018; a system capability assessment for renewable generation; smart grid deployment information; and regional planning and consultation activities. The following list depicts the table of contents of the information provided to the OPA to coordinate planning and to solicit comments:

Table of Contents

In its submission to the OPA, FFPC detailed its planned REG expenditures over the 2012 to 2018 planning horizon. The purpose of the planned expenditures is to modernize transformer station Fort Frances MTS' functionality, specifically improved protection, control and oversight, such that reverse power flow can be safely accommodated. The improvements will also significantly increase FFPC's renewable generation connection capacity, as well as they accomplish several Smart Grid directive objectives.

It is important to note that the OPA found FFPC's plan to modify its station protection and controls over a seven year period to be consistent with the schedule of potential transmission improvements in the region. Furthermore, OPA found that FFPC's plan is consistent with its information regarding renewable generation applications to date.

The OPA's August 30th, 2013 Letter of Comment is included as Appendix 1 of this submission.

5.2.2.2.a. October 17th, 2013 Announcement re Northwest Region Capacity Constraints Lifted

On October 17th, 2013, FFPC was personally contacted by the OPA, to advise of a new development since the issuance of its Letter of Comment. The OPA informed FFPC that the Northwest Region is no longer considered to be "Transmission Capacity Constrained", and that an additional 10 MW of renewable generation capacity has been allocated to the region. FFPC's service territory is very conducive to hosting renewable generation, as opposed to much of the outlying rural territory. FFPC expects considerable additional generators to connect to its distribution system over the forecast period. Based on current uptake levels, FFPC anticipates that an additional 312kW of capacity will come online between 2014 and 2018. Several Relocation Program applicants have also contacted FFPC to inquire about relocating their projects to within FFPC's service territory. The capacities of the relocation applicants total 360 kW. To date, construction has begun on two relocated projects (20 kW).

5.2.2.3 Consultations with Regionally Interconnected Distributors and Transmitters

FFPC does not have any regionally interconnected distributors (host or embedded) and is transmission connected to Hydro One Network Inc (HONI). Prior to the revised Chapter 5 Consolidated Distribution System Plan Filing Requirements coming into effect, FFPC was providing HONI with annual submissions regarding planned transformer station power outages, load forecasts, and renewable generation connection information.

In the past, these submissions were sent in the format and timeframe as requested by HONI. Outside of these formal submissions, FFPC has also worked very closely with HONI to coordinate mutual transformer station equipment outages necessary to conduct maintenance and capital work. The coordination of equipment outages effectively minimized the number and duration power interruptions that customers experience.

On July 12, 2013, FFPC also submitted a formal "Request for Letter of Comment" to HONI. Under the new regional planning process that has been developed by the Process Planning Working Group, FFPC expects to receive either a Needs Assessment Report, if FFPC involvement is not required in the RIP and/or IRRP process, or alternately a Regional Planning Status Letter, if FFPC involvement is required in RIP and/or IRRP process. FFPC also welcomed any general feedback or comments for consideration. The following table of contents represents the information contained in FFPC's submission to HONI.

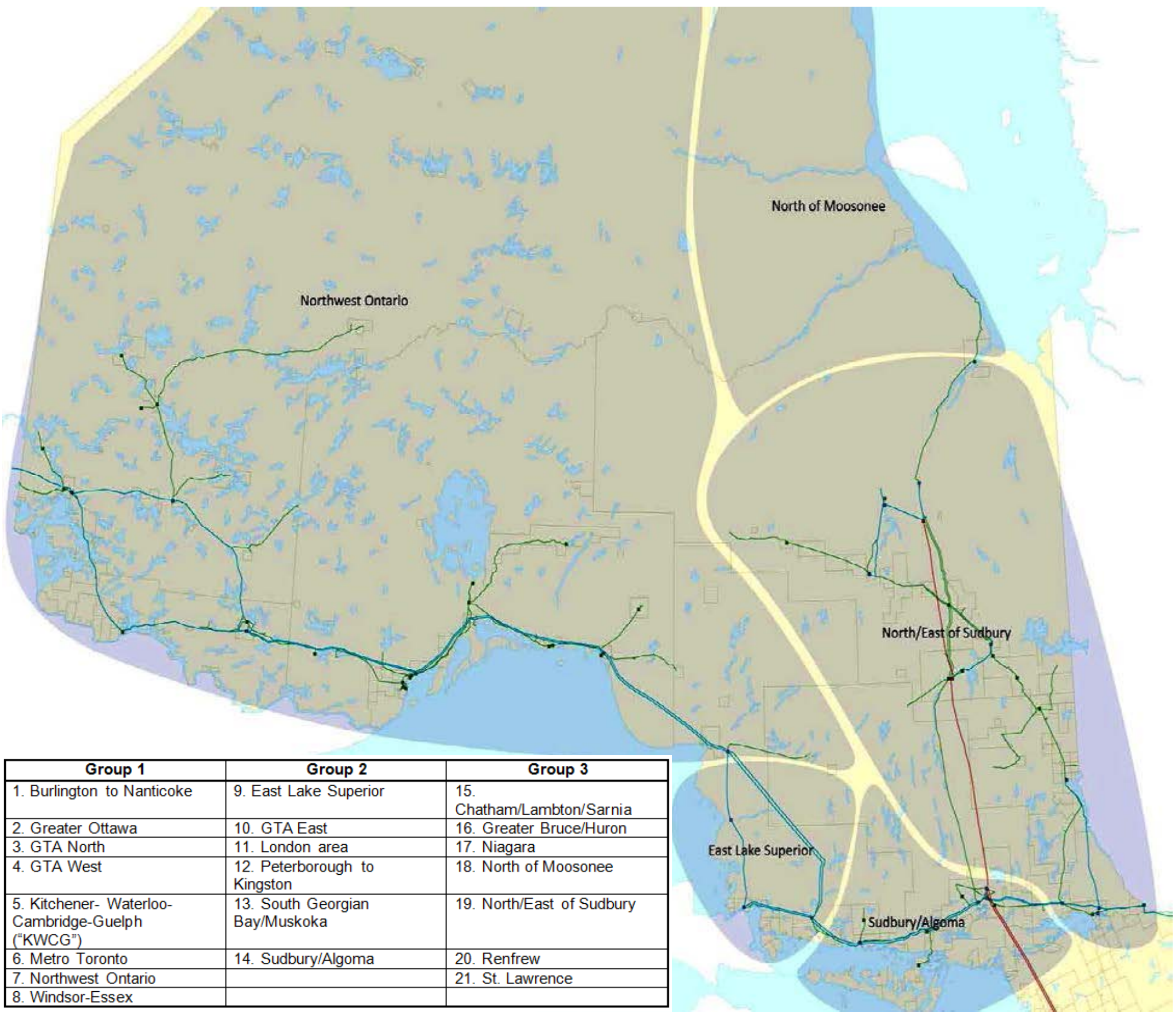
Table of Contents

On October 21, 2013 FFPC received a Planning Status Letter in response to FFPC's request for a Letter of Comment.

5.2.2.3.a. October 21, 2013 Planning Status Letter

On October 21, 2013 FFPC received a Regional Planning Status Letter from HONI by way of email. The letter confirmed that FFPC's licensed distribution service territory belongs to "Group 1", which is the Northwest Region. The following map illustrates the 21 Regions/Groups that have been established throughout Ontario, based on electrical topology. The letter confirmed that the OPA is planning on reinforcing the transmission system in the region, north of Dryden, as well as along the East-West-Tie line. These initiatives are aligned with FFPC's planned renewable enabling improvements that will increase FFPC's generation connection capacity from 1.3 MW to 10.6 MW by 2018. The letter also informed FFPC that HONI and OPA are in the early stages of discussions with respect to coordinated regional planning. HONI proceeded to confirm that the formal regional planning process has not yet been initiated, nor has a Regional Infrastructure Plan (RIP) been developed for the sub-region within the Northwest region affecting FFPC. Formal regional planning efforts are expected to commence in the first quarter of 2014. As such, FFPC is not aware of any deliverables at this time, and has not allocated any funding towards them at this time. Refer to Appendix 2 for HONI's Planning Status Letter

Group 1 - Northwestern Ontario



Group 1	Group 2	Group 3
1. Burlington to Nanticoke	9. East Lake Superior	15. Chatham/Lambton/Sarnia
2. Greater Ottawa	10. GTA East	16. Greater Bruce/Huron
3. GTA North	11. London area	17. Niagara
4. GTA West	12. Peterborough to Kingston	18. North of Moosonee
5. Kitchener- Waterloo-Cambridge-Guelph ("KWCG")	13. South Georgian Bay/Muskoka	19. North/East of Sudbury
6. Metro Toronto	14. Sudbury/Algoma	20. Renfrew
7. Northwest Ontario		21. St. Lawrence
8. Windsor-Essex		

5.2.2.4 Consultations with Customers

Customer focus is considered to be an important outcome of the OEB's newly released Renewed Regulatory Framework for Electricity. FFPC has incorporated customer feedback in developing its five-year DS Plan and beyond. Customer feedback is also a key input into FFPC's asset management process. Information gathered from customer surveys and other feedback forums were used to align FFPC's planned service offerings and planned expenditures with customer preferences and priorities.

FFPC conducted an extensive customer survey throughout the summer of 2013, to solicit customer feedback. A survey was mailed out to all of FFPC's customers in all rate classes via a bill insert. This approach gave all customers the equal opportunity to participate in the survey. To support this initiative, FFPC also launched an extensive newspaper advertising campaign to encourage all customers to participate in the survey.

The survey was broken down into the following sections by focus area:

- Customer satisfaction with FFPC
    - Overall; with the reliability of electricity supplied; with the portfolio of CDM program offerings; communication of planned power outages; responding to power outages; amount of time taken to restore power; ability to respond to questions; communicating when power will be restored; communicating outage causes
- Customer experiences with FFPC power outages
    - How long outages last; causes of outages; impact of outages on customer and customer's family; specific areas of concern during power outages (i.e. security, how long food lasts etc.)
- Customer Reliability Expectations
    - Expected number of unplanned outages; how many hours a year customers expect to be without electricity
- Customer Future Needs
    - Customer plans regarding the purchase of electric vehicles; customer plans regarding the installation of renewable generation; customer plans regarding the installation of energy storage systems;
- Customer Preferred Service Offerings
    - Online access to customer billing and detailed consumption data; automated customer notification system (i.e. automatic notification of planned power outages etc); electronic billing versus paper billing; true calendar month billing (billing based on consumption from first day to last day of month)
    - What specific things can FFPC improve on to serve customers better
- Customer Concerns
    - What is the most important energy or electricity related issue for consumers
- Customer Education
    - What topics do customers want to learn more about, such as conservation and demand management, understanding electricity bills, smart grid, renewable generation, smart meters etc.
- General Comments

FFPC's survey was very well received and almost 10% of the entire customer base completed and returned surveys. FFPC is pleased with the survey results, which found that customers are very pleased with FFPC's performance overall. It is worth noting that under the "Overall Satisfaction" portion of the survey, only 1 out of 345 responses received, indicated a degree of dissatisfaction.

Based on the survey findings, FFPC is planning on implementing the following projects over the 2014 to 2018 planning horizon.

1 - Mass customer contact system (outage notification etc): 2015 Rollout
2 - Outage Management System (outage alerts & customer communications): 2017 Rollout
2 - Transition to true calendar monthly billing: 2014 Rollout
3 - Offering a choice of Paper or Electronic Billing: 2014 Rollout
4 - Online access to consumption and billing data: 2014 Rollout
5 - Maintain distribution system reliability and performance by replacing end of life assets, in accordance to FFPC's asset management and capital planning processes : Ongoing

FFPC will also be launching annual customer education campaigns, which focus on topics consumers are most interested in learning more about. FFPC's customers want to learn more about the following topics in the following order of popularity: Conservation, Renewable Generation, Smart Meters, Smart Grid, Understanding Your Bill, Demand Management and Time-of-Use Rates.

FFPC plans on utilizing Town Hall Meetings, trade shows and standard advertising outlets such as newspapers and bill inserts. Furthermore, FFPC will be contacting customers personally to answer customer specific questions collected from the survey.

5.2.2.5 Consultations with Municipal Planning Office

FFPC has historically worked very closely with its Municipal Planning Office, in regards to coordinating planning efforts that are conducted throughout the community. FFPC will continue to work closely with its Municipal Planning Office, to coordinate the rollout of each other's projects. For example, FFPC provides feedback on all applications that are circulated to stakeholders from the municipal Committee of Adjustment. Comments are often solicited in regards to the impact of zoning changes, coordination of land utility services (electric, water, gas, sewer, communication), requests for relief from by-law requirements, easements etc. FFPC also uses the opportunity to advise applicants of their requirements under FFPC's Conditions of Service, as well as to inform applicants of relevant industry programs such as the "New Construction" CDM program offering.

In 2013, FFPC performed its first distribution feeder expansion in recent history. The underground feeder expansion was required to accommodate the development of a small fourteen lot subdivision.

FFPC is currently not aware of any significant development projects being coordinated through the Municipal Planning Office over the 2014 to 2018 planning horizon. As such, FFPC is not aware of any material impact that municipal development will have on the 2014 to 2018 DS Plan.

5.2.2.6 Fort Frances Emergency Control Group

FFPC is also an active member of the Fort Frances Emergency Control Group. The group performs emergency management table top exercises in preparation for real life community emergencies that may occur. Recent exercise scenarios included an ice storm, emergency evacuation due to an industrial site disaster, "Swine Flu" epidemic as well other natural disasters. The group also coordinates and conducts emergency management training for all members (key contacts) such as Incident Management Training (IMS). The table top emergency exercises are a good opportunity for members to review and critique their emergency plan.

Current members include FFPC, Ontario Provincial Police, Canadian Red Cross, Riverside Health Care (Regional Hospital), Ambulance Services, Corporation of the Town of Fort Frances, Victims Services, B93 (Local Radio Station), Ministry of Natural Resources, Resolute Forrest Products, Rainy River District Social Services Administration Services Board, Local Health Unit, Critical Incident Stress Management Team (C.I.S.M.), CN Railway, Union Gas, Energy Fundamental Group, and Treaty Three Police.

In recent history, this working group has stimulated FFPC to proactively prepare itself for emergency situations. In 2009, FFPC invested in a back-up generator for its main office, such that essential services can remain operational including communications, building heat and lighting. In 2011, FFPC also equipped its operations centre with a backup generator, to also allow for essential building services to remain operational such as communications, building heat and lighting. FFPC's offices are now deemed to be suitable locations for alternate Emergency Operation Centres in the event of a community or regional crisis.

FFPC has several immaterial initiatives planned over the 2014 to 2018 planning horizon that are driven from this consultation, such as staff education and awareness training; however, the costs are expected to be immaterial.

5.2.2.7 Letters of Comment

To date, FFPC has received formal letter of comment from the OPA, as well as Hydro One Networks Inc. The OPA Letter of Comment with respect to FFPC's DS Plan has been attached to this submission as Appendix 1. HONI's Letter of Comment with respect to FFPC's DS Plan has been attached to this submission as Appendix 2.

5.2.2.8 Impact Summary of Third Party Consultations on DS Plan

The following in a summary of material impacts on FFPC's 2014 to 2018 DS Plan, as a result of third party and stakeholder consultations:

Regional Planning Consultations

- Currently there are no confirmed deliverables identified as formal consultations have not yet begun
- Potential East-West Tie Line Transmission project may impact FFPC DS Plan, but at this point in time the potential impact cannot be quantified
- No quantifiable impact available at the time of preparing this DS Plan

Consultation with OPA

- OPA finds FFPC's planned Renewable Enabling Improvements at transformer station Fort Frances MTS to align with the potential transmission improvements for the region
- The OPA advised FFPC of an additional 10 MW of renewable generation capacity for the Northwest region, which implies continued FIT and microFIT uptake in FFPC's service territory over the 2014 to 2018 planning period.

Customer Engagement - Customer Satisfaction Survey Findings

- Customers find that investing in a Mass Customer contact system will be of value to their needs
    - FFPC planning on deploying mass customer contact system in 2015
        - Estimated Capital Cost $15,000
- Customers find that investing in transitioning customer billing to true calendar month billing will be of value to their needs
    - FFPC planning on deploying true calendar monthly billing in 2014
        - Estimated Operational Cost $7,500
- Customers find that investing in offering a choice of receiving a paper or electronic bill will be of value to their needs
    - FFPC planning on deploying paper or electronic billing choice in 2014
        - Estimated Operational Cost $10,000
- Customers don't find that investing in technology to enable them to access their electronic consumption data and billing information through the internet is of value to their needs
    - FFPC recognizes that this is a mandated directive, and as such FFPC will proceed with offering online access to consumption and billing data in 2014
        - Estimated Operational Cost $10,000
- Outage Communication is an identified area of improvement, FFPC plans to deploy an Outage Management System (OMS) that will enable proactive notification of localized customer outages, as well as assist with customer communication and interaction regarding planned or unplanned outages
    - FFPC planning to deploy an OMS in 2017
        - Estimated Capital Cost $43,000

Consultations with Municipal Planning Office

- There are no significant projects planned under this consultation during the period 2014 to 2018.
- As such, FFPC is not aware of any corresponding material impact on its 2014 to 2018 DS Plan based on this consultation

Consultations with Emergency Control Group

- This consultation has not had a material impact on FFPC's 2014 to 2018 DS Plan, with respect to demanding capital expenditures.

5.2.3 Performance measurement for continuous improvement

5.2.3.1 Overview of Performance Metrics

FFPC has historically used its own set of Key Performance Indexes (KPI's) to measure various aspects of performance. Many of these KPI's are aligned with measures contained in the Board's RRR filing requirements, as well as with the Board Staff's July 2013 recommended scorecard. FFPC also utilizes several performance measures which it believes to be of importance, that are not currently used by the Board. FFPC has identified and defined these measures, as well as provided performance results with respect to them.

FFPC's mission is to deliver safe and reliable electricity to its customers, at the lowest possible sustainable rates. FFPC has attempted to align its performance measures with the July 2013 version of Board Staff's Recommended LDC scorecard. FFPC currently does not use all of the recommended measures, and as such, FFPC does not have a history of data for newly introduced measures. FFPC plans to adopt any new measures contained in the finalized scorecard.

5.2.3.2 FFPC RRR Unitized Statistics and Service Quality Requirements History

The following summary illustrates FFPC's Unitized Statistics and Service Quality Requirements history based on RRR reporting, for the period 2005 to 2012. Detailed discussions about significant measures, as per Board Staff's July 2013 recommended scorecard, are provided under sections 5.2.3.4 through 5.2.3.8.

Unitized Statistics and Service Quality Requirements	2005	2006	2007	2008	2009	2010	2011	2012
# of Customers per sq km of Service Area	155.38	153.12	148.62	153.88	144.92	145.27	145.19	145.38
# of Customers per km of Line	53.16	47.39	46.00	47.63	44.86	44.96	51.01	51.08
Ave. Power & Distribution Revenue less Cost of Power & Related Costs								
Per Customer Annually	$342.92	$424.31	$371.06	$397.29	$411.73	$417.41	$403.15	$484.20
Per Total kWh Purchased	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02
Average Cost of Power & Related Costs								
Per Customer Annually	$1,523.85	$1,458.23	$1,594.13	$1,471.98	$1,674.33	$1,514.99	$1,639.16	$1,927.27
Per Total kWh Purchased	$0.07	$0.07	$0.07	$0.07	$0.07	$0.07	$0.07	$0.09
Avg Monthly kWh Consumed per Customer	1,805	1,807	1,891	1,823	1,905	1,854	1,833	1,767
Avg Peak (kW) per Customer	3.46	3.55	3.71	3.53	3.62	3.50	3.49	3.39
OM&A Per Customer	$263.58	$282.63	$296.59	$312.64	$349.41	$350.99	$344.90	$428.61
Net Income Per Customer	$4.76	$18.61	$14.50	-$4.29	-$15.30	$4.51	-$1.44	-$83.05
Net Fixed Assets per Customer	$ 833.68	$ 846.11	$ 819.25	$ 744.93	$ 772.17	$ 813.93	$ 760.42	$ 859.88
Service Quality Requirements								
Low Voltage Connections (OEB Min. Standard: 90%)	N/A	100	100	100	100	100	100	100
High Voltage Connections (OEB Min. Standard: 90%)	N/A	100	N/A	100	100	100	100	N/A
Telephone Accessibility (OEB Min. Standard: 65%)	N/A	100	100	100	97.4	94	94.1	93.6
Appointments Met (OEB Min. Standard: 90%)	N/A	100	100	100	100	100	100	100
Written Response to Enquiries (OEB Min. Standard: 80%)	N/A	N/A	100	100	100	100	98	100
Emergency Urban Response (OEB Min. Standard: 80%)	N/A	100	100	100	100	100	100	100
Emergency Rural Response (OEB Min. Standard: 80%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Telephone Call Abandon Rate (OEB Standard: not exceed 10%)	N/A	N/A	N/A	N/A	3.1	2.8	5.1	2.2
Appointments Scheduling (OEB Min. Standard: 90%)	N/A	N/A	N/A	N/A	100	100	100	100
Rescheduling a Missed Appointment (OEB Standard: 100%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Reconnection Performance Standard (OEB Min. Standard: 85%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100
Service Reliability Indices								
SAIDI-Annual	N/A	0.15	0.30	3.77	6.63	0.60	0.09	0.30
SAIFI-Annual	N/A	0.24	0.31	1.77	2.40	0.31	0.21	0.30
CAIDI-Annual	N/A	0.62	0.95	2.13	2.76	1.92	0.43	1.02
Loss of Supply Adjusted Service Reliability Indices								
SAIDI-Annual	N/A	N/A	N/A	N/A	N/A	0.60	0.09	0.3

SAIFI-Annual	N/A	N/A	N/A	N/A	N/A	0.31	0.21	0.3
CAIDI-Annual	N/A	N/A	N/A	N/A	N/A	1.92	0.43	1.02

5.2.3.3 FFPC RRR Financial Ratio History

The following summary illustrates FFPC's financial ratio history based on RRR reporting, for period 2005 to 2012. Detailed discussions about significant measures as per Board Staff's July 2013 recommended scorecard are provided under section 5.2.3.8

	RRR Reported Financial Ratios	2005	2006	2007	2008	2009	2010	2011	2012
Liquidity Ratios	Current Ratio (Current Assets/Current Liabilities)	3.50	4.65	4.82	3.96	3.30	4.11	4.97	2.67
Leverage Ratios	Debt Ratio (Total Debt/Total Assets)	0%	0%	0%	0%	0%	0%	0%	0.00
	Debt to Equity Ratio (Total Debt/Total Equity)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Interest Coverage (EBIT/Interest Charges)	14.58	38.58	49.53	-0.84	0.68	2.19	0.68	-8.95
Profitability Ratios	Financial Statement Return on Assets (Net Income/Total Assets)	0.24%	1.10%	0.82%	-0.24%	-0.84%	0.19%	-0.07%	-3.78%
	Financial Statement Return on Equity (Net Income/Shareholder Equity)	0.34%	1.28%	0.96%	-0.29%	-1.03%	0.30%	-0.10%	-5.93%

5.2.3.4 Customer Focus Measures

FFPC has divided customer focus measures into the following two main performance categories; Service Quality and Customer Satisfaction. FFPC's service quality measures are based mainly on statistics reported in RRR filings; however, as of 2013 FFPC has also been able to incorporate the results of its first customer satisfaction survey.

5.2.3.4.a. Connection of LV Services

FFPC does not experience a large volume of requests for new connections, which is a good reflection of the local economy, which is regressing somewhat. FFPC is able to offer excellent customer service with respect to responding to customer service requests. Most requests for connection of a new service are accommodated within one business day, well above the minimum requirement of five days. In 2013, FFPC only received three (3) requests to connect new low voltage services. Throughout 2013 no requests to connect new high voltage services were received.

5.2.3.4.a.i. OEB Requirement

The percentage of new low voltage (<750 volts) connection requests where the connection is made within 5 working days of all applicable service conditions being satisfied.

5.2.3.4.a.ii. OEB Approved Standard

At least 90% on a yearly basis

5.2.3.4.a.iii. Performance History

Connection of New Services – Low Voltage		
Year	Minimum Standard	FFPC Performance
2008	90%	100%
2009	90%	100%
2010	90%	100%
2011	90%	100%
2012	90%	100%

5.2.3.4.a.iv. Performance Trend & Assessment

FFPC consistently exceeds OEB requirements, and as such is satisfied with its performance. This measure is not identified as having a material impact on FFPC's 2014 - 2018 DS Plan.

5.2.3.4.b. Appointment Scheduling

The majority of appointments are scheduled and attended to by FFPC's General Superintendent. FFPC has a relatively small service territory, which does not require long travel distances and essentially any customer destination can be reached within a fifteen minute window. Furthermore, as Fort Frances is a relatively small community, travel delays such as those due to rush-hour traffic are nonexistent. As such, FFPC has an excellent track record scheduling and attending appointments as required. Many appointments are scheduled and attended to within one day of receiving the customer request.

5.2.3.4.b.i. OEB Requirement

The percentage of appointments scheduled according to the standards stated in section 7.3 of the Distribution System Code.

5.2.3.4.b.ii. OEB Approved Standard

At least 90% on a yearly basis

5.2.3.4.b.iii. FFPC Performance History

Appointment Scheduling		
Year	Minimum Standard	FFPC Performance
2008	90%	n/a
2009	90%	100%
2010	90%	100%
2011	90%	100%
2012	90%	100%

5.2.3.4.b.iv. Performance Trend & Assessment

FFPC consistently exceeds OEB requirements, and as such is satisfied with its performance. This measure is not identified as having a material impact on FFPC's 2014 - 2018 DS Plan.

5.2.3.4.c. Appointment Met

As per the same reasons discussed under appointment scheduling, FFPC has an excellent track record meeting appointment obligations.

5.2.3.4.c.i. OEB Requirement

The percentage of appointments involving meeting a customer or the customer's representative where the appointment date and time is met.

5.2.3.4.c.ii. OEB Approved Standard

At least 90% on a yearly basis.

5.2.3.4.c.iii. FFPC Performance History

Appointments Met		
Year	Minimum Standard	FFPC Performance
2008	90%	100%
2009	90%	100%
2010	90%	100%
2011	90%	100%
2012	90%	100%

5.2.3.4.c.iv. Performance Trend & Assessment

FFPC consistently exceeds OEB requirements, and as such is satisfied with its performance. This measure is not identified as having a material impact on FFPC's 2014 - 2018 DS Plan.

5.2.3.4.d. Telephone Accessibility

FFPC is currently in the process of reconfiguring its telephone system to address functionality limitations. FFPC typically experiences a relatively low volume of customer calls; however, FFPC is currently limited to only being able to answer one "outside" call at a time. All incoming calls are currently directed to and answered by FFPC's Administrative Assistant. Unanswered calls are routed to a voice mail system. A system reconfiguration will expand the bottleneck of one outside line, to a recommended three. This will enable simultaneous telephone calls to be answered by other available staff members.

The current telephone system is unable to track and calculate statistical information such telephone call abandon rates, or the length of time that a call in a queue. Telephone statistics are currently being logged and computed manually, which is an onerous process. Abandon rates are not directly available and as such are currently calculated as a function of voice mail messages. The assumption is that during regular business hours a voice mail is a telephone call that was abandoned.

FFPC believes that telephone accessibility with respect to hosting multiple incoming call lines, as well as automated statistical reporting for regulatory reporting purposes is in an area requiring improvement. FFPC will be expanding its incoming phone pipe from one to three lines. A telephone system upgrade enabling automatic statistical reporting has been identified as a strategic improvement project in FFPC's five year business plan.

5.2.3.4.d.i. OEB Requirement
The percentage of qualified incoming calls to the utility that are answered in person within 30 seconds.

5.2.3.4.d.ii. OEB Approved Standard
At least 65% on a yearly basis.

5.2.3.4.d.iii. FFPC Performance History

Telephone Accessibility		
Year	Minimum Standard	FFPC Performance
2008	65%	100.0%
2009	65%	97.4%
2010	65%	94.0%
2011	65%	94.1%
2012	65%	93.6%

5.2.3.4.d.iv. Performance Trend
FFPC exceeds OEB requirements; however, FFPC is not satisfied with how telephone performance metrics are currently calculated, due to telephone system limitations. Although FFPC is pleased with its service level, a telephone system upgrade has been identified as a strategic improvement to satisfy regulatory reporting obligations. This measure is identified as having a small impact on FFPC's 2014 - 2018 DS Plan. FFPC requires a $20,000 capital investment to improve reporting telephone performance metrics.

5.2.3.5 Customer Satisfaction
Over the summer of 2013, FFPC conducted its first customer satisfaction survey. The survey provided both quantitative and qualitative measures of customer satisfaction. The complete results of the survey are attached as Appendix 3, and the sections pertaining specifically to customer satisfaction are discussed below.

5.2.3.5.a. Customer Satisfaction Survey
The following table illustrates the questions that customers were asked, the scoring legend, as well as FFPC's corresponding survey score. A portion of the customer survey management response is also provided following the tables.

		Scoring Legend			FFPC Score		
		Scoring Range From 1 to 10			Scoring Range From 1 to 10		
		Not At All Satisfied	Neither Satisfied or Dissatisfied	Extremely Satisfied	Average	Median	Mode
1	Overall, how satisfied are you with the services provided by the Fort Frances Power Corporation (FFPC)?	1	5	10	9.0	10.0	10.0
2	How satisfied are you with the reliability of the electricity supplied to you overall?	1	5	10	9.5	10.0	10.0
3	How satisfied are you with the portfolio of conservation programs that are currently offered to you?	1	5	10	7.8	10.0	10.0
4	How satisfied are you with how FFPC communicates planned outages to you?	1	5	10	8.8	10.0	10.0
5	Now thinking specifically about unplanned outages, how satisfied are you with FFPC:						
	a. Responding to power outages, overall?	1	5	10	9.3	10.0	10.0
	b. Amount of time taken to restore power?	1	5	10	9.1	10.0	10.0
	c. Ability to respond to questions?	1	5	10	8.0	10.0	10.0
	d. Communication when power will be restored?	1	5	10	7.7	9.5	10.0
	e. Communication why an outage occurred?	1	5	10	7.6	10.0	10.0
		Scoring Legend			FFPC Score		
6	Thinking of recent power outages that you have experienced:	Answer in Minutes			Average Minutes	Median Minutes	Mode Minutes
	a. On average, for how many minutes do power outages last?	X Minutes			25.0	15.0	30.0

5.2.3.5.a.i. Overall Customer Satisfaction

Customers are overall very satisfied with the services provided by FFPC, as indicated by the average score of 9.0 out of 10, where 10 represents extremely satisfied. It is worth noting that only one customer response out of 345 received, indicated a degree of dissatisfaction.

5.2.3.5.a.ii. Reliability of Electricity Supplied

Customers are overall very satisfied with the reliability of electricity supplied, as indicated by an average score of 9.5 out of 10, where 10 represents extremely satisfied. Management recommends continuing with its current practices towards maintaining electrical distribution system reliability.

5.2.3.5.a.iii. Conservation Program Offerings

Customers are moderately satisfied with the portfolio of conservation programs that are being offered, as indicated by an average score of 7.8 out of 10, where 10 represents extremely satisfied. Conservation program offerings appear to be an area of opportunity for improvement. Management recommends exploring the feasibility of enhancing CDM programs to have a "Northern Element" in them, specifically related to targeting reductions in heating loads. Northern residents require significantly more heating than cooling due to the colder climate. A 2012 comparison of the temperature at the Fort Frances Airport versus Lester B. Pierson Airport indicates that consumers in Fort Frances are subjected to 55% more Heating Degree Day (HDD) demand over a year, at 4976 versus 3215 in Toronto.

5.2.3.5.a.iv. Communicating Planned Outages

Customers are very satisfied with how FFPC communicates planned outages, as indicated by an average score of 8.8 out of 10, where 10 represents extremely satisfied. Management recommends continuing with its current practice of announcing planned outages.

5.2.3.5.a.v. Satisfaction with Unplanned Outages

Overall customers are very satisfied with how FFPC responds to power outages overall; with the amount of time taken to restore power; and with FFPC's ability to respond to questions. FFPC received scores of 9.3, 9.1 and 8.0 out of 10 respectively, where 10 represents extremely satisfied. Customers are moderately satisfied with FFPC's communication of when power will be restored, and with FFPC's communication of why an outage occurred, as indicated by average scores of 7.7 and 7.6 out of 10 respectively, where 10 represents extremely satisfied. Management recommends that although customers are moderately to very satisfied, an opportunity exists to improve customer communication, specifically customer outages.

5.2.3.5.a.vi. General Comments

The general comments portion of the survey also demonstrates the high degree of customer satisfaction, with 73.6% (123 general comments out of a possible 169 general comments received) of all general comments received being compliments towards FFPC.

5.2.3.5.a.vii. Performance Trend & Assessment

FFPC currently does not have any performance trends regarding the level of customer satisfaction. FFPC is pleased with the current level of customer satisfaction; however, the survey identified opportunities for improvement. The customer survey results have impacted FFPC's 2014 to 2018 DS Plan. FFPC will be initiating the following Customer Focus projects over the 2014 to 2018 planning horizon:

- Customers find that investing in Mass Customer contact system will be of value to their needs
    - FFPC is planning on deploying mass customer contact system in 2015
        - Estimated Capital Cost $15,000
    - FFPC is planning on deploying Outage Management System to complement mass customer contact system in 2017
        - Estimated Capital Cost $43,000
- Customers find that investing in transitioning customer billing to true calendar month billing will be of value to their needs
    - FFPC is planning on deploying true calendar monthly billing in 2014
        - Estimated Operational Cost $7,500
- Customers find that investing in offering a choice of receiving paper or electronic bills will be of value to their needs
    - FFPC is planning on deploying paper or electronic billing choice in 2014
        - Estimated Capital Cost $10,000
- Customers don't find that investing in technology to enable them to access their electronic consumption data and billing information through the internet is of value to their needs
    - FFPC recognizes that this is a mandated directive, and as such will proceed with offering online access to consumption and billing data in 2014
        - Estimated Capital Cost $10,000
- FFPC is planning on adding a new position of "Technical Customer Service Representative" to its organization. The position will primarily be responsible for engaging customers and to deliver customer preference related projects and services. Another core role of the new position will be to support FFPC's long range planning activities, by assisting in the annual processing of the newly developed Asset Management Planning and Capital Planning Processes. FFPC anticipates that the position will increase FFPC's OM&A expenses by $76,000 for labour expenses, and $26,000 for benefit related expenses. For the 2014 test year, FFPC expects these expenses to be ½ ($51,000) to reflect a hiring/starting date of July 1, 2014.

5.2.3.6 Operational Effectiveness Measures

FFPC has divided its operational effectiveness measures into three categories; Safety, System Reliability and Overall Cost Performance. This DS Plan contains FFPC's first formal asset management plan (process), and as such no historic performance levels are available.

5.2.3.6.a. Safety

5.2.3.6.a.i. ESA Ontario Regulation 22/04 Compliance Audits

In early 2004, Ontario Regulation 22/04 was put in place with the objective of enhancing public safety in regards to Ontario's electrical distribution systems. The regulation affects the safety requirements for the design, construction and maintenance of electrical distribution systems owned by licensed distributors. Section 13 of the regulation stipulates that distributors are required to participate in annual compliance audits as per the following:

> *13. (1) It is a condition of an approval issued to a distributor for the use of a distribution system that the distributor engage an auditor to audit on an annual basis the distributor's compliance with sections 4, 5, 6, 7 and 8 and to prepare an audit report. O. Reg. 22/04, s. 13 (1).*

As such, FFPC has participated in annual compliance audits and believes that the audit results are a good measure for assessing performance with respect to ensuring public and employee safety.

5.2.3.6.a.i.1 Objective and Scope of the Audit:

To conduct a comprehensive review of the processes, guidelines, and standards used by Fort Frances Power Corporation (FFPC) in their designs, construction, installations, use, maintenance and repairs, extensions, connections and disconnections of electrical equipment forming the distribution system as to avoid or reduce the possibility of electrical hazards.

5.2.3.6.a.i.2 Auditing Methodology followed:

The following standard audit practices were followed to assess the level of conformance to the provincial safety regulation:

1. Review of Fort Frances Power Corporation's existing processes, guidelines and standards.
2. In person meeting with knowledgeable personnel.
3. Site visits.

5.2.3.6.a.i.3 Section 4: Safety Standards

Section 4.0 of Regulation 22/04 (Electrical Distribution Safety) requires that the distributor has processes in place to ensure that all distribution systems and the electrical installations, and electrical equipment forming part of such systems are designed, constructed, installed, protected, used, maintained, repaired, extended, connected and disconnected so as to avoid/reduce the exposure to electrical safety hazards.

5.2.3.6.a.i.4 Section 5: When Safety Standards Met

To meet the requirements of Section 5.0 of Regulation 22/04 (Electrical Distribution Safety), the distributor is to ensure that there are processes in place that check on an ongoing basis the installations, overhead and underground lines and distribution stations.

5.2.3.6.a.i.5 Section 6: Equipment Approval

Section 6 of Regulation 22/04 requires the use of certified/duly approved equipment for the construction of new or the repair and extension of existing distribution systems after February 11, 2005.

5.2.3.6.a.i.6 Section 7: Approval of plans, drawings, and specifications for installation work

Section 7.0 of Regulation 22/04 (Electrical Distribution Safety) applies to electrical installations that are, or may form part of the distribution system. This section requires that before starting, or affecting repairs, alterations, or extensions of an existing distribution system, the distributor must ensure that the installation is based on:

- Plans that have been prepared by a Professional Engineer and these have been reviewed and approved by a professional engineer or ESA; or
- The distributor's standard design drawings are assembled by a Professional Engineer or by an engineering technologist certified by OACETT, or by another competent person, and reviewed and approved by a professional engineer or by ESA.
- Moreover, prior to authorizing third party attachments, the distributor is to ensure that attachments to its distribution systems meet the safety requirements of the Regulation

5.2.3.6.a.i.7 Section 8: Construction Approval and Inspections

On February 11, 2005, section 8 of the Regulation came into effect requiring that before putting any new construction or repairs of the distribution systems into use, the distributor is to:

- ensure the construction is inspected;
- confirm that only approved equipment was utilized in the construction;
- prepare a record of inspection; and
- complete a Certificate

5.2.3.6.a.i.8 FFPC Performance History

FFPC Ontario Regulation 22/04 Compliance Audit Results

Audit Year	Section 4 Safety Standards	Section 5 When Safety Standards Met	Section 6 Equipment Approval	Section 7 Approval of plans, drawings, and specifications for installation work	Section 8 Construction Approval and Inspections
2008	C	C	C	NI	NC
2009	C	C	C	NI	NI
2010	C	C	C	C	C
2011	C	C	C	C	C
2012	C	C	C	C	C

Legend C-complies, NI- Needs Improvement Identified, NC Non-conformance found, N/A –Not Applicable

5.2.3.6.a.i.9 Performance Trend & Assessment

FFPC is very pleased with its performance record and notes over the last five years only once instance of a non-conformance to regulation 22/04 was identified through the audit process. FFPC has managed to obtain a perfect score for the last three consecutive years. Compliance to O.Reg. 22/04 has not been identified as needing improvement or as a driver requiring material investments over the planning period. FFPC's objective is to maintain current performance levels.

5.2.3.6.a.ii. ESA Due Diligence Inspections

In order to ensure compliance with Ontario Regulation 22/04 "Electrical Distribution Safety", the Electrical Safety Authority performs Due Diligence Inspections (DDIs) of LDCs. The inspections focus on ensuring that construction in the field is in accordance with a plan, work instruction, and/or standard designs such that no undue hazards exist to the public or LDC personnel. FFPC believes this measure to be a good measure of performance with respect to public safety and the safety of personnel.

LDCs receive an inspection report which could require LDC action in the event that significant findings were found in the inspection. Findings are classified according to their importance with respect to safety in the following order of importance:

1. Imminent Fire / Shock / Explosion Hazards
2. Non-Compliance(s) to O.Reg. 22/04
3. Needs Improvement
4. Safety Related Observations
5. Miscellaneous Observations

The following are ESA's definitions and instructions with respect to responding to the DDI Inspection Report:

5.2.3.6.a.ii.1 Imminent Fire/Shock/Explosion Hazard

This section details imminent fire/shock/explosion hazards. All items listed under this section need to be addressed immediately by the Local Distribution Company (LDC) and a formal, written response submitted to Electrical Safety Authority (ESA).

5.2.3.6.a.ii.2 Key Due Diligence Findings

Key Due Diligence Findings are items that ESA requires formal, written responses within 10 working days. The Key Due Diligence Findings can be found in the "NON-COMPLIANCES TO REGULATION 22/04" and "NEEDS IMPROVEMENT" sections of the report.

5.2.3.6.a.ii.3 Observations

Observations are items that ESA does not require formal, written responses to, unless specifically requested. The Observations can be found in the "SAFETY RELATED OBSERVATIONS" and "MISCELLANEOUS OBSERVATIONS" sections of the report.

5.2.3.6.a.ii.4 Non-Compliances to Regulation 22/04

The section details non-compliances to Regulation 22/04. All items listed under this section need to be addressed by the Local Distribution Company (LDC) and a formal, written response submitted to Electrical Safety Authority (ESA). For each non-compliance detailed, the LDC shall address (1) an ACTION PLAN / RESPONSE and (2) TIMELINES (when not detailed by ESA) for addressing each non-compliance.

5.2.3.6.a.ii.5 Needs Improvement

The section details areas where improvements are required with respect to Regulation 22/04. All items listed under this section need to be addressed by the Local Distribution Company (LDC) and a formal, written response submitted to Electrical Safety Authority (ESA). For each "Needs Improvement" point, the LDC shall address (1) an ACTION PLAN / RESPONSE and (2) TIMELINES (when not detailed by ESA) for addressing each point. LDC's are requested to provide comments within 10 working days.

5.2.3.6.a.ii.6 Safety Related Observations

The section details safety related observations discovered during the inspection. Items listed under this section do not require a response by the LDC, unless specifically requested by ESA. These observations affect the safety of the public or LDC personnel, and may or may not fall under Regulation 22/04.

5.2.3.6.a.ii.7 Miscellaneous Observations

The section details non-safety related observations discovered during the inspection. Items listed under this section do not require a response by the LDC, unless specifically requested by ESA. These observations are non-safety related, and may or may not fall under Regulation 22/04.

5.2.3.6.a.ii.8 FFPC Performance History

FFPC ESA Due Diligence Inspection Performance History					
Inspection Year	Imminent Fire / Shock / Explosion Hazards	Non-Compliances(s) to O.Reg. 22/04	Needs Improvement	Safety Related Observations	Miscellaneous Observations
2008	0	0	0	1	0
2009	0	0	3	2	2
2010	0	0	2	2	2
2011	0	0	0	3	3
2012	0	0	0	0	2

5.2.3.6.a.ii.9 Performance Trend

FFPC is very pleased with the inspection results and notes that over the last five years of inspections no hazards or non-conformances to Ontario Regulation 22/04 were found. FFPC was not required to prepare a formal response to the inspection findings three out of five years. DDI inspection performance is not identified as needing improvement or to be a driver requiring material investments over the planning period. FFPC's objective is to maintain current performance levels.

5.2.3.6.a.iii. Safe Worked Hours & Injury Free Years

FFPC has been tracking the performance of employee safety using the measure "Safe Worked Hours". This measure is a summation of all employee hours worked, beginning at zero, ending in the event that an employee suffers a lost time injury. A lost time injury refers to accidents or injuries that force the employee to remain away from his or her work, beyond the day of the accident or for the next shift. Similarly, FFPC also tracks the amount of time that has elapsed in the unit "years, months", since the last occurrence of a lost time injury.

5.2.3.6.a.iii.1 FFPC Performance History
FFPC's performance record as at August 31, 2013 is:

Safe Worked Hours - 71,576

Injury Free Years - 5 Years, 3 Months

5.2.3.6.a.iii.2 Performance Trend & Assessment
FFPC is pleased with its track record of employee safety. FFPC's last lost time injury occurred in May of 2008, due to an employee requiring surgery on a shoulder muscle due to a long term repetitive strain injury. In June of 2013, FFPC surpassed a five year injury free milestone, and currently has accumulated 71,576 safe worked hours as at the end of August 2013. FFPC is not aware of comparable industry statistics and as such no industry comparison is available. FFPC's objective is to continually improve its Health and Safety program. Over the 2014 to 2018 planning horizon, FFPC is planning on expanding employee safety awareness, skills development training and continued education. FFPC believes that all work related injuries can be prevented if employees are armed with the proper continued education and training, as well as supplied with the proper tools that enable them to work safely.

5.2.3.6.b. System Reliability and Performance
FFPC's measures to quantify the performance of its electrical distribution system are SAIDI, SAIFI, CAIDI, as well as the results obtained from an annual outage cause analysis.

5.2.3.6.b.i. SAIDI, SAIFI & CAIDI
FFPC has adopted the industry standard distribution system reliability measures SAIDI, SAIFI and CAIDI for assessing the performance of its electrical distribution system.

5.2.3.6.b.i.1 Definitions
SAIDI: System Average Interruption Duration Index (SAIDI) is defined as the length of outage customers experience in a year on average and it is expressed as hours per customer per year.

$$\text{SAIDI} = \frac{\text{Total Customer-Hours of Interruptions}}{\text{Total Customers Served}}$$

SAIFI: System Average Interruption Frequency Index is defined as the average number of interruptions each customer experiences and it is expressed as number of interruptions per year per customer

$$\text{SAIFI} = \frac{\text{Total Customer Interruptions}}{\text{Total Customers Served}}$$

CAIDI: Customer Average Interruption Duration Index is defined as the speed at which power is restored and it is expressed as average duration in hours per customer per year.

$$\text{CAIDI} = \frac{\text{Total Customer-Hours of Interruptions}}{\text{Total Customer Interruptions}}$$

5.2.3.6.b.i.2 Significance of Loss of Supply

Loss of supply can have a significant impact on FFPC's overall reliability statistics, as FFPC's entire customer base is supplied from a single supply point. A loss of supply at this connection point results in all customers being without power, compared to localized issues that only affect a small number of customers. Thus, loss of supply by nature can be the dominant cause of poor distribution system performance.

5.2.3.6.b.i.3 Customer Expectations

FFPC conducted its first customer satisfaction survey over the summer of 2013. As part of the survey, consumers were asked specifically about their expectations with respect to how many hours they expect to be without electricity in a year and how many power outage incidents they expect to experience. The results were as per the following:

		Scoring Legend	FFPC Score		
		Number of Hours	Average Hours	Median Hours	Mode Hours
9	How many hours in a year do you expect to be without electricity?	X Hours	4.4	3.0	1.0

On average, FFPC's customers expect to be without electricity for a total of 4.4 hours according to the 2013 survey results.

		Scoring Legend	FFPC Score		
		Number of Instances	Average	Median	Mode
8	How many unplanned power outages do you expect to happen at your home in a typical year?	X Unplanned Outages	2.9	2.0	2.0

On average, customers expect to experience 2.9 unplanned outages in a year.

5.2.3.6.b.i.4 FFPC Performance History

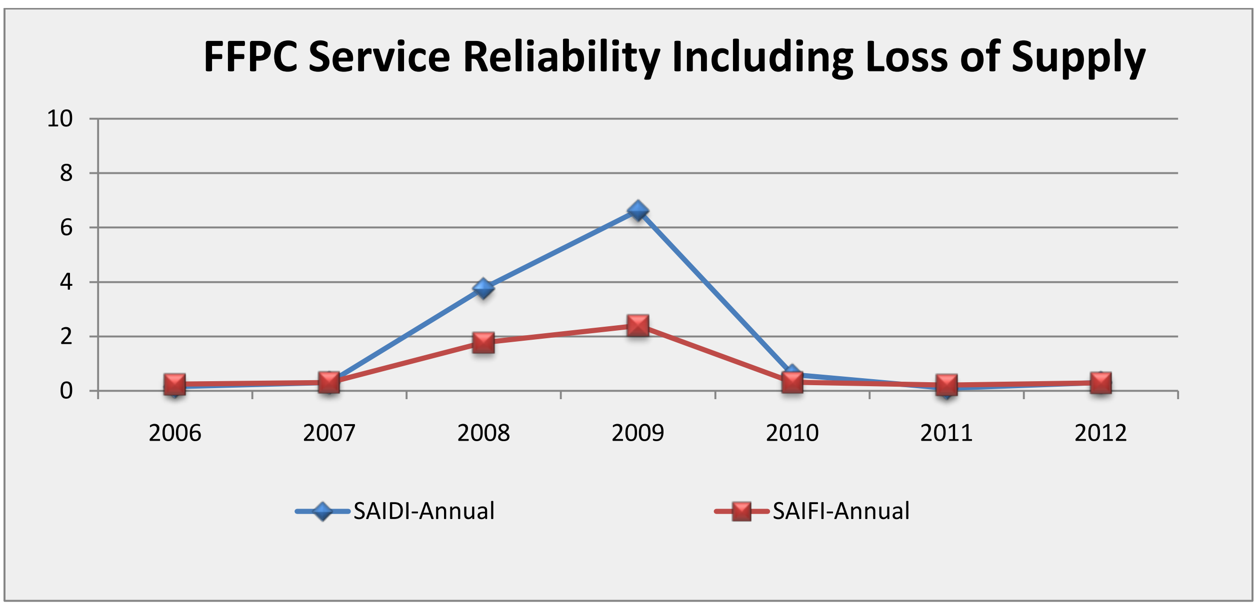
Service Reliability Indices Including Loss of Supply

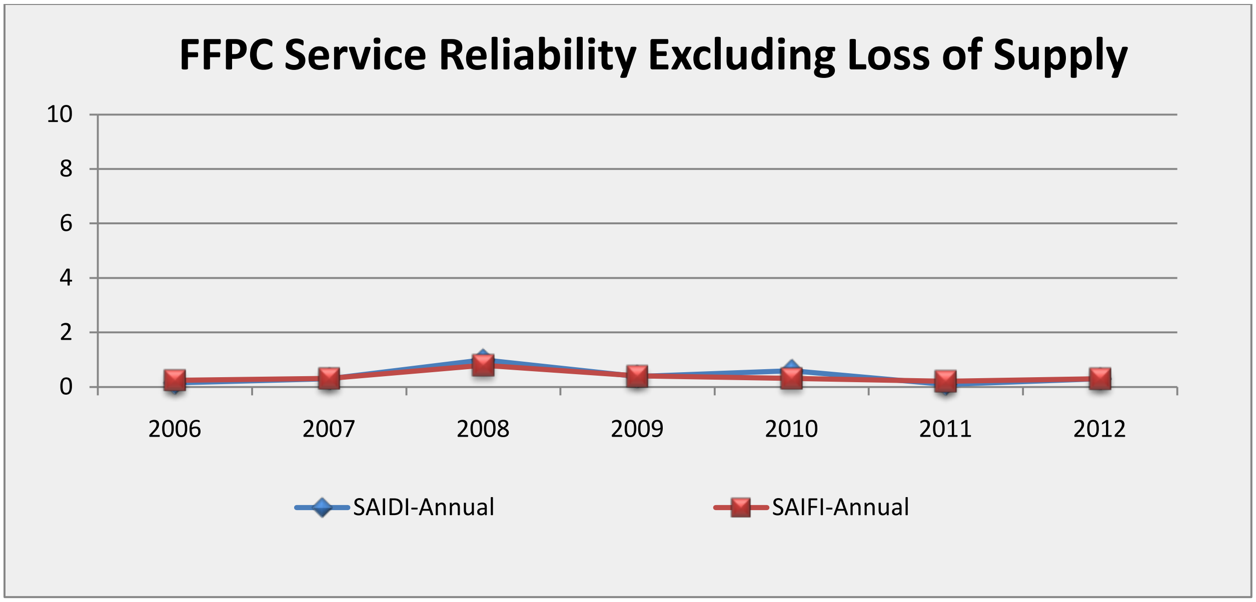
	2006	2007	2008	2009	2010	2011	2012
SAIDI - Annual	0.15	0.30	3.77	6.63	0.60	0.09	0.30
SAIFI - Annual	0.24	0.31	1.77	2.40	0.31	0.21	0.30
CAIDI - Annual	0.62	0.95	2.13	2.76	1.92	0.43	1.02

Service Reliability Indices Adjusted for Loss of Supply							
	2006	2007	2008	2009	2010	2011	2012
SAIDI - Annual	0.15	0.30	0.99	0.38	0.60	0.09	0.30
SAIFI - Annual	0.24	0.31	0.79	0.40	0.31	0.21	0.30
CAIDI - Annual	0.62	0.95	1.25	0.96	1.92	0.43	1.02

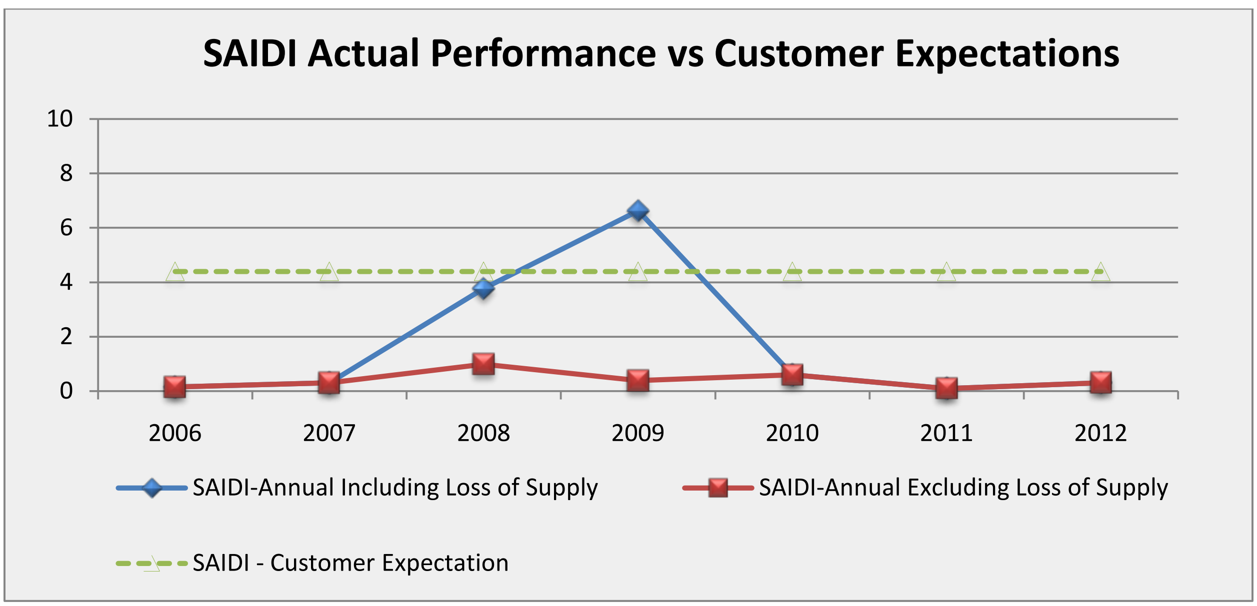
SAIDI Actual Performance vs Customer Expectations							
	2006	2007	2008	2009	2010	2011	2012
SAIDI - Annual With Loss of Supply	0.15	0.30	3.77	6.63	0.60	0.09	0.30
SAIDI - Annual Without Loss of Supply	0.15	0.30	0.99	0.38	0.60	0.09	0.30
SAIDI - Customer Expectation	4.40	4.40	4.40	4.40	4.40	4.40	4.40

SAIFI Actual Performance vs Customer Expectations							
	2006	2007	2008	2009	2010	2011	2012
SAIFI - Annual With Loss of Supply	0.24	0.31	1.77	2.40	0.31	0.21	0.30
SAIFI - Annual Without Loss of Supply	0.24	0.31	0.79	0.40	0.31	0.21	0.30
SAIFI - Customer Expectation	2.90	2.90	2.90	2.90	2.90	2.90	2.90

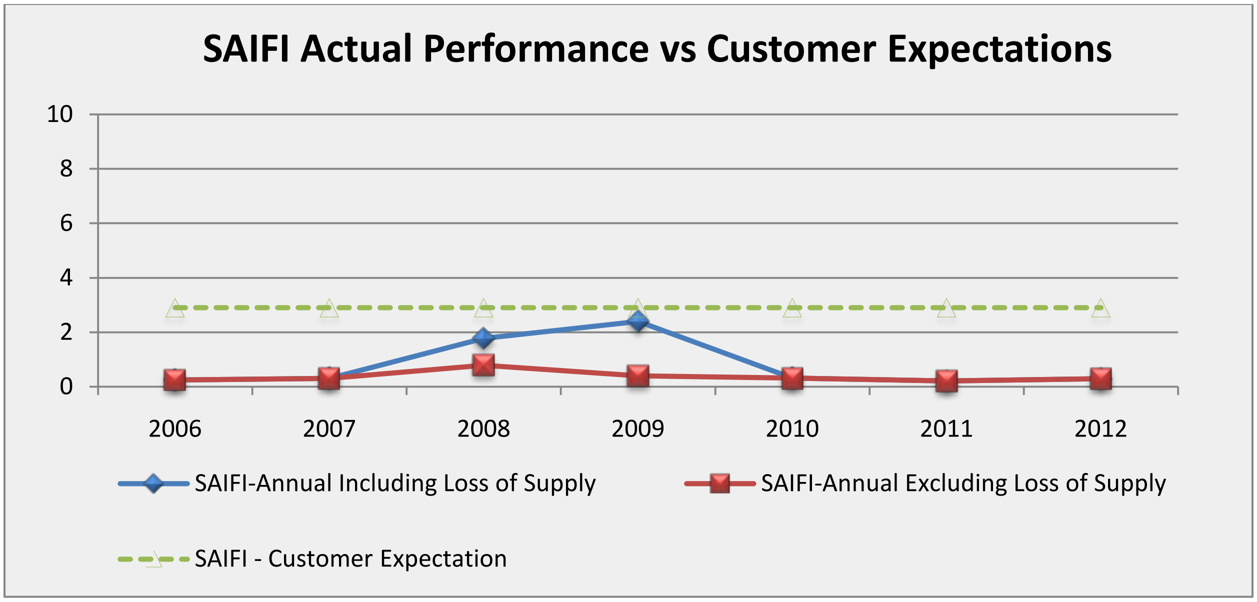




Notice that Loss of Supply significantly impacted years 2008 and 2009. Overall FFPC's electrical distribution system is performing very well.



FFPC exceeded annual customer SAIDI expectations with the exception of 2009. FFPC notes that there is a large margin between the portion of SAIDI that is within FFPC's control (excluding loss of supply) and customer expectations.



FFPC has good track record of exceeding annual customer SAIFI expectations. FFPC notes that there is a large margin between the portion of SAIFI that is within FFPC's control (excluding loss of supply) and customer expectations.

5.2.3.6.b.i.5 Performance Trend & Assessment

FFPC is pleased with the performance of its electrical distribution system. FFPC's largest opportunity for improving system reliability performance measures lies in the loss of supply category. Although loss of supply incidents generally do not occur frequently, when they do, they dominate annual distribution system performance degradation. FFPC will investigate the potential of improving the reliability of its transmission supply from HONI.

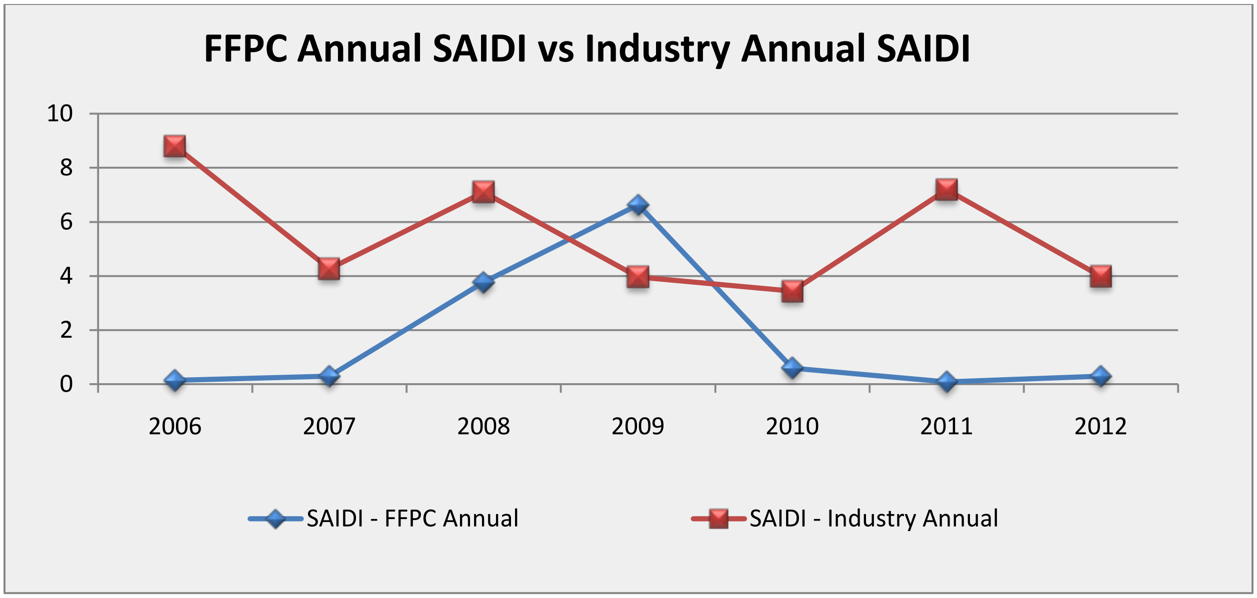
The portion of system reliability performance that is within FFPC's direct control is not identified as needing improvement or to be a driver requiring material investments over the planning period. FFPC's objective is to maintain current performance levels which greatly exceed customer expectations. FFPC acknowledges sustained reliability improvements in 2010, 2011 and 2012 relative to the lowest performance in 2009.

FFPC Customer Reliability & Performance versus Industry:

The following is comparison of the reliability that FFPC's customers experience versus the industry average in Ontario, as per the data available from OEB Yearbooks. Please note that the performance measures include loss of supply, to reflect the true reliability that customers experience.

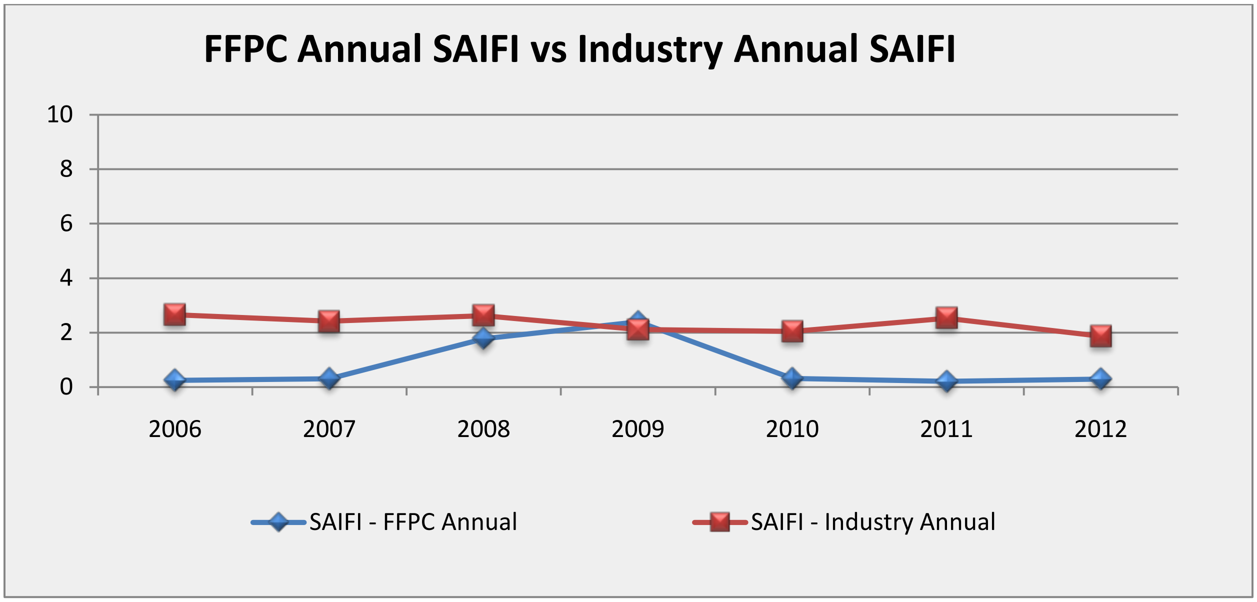
FFPC Annual SAIDI vs Industry Annual SAIDI

	2006	2007	2008	2009	2010	2011	2012
SAIDI - FFPC Annual	0.15	0.30	3.77	6.63	0.60	0.09	0.30
SAIDI - Industry Annual	8.80	4.27	7.10	3.96	3.44	7.19	3.99



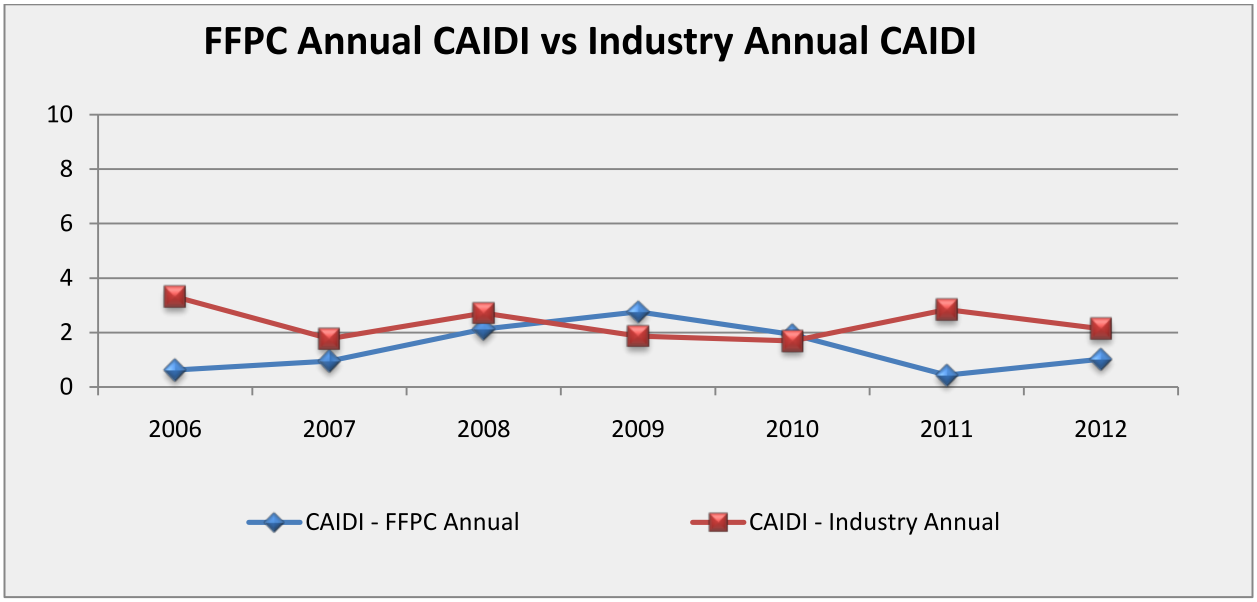
FFPC's annual interruption durations were shorter than those of industry six out of seven years.

FFPC Annual SAIFI vs Industry Annual SAIFI							
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
SAIFI - FFPC Annual	0.24	0.31	1.77	2.40	0.31	0.21	0.30
SAIFI - Industry Annual	2.66	2.42	2.62	2.11	2.04	2.53	1.86



FFPC's annual interruption frequency was lower than those of industry six out of seven years.

FFPC Annual CAIFI vs Industry Annual CAIFI							
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
CAIDI - FFPC Annual	0.62	0.95	2.13	2.76	1.92	0.43	1.02
CAIDI - Industry Annual	3.31	1.77	2.71	1.87	1.69	2.84	2.14



Note that FFPC's annual interruption duration was shorter than those of industry five out of seven years.

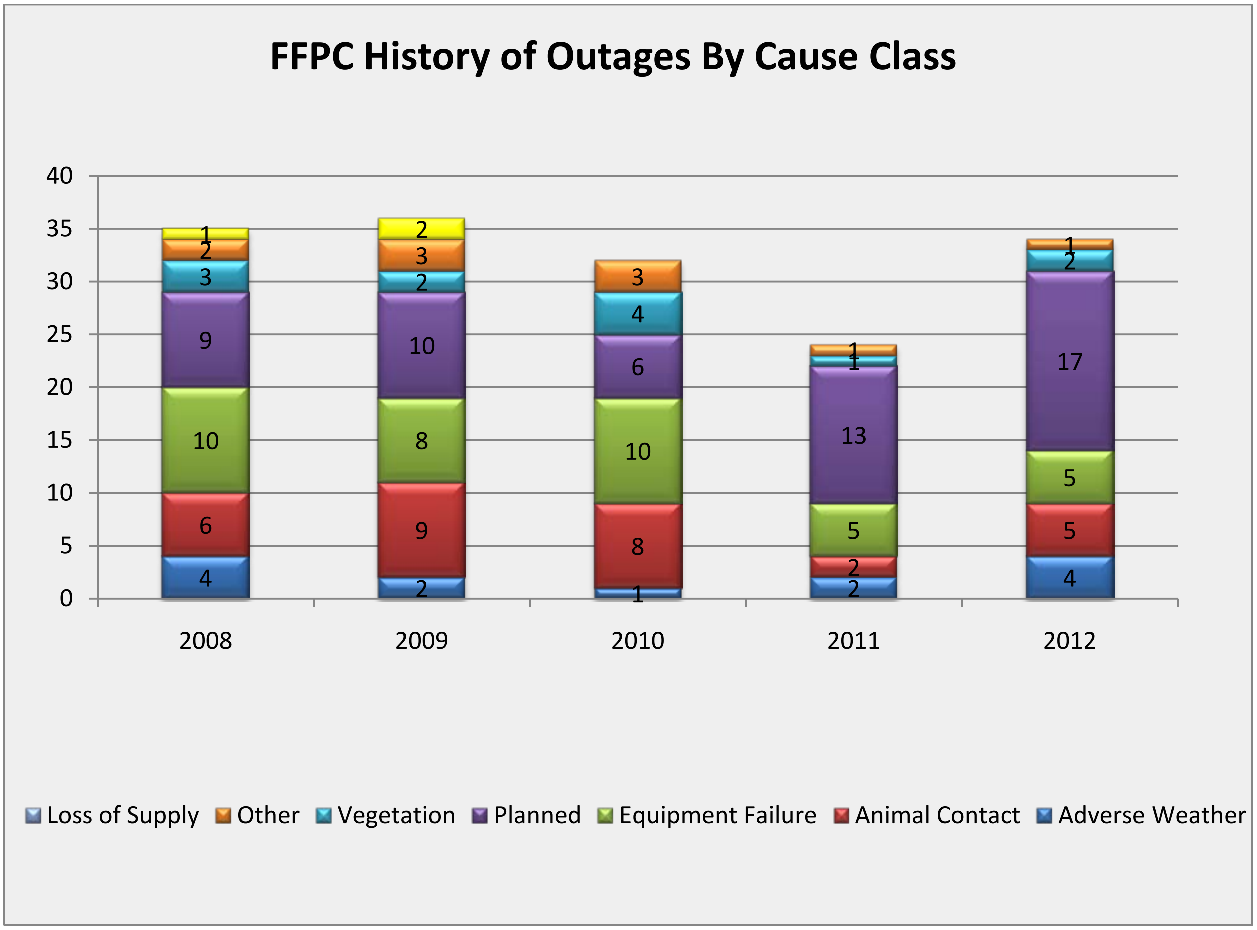
5.2.3.6.b.ii. Annual Outage Root Cause Failure Analysis

In 2008, FFPC started to formally track all root causes of outages. FFPC groups outages into the following categories; Adverse Weather; Animal Contact; Equipment Failure; Loss of Supply; Planned; Vegetation; and Other.

Most adverse weather related outages are caused by high winds and lightning strikes. Animal contacts are mainly caused by squirrels and raccoons. The following table summarizes the annual number of outage incidents by category:

FFPC Outage Cause History						
Cause Class	**2008**	**2009**	**2010**	**2011**	**2012**	**Total**
Adverse Weather	4	2	1	2	4	13
Animal Contact	6	9	8	2	5	30
Equipment Failure	10	8	10	5	5	38
Planned	9	10	6	13	17	55
Vegetation	3	2	4	1	2	12
Other	2	3	3	1	1	10
Loss of Supply	1	2	0	0	0	3
Total	**35**	**36**	**32**	**24**	**34**	**161**

The following is a graphical representation of annual causes of outages:



The following table summarizes the classes of outage causes in the order of most frequent class to least frequent class.

FFPC Most Frequent Outage Causes - Ranked By Highest to Lowest Cause Class							
Cause Class	**2008**	**2009**	**2010**	**2011**	**2012**	**Total**	**% Cause**
Planned	9	10	6	13	17	55	34.2%
Equipment Failure	10	8	10	5	5	38	23.6%
Animal Contact	6	9	8	2	5	30	18.6%
Adverse Weather	4	2	1	2	4	13	8.1%
Vegetation	3	2	4	1	2	12	7.5%
Other	2	3	3	1	1	10	6.2%
Loss of Supply	1	2	0	0	0	3	1.9%
Total	**35**	**36**	**32**	**24**	**34**	**161**	**100%**

5.2.3.6.b.ii.1 Outage Class Interruption Frequency

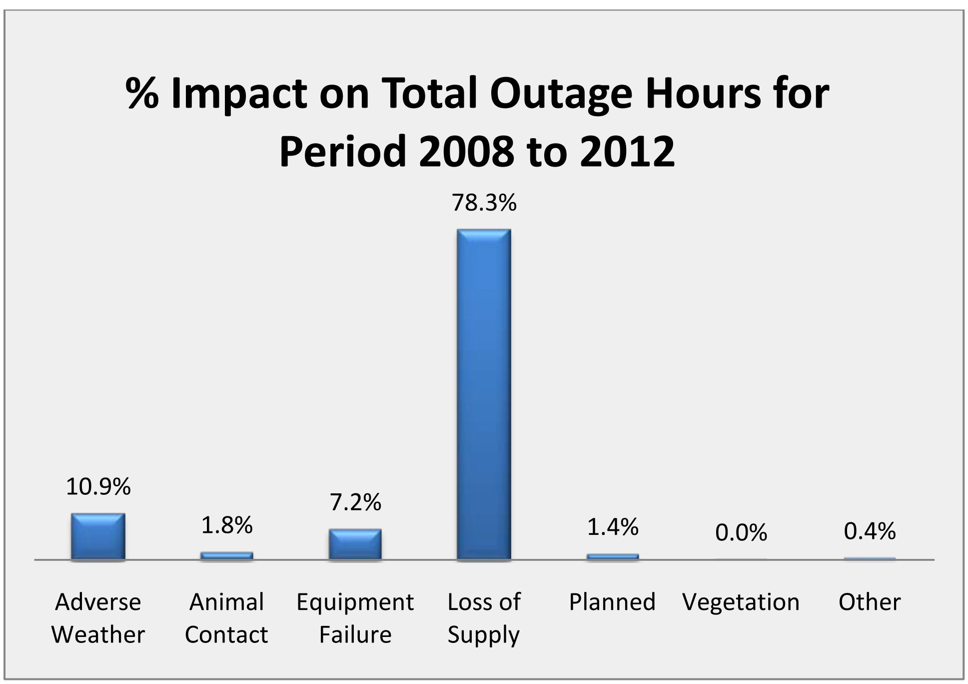
It is important to note that FFPC's most frequent causes of outages are:

1. Planned Outages
2. Equipment Failure
3. Animal Contact
4. Adverse Weather

The most important aspect of evaluating outage causes is to evaluate the impact of each cause class. Although several causes occur more frequently, they have a relatively small impact on overall system performance. Planned Outages and Animal Contacts occur relatively frequently; however, they have a minimal impact on overall performance. The following table and graph represent the percentage of overall impact that each outage class has had on the Total Customer Hours of outages (number of customers affected x time), for the period 2008 to 2012.

Impact of Outage Class on Total Customer Hours for the Period 2008 to 2012

Cause Class	% Impact
Loss of Supply	78.3%
Adverse Weather	10.9%
Equipment Failure	7.2%
Animal Contact	1.8%
Planned	1.4%
Vegetation	0.0%
Other	0.4%
Total	100.0%



It is important to note that only 3 out of a total of 106 unplanned outage incidents during the period 2008 to 2012 were due to a loss of supply; however, they account for 78.3% of total customer-hours of unplanned outages. This again highlights the significant impact that loss of supply has on the reliability of electricity that FFPC's customers experience.

Only 22.5% of all customer interruption hours are attributed to events on FFPC's electrical distribution system. Of the 22.5%, the largest contributors were Adverse Weather, Equipment Failure and Animal Contacts.

5.2.3.6.b.ii.2 Planned Outages

It is also important to note that although planned outages are the most frequent cause of outages, the overall impact of them is relatively small, representing 1.4% of total customer interruption hours. This is largely due to the fact that planned outages typically only affect a handful of customers. Planned outages are usually required to accommodate planned capital projects, such as transformer replacements or transferring of services from old poles to new poles. They are necessary to maintain the safety of employees and the general public.

5.2.3.6.b.ii.3 Adverse Weather

Distributors are somewhat at the mercy of Mother Nature, as bad weather cannot be controlled. FFPC has taken measures to minimize outages related to adverse weather conditions. Most notable measures are maintaining a structurally sound fleet of wood poles, an aggressive tree trimming program, as well as periodic conductor tensioning initiatives. Almost half of weather related outages are due to lighting strikes. Any lightning strike has a high probability of damaging or weakening distribution system components, even if an immediate outage does not occur. Usually lighting strikes result in the activation of current limiting protective devices such as fuses or lightning arrestors. It should be noted that transformer failures from lightning strikes are tracked under this category as opposed under equipment failure.

In summation, 6 out of 13 adverse weather incidents were as a result of lightning strikes, another 6 were due to high winds and 1 was due to excessive snow loading. FFPC's strategy to mitigate the impacts of adverse weather is:

- To conduct an aggressive tree trimming program to minimize contact of conductors with vegetation, as well as airborne debris during periods of high winds.
- To maintain a thorough maintenance inspection program that identifies deficiencies and likely causes of future unplanned outages or unsafe conditions (continually finding the weakest links).
- To maintain the overall structural integrity of wood pole lines, by keeping pace with the rate of deterioration of components (capital sustainment or development projects as per the outputs of the asset management process).
- To conduct periodic conductor tensioning initiatives, according to inspection findings.

5.2.3.6.b.ii.4 Equipment Failure

FFPC has been utilizing equipment failure summaries to assess patterns of failure. The failure analysis results are important inputs into the asset management process, as they have the potential of being drivers for significant investment. The analysis results potentially affect maintenance planning, inspection planning, as well as capital replacement or sustainment planning. For the period 2008 to 2012, the most common equipment failures by category were Transformers, Switches and Conductors. The following table summarizes the failures. It is important to note that several transformers failed due to lightning strikes and that those failures were captured under the "Adverse Weather" category. Transformer failures in the "Equipment Failure" category failed due to other factors, such as overloading.

Transformers		**Conductors & Terminations**		**Switches**		**Smart Meters**		**Misc Hardware**	
Transformer	**7**	Conductor	2	Fuse Link	1	Smart Meter	4	Insulator	1
Lightning Arrester	6	Splice	2	**Switch**	**7**				
		Connection	2	Cutout	1				
		Termination	1	Switchgear Bushing	1				
		Insulink	2						
		Line Clamp	1						
Total	13	Total	10	Total	10	Total	4	Total	1

5.2.3.6.b.ii.5 Animal Contact

Unplanned outages caused by animal contacts have decreased significantly over the last decade. FFPC has standardized on equipping its overhead transformers with squirrel guards. The guards prevent animals from climbing from the lid of transformers onto the primary conductor, which if both are contacted at the same time, results in a short circuit and a subsequent blown transformer fuse. FFPC will continue to utilize its inspection process to ensure that the animal guards remain in good working condition.

5.2.3.6.b.ii.6 Key Inputs into Asset Management Process

FFPC's top three contributing causes, to overall customer outage hours over the period 2008 to 2012 are: Loss of Supply, Adverse Weather and Equipment Failure. Each category contributed the following percentages:

Loss of Supply	78.3%
Adverse Weather	10.9%
Equipment Failure	7.2%
Total	96.4%

FFPC plans to consult with HONI to investigate supply point reliability improvement opportunities. FFPC plans to continue with its detailed maintenance inspection program, to proactively identify deficiencies that have a high risk of failure or present undue hazards. FFPC plans to closely monitor the health of its transformers, switches, and the quality of conductors and connections.

Transformer and switch failures are the highest contributors to equipment failures which result in unplanned outages. FFPC's asset management process has identified that approximately 18% of the entire transformer population will reach the end of their suggested forty (40) year useful service life by 2018. The aging transformer fleet aligns with the results of the outage cause analysis, which identified transformer failures as being the most frequent equipment failure resulting in customer interruptions. As such, transformer replacements have a very large impact on FFPC's 2014 - 2018 DS Plan.

5.2.3.6.c. Overall Cost Performance

As discussed under section 5.2.1.5 "Unique Embedded OM&A Costs", FFPC has significant expenses imbedded into its OM&A costs, that are directly associated with the upkeep and operation of its High Voltage (Greater than 50 kV) Transformer Station, as well as the 1905 Historic Power Agreement. As such, all RRR reported OM&A costs sustain three distinct business aspects; however, historically they have always been lumped together and treated as distribution expenses. As previously mentioned, prior to the year end of 2012, FFPC's transformer station was improperly classified as a "less than 50 kV station" when it is actually a "greater than 50 kV station" (High Voltage Asset). As such, all associated expenses have historically always been reported and treated as distribution expenses. Given the increased focus on distributor performance and the expectation to "bend the cost curve", it is important to note that FFPC's OM&A costs as reported cannot be directly compared to that of other distributors, as they are inclusive of all three business aspects (distribution, HV Station & Historic Power Agreement) and the comparison would not be "apples to apples". Furthermore, FFPC is concerned that its placement into efficiency cohort Group IV in the November 21, 2013 released PEG Report is inaccurate, as FFPC's unique circumstances were not understood and as such could not be taken into consideration. FFPC believes that it will be penalized with its assigned stretch factor of 0.45% if its unique circumstances are not taken into consideration. It is worth noting that the stretch factor of 0.45% to is assigned to distributors having actual costs between 10% to 25% higher than predicted.

With respect to Performance Outcomes, FFPC is able to offer its customers among the lowest rates in the Province, according to the OEB's online bill calculator (and the bill impact calculation in this COS); however, the November 21, 2013 released PEG report ranked FFPC as 58th with respect to "Difference Between Actual and Predicted Cost: Cost Benchmarking Model" (table 17).

FFPC respectfully requests that the Board be mindful of FFPC's unique circumstances when evaluating its "cost performance". FFPC would be pleased to work with the Board, as well as PEG staff to revise FFPC's cost structure (and historic data used) for benchmarking purposes, such that a fair and accurate stretch factor can be obtained.

5.2.3.6.c.i. OM&A Cost Comparisons

FFPC has tabulated its various OM&A Cost comparators as per Board Staff's July 2013 recommended scorecard. As FFPC's OM&A costs are inclusive of operating and up keeping the historic power agreement and HV station, FFPC has provided a rate of change analysis (% change by year). FFPC finds the rate of change analysis a good tool for assessing long term performance trends. The analysis is also a useful tool for assessing performance relative to industry. The source data for all OM&A cost comparisons was extracted from the OEB's annual distributor year books. The following table contains the list of comparators, as well as base inputs that FFPC relied upon to assess its OM&A related performance:

Cost Performance Comparators	2005	2006	2007	2008	2009	2010	2011	2012	2005 to 2012 Average
FFPC OM&A Reported	1,064,846	1,125,164	1,146,014	1,250,883	1,316,559	1,325,684	1,301,992	1,620,129	1,268,909
Industry OM&A Reported	994,820,205	1,079,540,064	1,199,224,784	1,210,181,289	1,266,934,047	1,350,642,664	1,412,233,814	1,513,210,665	1,253,348,442
FFPC % OM&A Increase relative to 2005	0%	5.7%	7.6%	17.5%	23.6%	24.5%	22.3%	52.1%	21.9%
Industry % OM&A Increase relative to 2005	0%	8.5%	20.5%	21.6%	27.4%	35.8%	42.0%	52.1%	29.7%
FFPC # Customers	4,040	3,981	3,864	4,001	3,768	3,777	3,775	3,780	3,873
Industry # Customers	4,522,869	4,590,958	4,634,998	4,693,045	4,748,558	4,788,667	4,839,185	4,893,782	4,714,008
Adjusted FFPC # Customers - (Adjusted to Reflect Industry Equivalent Customer Growth)	4,040	4,101	4,140	4,192	4,242	4,277	4,323	4,371	4,211
FFPC % Change in # Customers Relative to 2005	0%	-1.5%	-4.4%	-1.0%	-6.7%	-6.5%	-6.6%	-6.4%	-4.7%
Industry % Change in # Customers Relative to 2005	0%	1.5%	2.5%	3.8%	5.0%	5.9%	7.0%	8.2%	4.8%
Adjusted FFPC % Change in # Customers Relative to 2005 - (Adjusted to Reflect Industry Equivalent Customer Growth)	0%	1.5%	2.5%	3.8%	5.0%	5.9%	7.0%	8.2%	4.8%
FFPC Circuit km of Line	84	84	84	84	84	84	74	74	82
Industry Circuit km of Line	203,896	200,887	196,242	195,779	196,815	197,588	194,707	195,858	197,722
Adjusted FFPC Circuit km of Line - (Adjusted to Reflect Improved Accuracy from GIS System)	74	74	74	74	74	74	74	74	74
Adjusted FFPC Circuit km of Line - (Adjusted to Reflect Industry Equivalent Decrease in Circuit Length)	74	72.9	71.2	71.1	71.4	71.7	70.7	71.1	71.8
FFPC % Change in Circuit km of Line Relative to 2005	0%	0.0%	0.0%	0.0%	0.0%	0.0%	-11.9%	-11.9%	-3.4%
Industry % Change in Circuit km of Line Relative to 2005	0%	-1.5%	-3.8%	-4.0%	-3.5%	-3.1%	-4.5%	-3.9%	-3.5%
Adjusted FFPC % Change in Circuit km of Line Relative to 2005 - (Adjusted to Reflect Improved Accuracy from GIS System)	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Adjusted FFPC % Change in Circuit km of Line Relative to 2005 - (Adjusted to Reflect Industry Equivalent Decrease in Circuit Length)	0%	-1.5%	-3.8%	-4.0%	-3.5%	-3.1%	-4.5%	-3.9%	-3.5%
FFPC kWh Delivered (excluding losses)	83,923,661	82,347,301	83,900,561	84,002,098	82,503,680	79,739,754	79,562,547	76,310,422	81,536,253
Industry kWh Delivered (excluding losses)	123,810,922,688	121,675,238,626	125,729,367,887	123,503,514,640	118,959,458,726	121,191,511,801	121,038,008,423	119,995,730,310	121,987,969,137
Adjusted FFPC kWh Delivered (excluding losses) - (Adjusted to Reflect Industry Equivalent Change in kWh Delivered)	83,923,661	82,476,015	85,224,055	83,715,288	80,635,158	82,148,127	82,044,076	81,337,581	82,687,995
FFPC % Change in kWh Delivered (excluding losses) Relative to 2005	0%	-1.9%	0.0%	0.1%	-1.7%	-5.0%	-5.2%	-9.1%	-3.3%

Industry % Change in kWh Delivered (excluding losses) Relative to 2005	0%	-1.7%	1.5%	-0.2%	-3.9%	-2.1%	-2.2%	-3.1%	-1.7%
FFPC Adjusted % Change in kWh Delivered (excluding losses) Relative to 2005 - (Adjusted to Reflect Industry Equivalent Change in kWh Delivered)	0%	-1.7%	1.5%	-0.2%	-3.9%	-2.1%	-2.2%	-3.1%	-1.7%
FFPC OM&A per Customer (RRR Reported)	263.58	282.63	296.59	312.64	349.41	350.99	344.90	428.61	328.67
Industry OM&A per Customer (RRR Reported)	219.95	235.14	258.73	257.87	266.80	282.05	291.83	309.21	265.20
Adjusted FFPC OM&A per Customer - (Adjusted to Reflect Industry Customer Growth)	263.58	274.38	276.80	298.40	310.39	309.93	301.21	370.63	300.66
FFPC % Increase in OM&A per Customer Relative to 2005 (RRR Reported)	0%	7.2%	12.5%	18.6%	32.6%	33.2%	30.9%	62.6%	28.2%
Industry % Increase in OM&A per Customer Relative to 2005 (RRR Reported)	0%	6.9%	17.6%	17.2%	21.3%	28.2%	32.7%	40.6%	23.5%
Adjusted FFPC % Increase in OM&A per Customer Relative to 2005 - (Adjusted to Reflect Industry Customer Growth)	0%	4.1%	5.0%	13.2%	17.8%	17.6%	14.3%	40.6%	16.1%
FFPC OM&A per kWh Delivered	0.01269	0.01366	0.01366	0.01489	0.01596	0.01663	0.01636	0.02123	0.01564
Industry OM&A per kWh Delivered	0.00803	0.00887	0.00954	0.00980	0.01065	0.01114	0.01167	0.01261	0.01029
Adjusted FFPC OM&A per kWh Delivered - (Adjusted to Reflect Industry Equivalent Change in kWh Delivered)	0.01269	0.01364	0.01345	0.01494	0.01633	0.01614	0.01587	0.01992	0.01537
FFPC % Increase in OM&A per kWh Delivered Relative to 2005	0%	7.7%	7.7%	17.4%	25.8%	31.0%	29.0%	67.3%	26.5%
Industry % Increase in OM&A per kWh Delivered Relative to 2005	0%	10.4%	18.7%	22.0%	32.5%	38.7%	45.2%	56.9%	32.1%
Adjusted FFPC % Increase in Reported OM&A per kWh Delivered Relative to 2005 - (Adjusted to Reflect Industry Equivalent Change in kWh Delivered)	0%	7.5%	6.0%	17.8%	28.7%	27.2%	25.1%	57.0%	24.2%
FFPC OM&A per km Circuit of Line	12676.7	13394.8	13643.0	14891.5	15673.3	15782.0	17594.5	21893.6	15693.7
Industry OM&A per km Circuit of Line	4879.1	5373.9	6110.9	6181.4	6437.2	6835.7	7253.1	7726.1	6349.7
Adjusted FFPC OM&A per km Circuit of Line - (Adjusted to Reflect Improved Accuracy from GIS System)	14389.8	15204.9	15486.7	16903.8	17791.3	17914.7	17594.5	21893.6	17147.4
FFPC % OM&A Increase per km Circuit of Line Relative to 2005	0%	5.7%	7.6%	17.5%	23.6%	24.5%	38.8%	72.7%	27.2%
Industry % OM&A Increase per km Circuit of Line Relative to 2005	0%	10.1%	25.2%	26.7%	31.9%	40.1%	48.7%	58.4%	34.4%
FFPC Adjusted % OM&A Increase per km Circuit of Line Relative to 2005 - (Adjusted to Reflect Improved Accuracy from GIS System)	0%	5.7%	7.6%	17.5%	23.6%	24.5%	22.3%	52.1%	21.9%

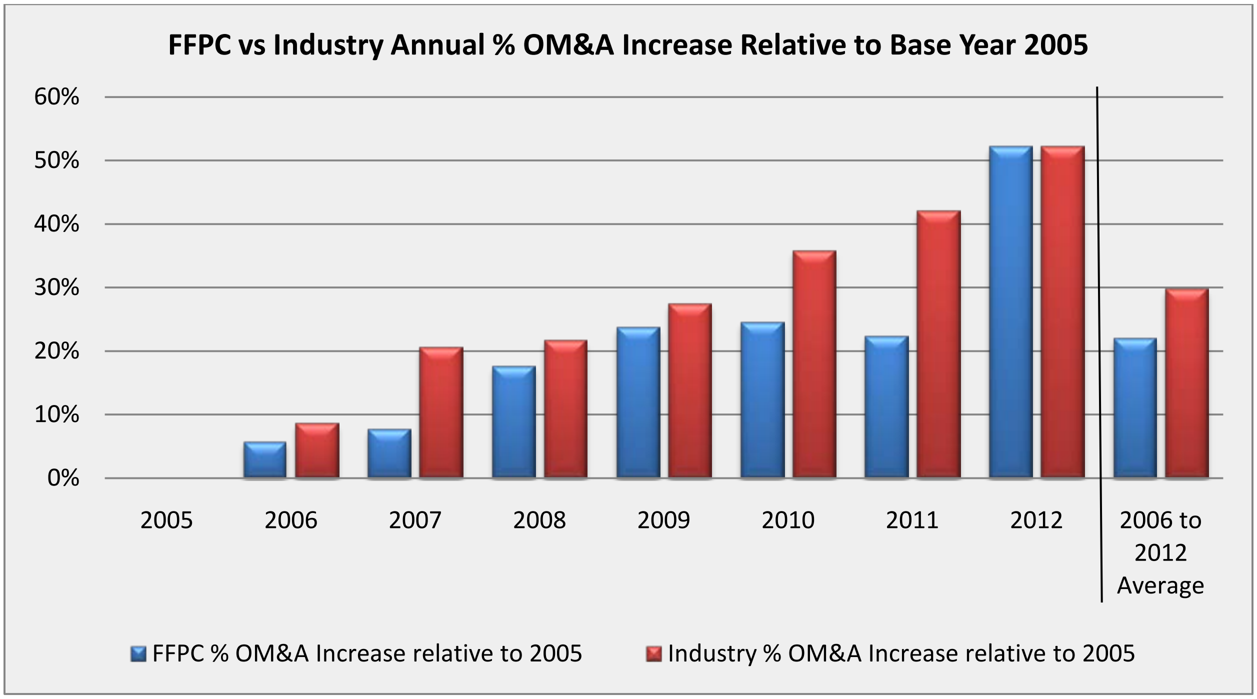
Notes: Rate of change % averages are relative to 2005 and are therefore 2006 to 2012 averages.
Blue font denotes adjusted measure for comparative purposes.

5.2.3.6.c.i.1 OM&A (RRR Reported)

Refer to section 5.2.3.6.c.i for the summary of FFPC's RRR reported OM&A expenses, as well as those reported by industry (based on OEB Yearbooks).

5.2.3.6.c.i.1.a OM&A Performance History

The following graph illustrates FFPC's and Industry's performance history with respect to annual % Increase in OM&A Expenditures for the period 2006 to 2012, relative to the base year 2005.



5.2.3.6.c.i.1.b OM&A Performance Trend and Assessment

Over the period 2006 through 2012 FFPC's average annual increase in OM&A expense was 21.9%, and the average annual increase reported by industry was 29.7%. As such, FFPC estimates that it was able to avoid $581k in OM&A expense, relative to the requirements of industry. The savings are largely attributed to FFPC's approach of adjusting its business needs on a reactive basis, upon the numerous major industry changes that occurred between 2005 and 2012 reaching their steady state. FFPC credits its staff and service providers for enduring significantly intensified short term workloads, which were necessary to successfully implement the numerous sector changes. The current level of effort exerted by FFPC's staff is not sustainable, and as such FFPC is realigning its revenue requirement in this COS to fund additional resources (the addition of a Technical Customer Service Representative to staff, as well as more necessary services from third party service providers including Human Resources, Legal, IT, and Skills Development expertise).

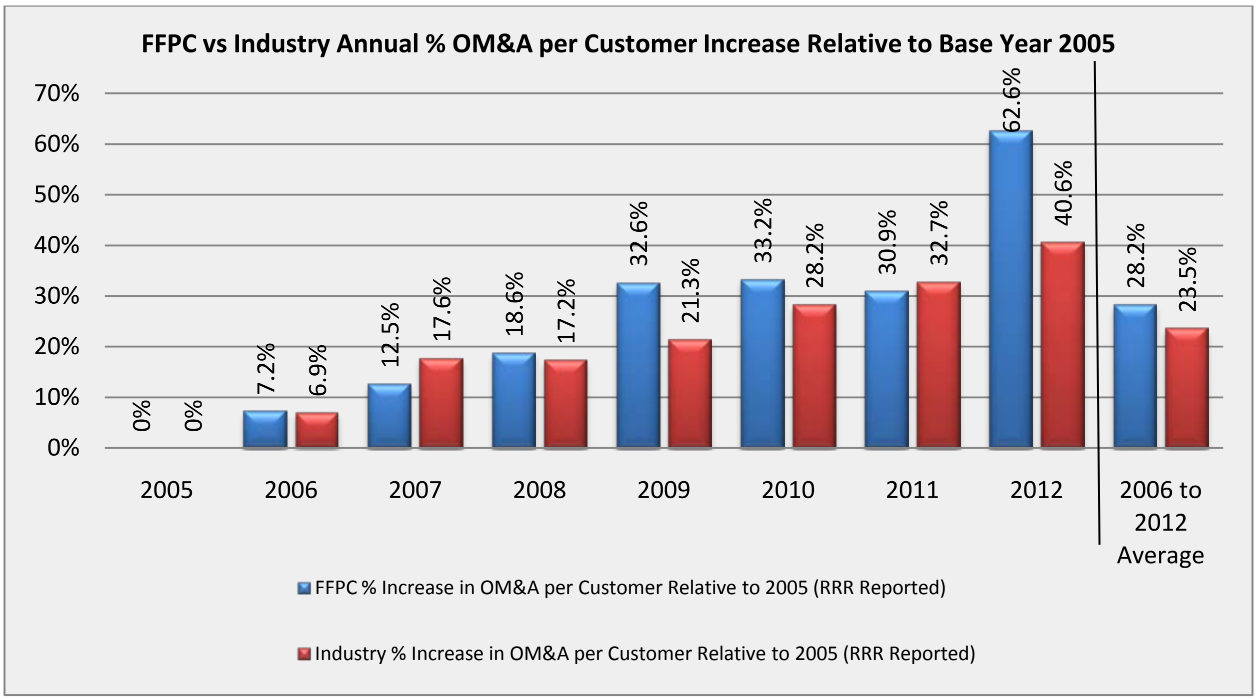
Over the period 2005 to 2012, the most notable OM&A expense increase occurred in 2012. The jump in expense occurred due largely to the recognition of approximately $392k in smart meter related expenses from to the clearance of relevant variance accounts (1555 & 1556). Overall, FFPC is pleased with its OM&A performance trend and believes that it demonstrates wise spending in the best interest of consumers, for whom FFPC exists.

5.2.3.6.c.i.2 OM&A per Customer

FFPC performed its OM&A per Customer analysis based on data contained in the OEB's published Annual Yearbooks.

5.2.3.6.c.i.2.a OM&A per Customer Performance History

The following graph illustrates FFPC's and Industry's performance history with respect to annual % Increase in OM&A Expenditures per Customer for the period 2006 to 2012, relative to the base year 2005.



5.2.3.6.c.i.2.b OM&A per Customer Performance Trend and Assessment

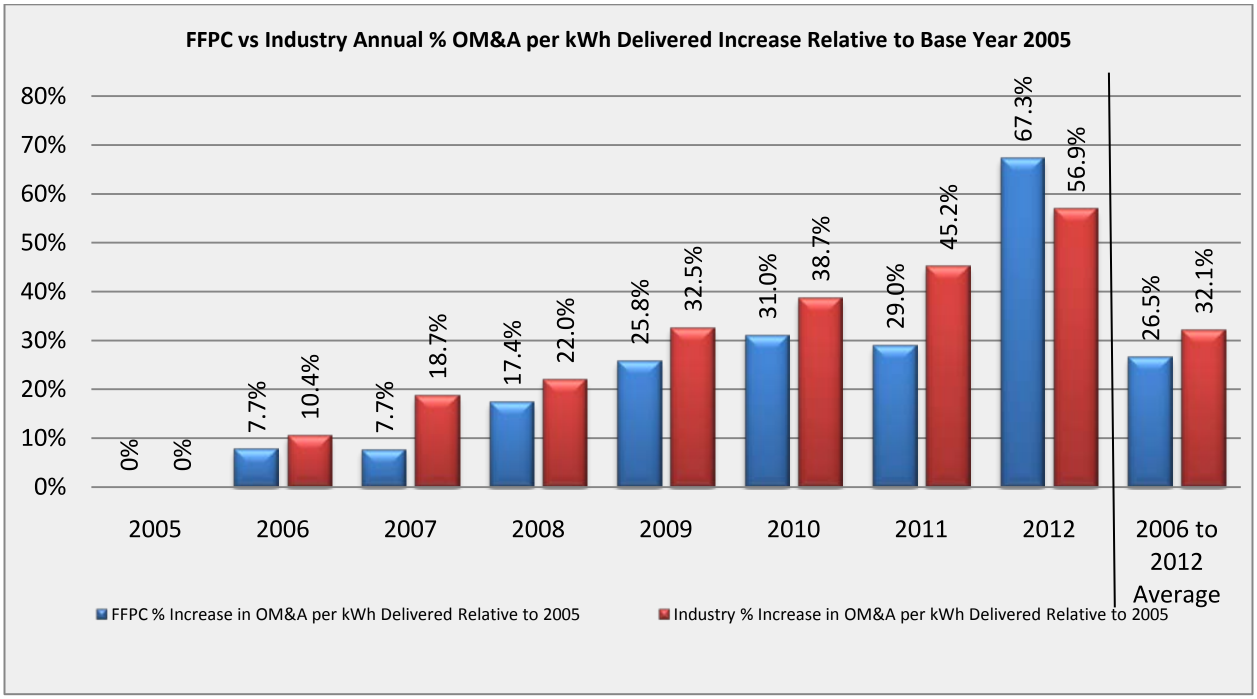
FFPC's annual percent change in OM&A expense per customer increased at a rate slightly higher than that of industry. FFPC's average % OM&A increase over the period 2006 to 2012 was 28.2%, compared to 23.5% for industry. FFPC's higher increase rate was largely influenced by the decline in FFPC's customer base from 4,040 in 2005 to 3,780 in 2012 (-6.4%). If FFPC's customer base grew at a pace equivalent to that of industry, FFPC would have been able to spread out fixed OM&A costs across 4,371 customers by 2012. As such, FFPC notes that its actual underperformance relative to that of industry was largely influenced by its 6.4% loss in customer base which is a variable that FFPC cannot control.

5.2.3.6.c.i.3 OM&A per kWh Delivered

FFPC performed its OM&A per kWh Delivered analysis based on data contained in the OEB's published Annual Yearbooks.

5.2.3.6.c.i.3.a OM&A per kWh Delivered Performance Trend

The following graph illustrates FFPC's and Industry's performance history with respect to annual % Increase in OM&A Expenditures per kWh Delivered for the period 2006 to 2012, relative to the base year 2005.



5.2.3.6.c.i.3.b OM&A per kWh Delivered Performance Trend and Assessment

FFPC's annual percent change in OM&A expense per kWh Delivered increased at a rate slightly lower than that of industry. FFPC's average percent OM&A increase over the period 2006 to 2012 was 26.5%, compared to 32.1% for industry. FFPC's increase rate was influenced by the decline in FFPC's volume of sales, which declined at an average annual rate of -3.3% versus -1.7% for industry. If FFPC's annual percent change in volume of sales was equivalent to that of industry, FFPC would have been able to spread out its fixed OM&A costs across a larger volume. FFPC notes that although its volume of sales decreased at twice the rate experienced by industry, FFPC's actual performance was still slightly better than that of industry.

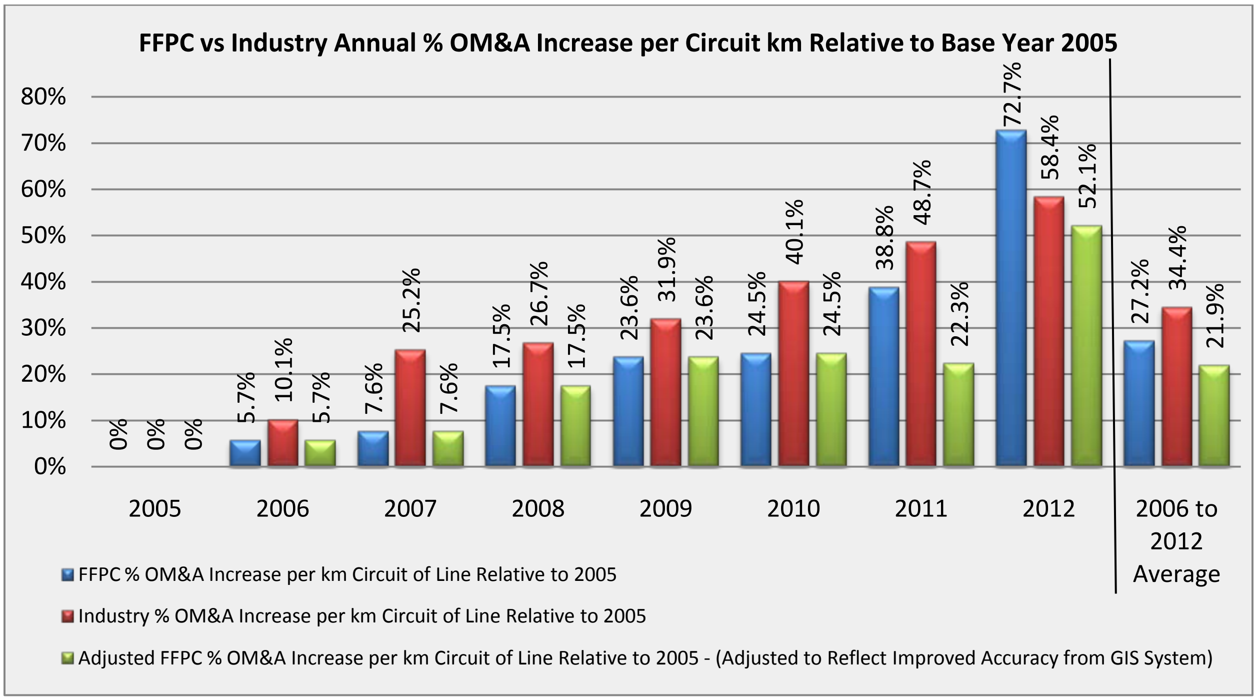
5.2.3.6.c.i.4 OM&A per Circuit km of Line

FFPC performed its OM&A per Circuit km of Line analysis based on data contained in the OEB's published Annual Yearbooks. FFPC notes that its reported Circuit km decreased from 84 km to 74 km in

2011, due to the availability of more accurate dimensional data obtained from its GIS system, and as such no physical plant was removed.

5.2.3.6.c.i.4.a OM&A per Circuit km of Line Performance History

The following graph illustrates FFPC's and Industry's performance history with respect to annual % Increase in OM&A Expenditures per Circuit km of Line for the period 2006 to 2012, relative to the base year 2005. The "Adjusted FFPC % OM&A Increase per km Circuit of Line" variable corrects FFPC's reported Circuit km of Line for years 2005 to 2010 due to the availability of more accurate dimensional data from the GIS system. FFPC's actual circuit km is 74 km (incorrectly reported as 84 prior to 2011 as GIS dimensional data was not available at that time)



5.2.3.6.c.i.4.b OM&A per Circuit km of Line Performance Trend and Assessment

FFPC's annual percent increase in OM&A expense per Circuit km of Line increased at a rate slightly lower than that of industry. FFPC's average percent OM&A increase over the period 2006 to 2012 was 27.2%, compared to 34.4% for industry. FFPC's reported increase rate was materially influenced by the reduction in reported Circuit km in 2011 forward. As such, the "Adjusted FFPC % OM&A Increase per km Circuit of Line" variable is a more accurate reflection of FFPC's true performance for this measure, as the physical circuit km of its plant did not change. FFPC's average Adjusted % OM&A Increase per Circuit km of Line was 21.9% with the improved GIS dimensional data, relative to 34.4% for industry. FFPC notes that its performance was slightly better than that of industry.

5.2.3.6.d. Total Bill Impact - Residential Customers

According to FFPC's Customer Satisfaction Survey that was conducted over the summer of 2013, the top two issues identified by customers in regards to their concerns with the electrical industry were the Overall Cost of Electricity, and fear of losing the 1905 Historic Power Agreement. As such, it was important for FFPC to assess its overall cost performance relative to industry, by conducting a Total Bill Comparison for residential consumers. FFPC believes that Total Bill comparisons are an important aspect of Performance Outcomes. The following Total Bill Impact comparison is based on the data made available by the Boards' online bill calculator. It is important to note that FFPC excluded Seasonal, First Nations distributors, Remote Communities, as well as R1 Low Density rates from the comparison (although FFPC's customer density would be an R1 Density, as it is below the threshold of 60 customers per line km).

The following list of distributors and corresponding rate zones are included in the comparison that was conducted relative to November 25, 2013 data. Please note that FFPC removed all distributor names from performance rankings, as the emphasis in on FFPC's performance and not on that of other LDC's:

Algoma Power Inc.
Atikokan Hydro Inc.
Bluewater Power Distribution Corporation
Brant County Power Inc.
Brantford Power Inc.
Burlington Hydro Inc.
Cambridge and North Dumfries Hydro Inc.
Canadian Niagara Power Inc. - Eastern Ontario Power
Canadian Niagara Power Inc. - Fort Erie
Canadian Niagara Power Inc. - Port Colborne Hydro Inc.
Centre Wellington Hydro Ltd.
Chapleau Public Utilities Corporation
COLLUS PowerStream Corp.
Cooperative Hydro Embrun Inc.
E.L.K. Energy Inc.
Enersource Hydro Mississauga Inc.
Entegrus Powerlines Inc.
EnWin Utilities Ltd.
Erie Thames Powerlines Corporation
Espanola Regional Hydro Distribution Corporation
Essex Powerlines Corporation
Festival Hydro Inc. - Hensall
Festival Hydro Inc. - Main
Fort Frances Power Corporation
Fort Frances Power Corporation - Including 1905 Historic Power Agreement Benefit
Greater Sudbury Hydro Inc.
Grimsby Power Incorporated

Guelph Hydro Electric Systems Inc.
Haldimand County Hydro Inc.
Halton Hills Hydro Inc.
Hearst Power Distribution Company Limited
Horizon Utilities Corporation
Hydro 2000 Inc.
Hydro Hawkesbury Inc.
Hydro One Brampton Networks Inc.
Hydro One Networks Inc. - Medium Density (R1)
Hydro One Networks Inc. - Urban (UR)
Hydro Ottawa Limited
Innisfil Hydro Distribution Systems Limited
Kenora Hydro Electric Corporation Ltd.
Kingston Hydro Corporation
Kitchener-Wilmot Hydro Inc.
Lakefront Utilities Inc.
Lakeland Power Distribution Ltd.
London Hydro Inc.
Midland Power Utility Corporation
Milton Hydro Distribution Inc.
Newmarket-Tay Power Distribution Ltd. - Newmarket
Newmarket-Tay Power Distribution Ltd. - Tay
Niagara Peninsula Energy Inc. - Niagara Falls
Niagara Peninsula Energy Inc. - Peninsula West
Niagara-on-the-Lake Hydro Inc.
Norfolk Power Distribution Inc.
North Bay Hydro Distribution Limited
Northern Ontario Wires Inc.
Oakville Hydro Electricity Distribution Inc.
Orangeville Hydro Limited
Orillia Power Distribution Corporation
Oshawa PUC Networks Inc.
Ottawa River Power Corporation
Parry Sound Power Corporation
Peterborough Distribution Incorporated
PowerStream Inc. - Barrie
PowerStream Inc. - South
PUC Distribution Inc.
Renfrew Hydro Inc.
Rideau St. Lawrence Distribution Inc.
Sioux Lookout Hydro Inc.
St. Thomas Energy Inc.

Thunder Bay Hydro Electricity Distribution Inc.
Tillsonburg Hydro Inc.
Toronto Hydro-Electric System Limited
Veridian Connections Inc. - Gravenhurst
Veridian Connections Inc. - Main
Wasaga Distribution Inc.
Waterloo North Hydro Inc.
Welland Hydro-Electric System Corp.
Wellington North Power Inc.
West Coast Huron Energy Inc.
Westario Power Inc.
Whitby Hydro Electric Corporation
Woodstock Hydro Services Inc.

5.2.3.6.d.i.1 Total Bill Impact Comparison - Residential Customers

The following chart illustrates FFPC's current performance rank with respect to Total Customer Bill for 800 kWh of electricity consumed. The comparisons are based on the default settings in the Board's calculator and are therefore relative to: Residential Customers; Total monthly consumption of 800 kWh; and current Time-of-Use Pricing with the usage split being 64% off-peak, 18% on-peak and 18% mid-peak. Please note that FFPC encountered a minor discrepancy between the online bill calculator's Total Bill calculation for FFPC, compared to the Total Bill generated by the 2014 COS Bill Impacts working sheets (COS Appendix 2-W - Bill Impact), which are based on FFPC's current Board approved rates. FFPC believes the 2014 COS model to be accurate and as such used the total cost generated by it for the following comparisons:

Distributor Total Bill Calculation as Per OEB Online Bill Calculator on November 25, 2013	
Rank	**Total Bill Including OCEB**
1 - Fort Frances Power Corporation - Including 1905 Historic Power Agreement Credit as at November 25, 2013	$84.95
2 - Fort Frances Power Corporation (Board approved as at November 25, 2013)	$106.49
3	$108.35
4	$111.02
5	$111.25
6	$111.48
7	$114.62
8	$115.33
9	$115.36
10	$116.02

11	$116.83
12	$117.16
13	$118.62
14	$118.72
15	$118.74
16	$119.15
17	$119.79
18	$120.09
19	$120.44
20	$120.58
21	$120.93
22	$121.01
23	$121.31
24	$121.59
25	$121.68
26	$121.74
27	$121.98
28	$122.01
29	$122.22
30	$122.41
31	$122.44
32	$122.81
33	$123.38
34	$123.43
35	$123.44
36	$123.45
37	$123.86
38	$123.98
39	$124.10
40	$124.54
41	$124.71
42	$124.90
43	$125.13
44	$125.27
45	$125.38
46	$125.44
47	$125.54
48	$125.68
49	$125.72
50	$126.09
51	$126.55
52	$127.08

53	$127.29
54	$127.42
55	$127.55
56	$127.73
57	$128.02
58	$128.72
59	$128.85
60	$129.12
61	$129.37
62	$129.59
63	$130.69
64	$131.78
65	$132.67
66	$134.32
67	$134.57
68	$134.57
69	$135.08
70	$135.27
71	$137.03
72	$137.08
73	$137.26
74	$137.49
75	$137.50
76	$138.35
77	$139.20
78	$139.22
79	$139.54
80	$141.48
81	$149.83
82	$152.61

The following table illustrates FFPC's 2014 COS proposed rates and the corresponding Total Estimated Bill for 800 kWh of TOU consumption. The table compares FFPC's proposed 2014 residential bill relative to 2013 residential bills for industry as per the OEB's online calculator.

FFPC 2014 COS Proposed Rates versus 2013 Industry Rates as per OEB Bill Calculator on November 25, 2013

Utility / Rate Zone	Total Bill Including OCEB
1 - Fort Frances Power Corporation - 2014 COS Proposed Including 1905 Historic Power Agreement Benefit	$89.78
2	$108.35
3	$111.02
4	$111.25
5	$111.48
6 - Fort Frances Power Corporation 2014 COS Proposed (excluding 1905 Power Agreement Credit)	$111.79
7	$114.62
8	$115.33
9	$115.36
10	$116.02
11	$116.83
12	$117.16
13	$118.62
14	$118.72
15	$118.74
16	$119.15
17	$119.79
18	$120.09
19	$120.44
20	$120.58
21	$120.93
22	$121.01
23	$121.31
24	$121.59
25	$121.68
26	$121.74
27	$121.98
28	$122.01
29	$122.22
30	$122.41

31	$122.44
32	$122.81
33	$123.38
34	$123.43
35	$123.44
36	$123.45
37	$123.86
38	$123.98
39	$124.10
40	$124.54
41	$124.71
42	$124.90
43	$125.13
44	$125.27
45	$125.38
46	$125.44
47	$125.54
48	$125.68
49	$125.72
50	$126.09
51	$126.55
52	$127.08
53	$127.29
54	$127.42
55	$127.55
56	$127.73
57	$128.02
58	$128.72
59	$128.85
60	$129.12
61	$129.37
62	$129.59
63	$130.69
64	$131.78
65	$132.67
66	$134.32
67	$134.57
68	$134.57
69	$135.08
70	$135.27
71	$137.03
72	$137.08

73	$137.26
74	$137.49
75	$137.50
76	$138.35
77	$139.20
78	$139.22
79	$139.54
80	$141.48
81	$149.83
82	$152.61

5.2.3.6.d.i.2 Total Bill Impact for Residential Customers Performance Assessment

FFPC is pleased to be able to offer its customers the lowest rates in all of Ontario. For 2013, FFPC's residential rate without the inclusion of the 1905 Historic Power Agreement is ranked as 2nd, and it is ranked 1st with the inclusion of the agreement credit. FFPC is proposing to increase its residential rates by 4.97% in its COS application such that the total bill for 800 kWh of TOU consumption increases from $106.49 to $111.79 in 2014 without the historic power agreement credit. Under this scenario, FFPC's 2014 proposed distribution rates rank FFPC 6th lowest without inclusion of the power agreement, and 1st with the inclusion of it, relative to industry's current rates. FFPC expects its actual rank (excluding the historic credit) to improve from 6th in 2014, as industry adjusts its rates throughout 2014. As previously mentioned, FFPC incurs considerable unique OM&A costs associated with administering and protecting the 1905 Historic Power Agreement; however, they are prudently incurred in the best interest of consumers, as rates are thereby reduced significantly.

5.2.3.7 Public Policy Responsiveness Measures

FFPC has divided Public Policy Responsiveness Measures into two categories; Conservation and Demand Management; and Connection of Renewable Generation.

5.2.3.7.a. Conservation and Demand Management

On March 31, 2010, the Minister issued a Minister's Directive to the Ontario Energy Board, pursuant to sections 27.1 and 27.2 of the Ontario Energy Board Act. The Directive directed the Board to amend the licenses of all licensed electricity distributors by adding a condition that specifies each distributor must meet CDM Targets through the delivery of CDM Programs.

In response to the Minister's Directive, the Board Ordered that each licensed electricity distributor must deliver a mix of CDM Programs to all consumer types in the distributor's service area, whether through the Board-Approved CDM Programs, OPA-Contracted Province-Wide CDM Programs or a combination of the two, as far as is appropriate and reasonable having regard to the composition of the distributor's consumer base.

FFPC's licence was amended such that, as a condition of its licence, FFPC must meet its CDM Targets of 2014 Net Annual Peak Demand Savings of 0.61 MW and 2011 - 2014 Net Cumulative Energy Savings of 3.64 GWh.

5.2.3.7.a.i. Performance History

The following tables illustrate FFPC's performance with respect to meeting the mandated 2014 Demand Savings and Energy Savings targets:

FFPC Net Annual Peak Savings Performance versus Provincial Performance						
	Directive		2011 Progress	2012 Progress	2013 Progress	2014 Progress
Distributor	Target	Units	% Target Achieved	% Target Achieved	% Target Achieved	% Target Achieved
FFPC	0.61	MW	2.30%	21.00%	N/A	N/A
Province	1,330	MW	9.69%	17.80%	N/A	N/A

5.2.3.7.a.ii. FFPC Net Annual Peak Saving Performance versus Province

FFPC Net Annual Demand Savings Performance versus Provincial Performance						
Distributor	Directive		2011 Progress	2012 Progress	2013 Progress	2014 Progress
	Target	Units	% Target Achieved	% Target Achieved	% Target Achieved	% Target Achieved
FFPC	3.64	GWh	11.75%	49.40%	N/A	N/A
Province	6,000	GWh	39.79%	65.10%	N/A	N/A

5.2.3.7.a.iii. Performance Trend & Assessment

FFPC was not able to officially launch its CDM efforts until the fall of 2011, due to the delay in the availability essentially all conservation program offerings. As such, FFPC achieved only a small portion of its mandated targets that year. Since the delayed launch, FFPC has experienced good uptake on many program offerings. FFPC has managed to surpass provincial results with respect to the peak reduction category and has greatly closed the gap with respect to volumetric reduction. FFPC anticipates improved results for the 2013 program year. The most notable 2013 CDM achievement is the community-wide conversion of conventional street lights to LED street lights. Approximately 80% of all fixtures have been replaced with LED style fixtures at the time of preparing the DS Plan. FFPC expects to meet its mandated CDM targets by the end of 2014. As a point of interest, the following picture illustrates the difference in lighting quality of Front Street being lit with newly installed LED fixtures, compared to traditional lighting along the side of the street, along the scenic waterfront, which is the international boundary between Canada and USA. Notice the bright white street compared to the yellow scenic walkway. Notice the bright white street compared to the yellow scenic walkway.

Figure 1 - Front Street LED Street Lighting Retrofit

5.2.3.7.b. Connection of Renewable Generation

The Feed-in-Tariff program has had relatively good customer uptake throughout FFPC's service territory. FFPC processed and connected its first microFIT project in 2010. As at July 2013, FFPC has 61 kW of microFIT generation and 100 kW of FIT generation capacity connected to its distribution system. To date, FFPC has been able to accommodate all microFIT and FIT projects, and as such FFPC has not had to deny any applications due to capacity constraints within FFPC's control. FFPC is planning on increasing its capacity to connect renewable generation, by eliminating reverse power flow, measurement, protection and control constraints, at its transformer station.

To assess microFIT and FIT connection commitment and success, FFPC uses the measures "Annual % of Eligible Projects Connected" and "Annual % of Eligible Projects Rejected". The purpose of this measure is to quantify FFPC's level of commitment and physical ability to accommodate the connection of renewable generation, in accordance to Legislative and Regulatory requirements to facilitate the connection of renewable generation.

5.2.3.7.b.i. FFPC Performance History

The following table and graph represents FFPC's performance history since the inception of the feed-in-tariff program in 2010. Note that FFPC did not receive any formal FIT project connection applications during 2010 and 2012, and as such the score is set to Not Applicable (N/A).

microFIT Projects Processing	2010	2011	2012
Annual % of Eligible Projects Connected	100%	100%	100%
Annual % of Eligible Projects Rejected	0%	0%	0%

FIT Projects Processing	2010	2011	2012
Annual % of Eligible Projects Connected	N/A	100%	N/A
Annual % of Eligible Projects Rejected	N/A	0%	N/A

5.2.3.7.b.ii. Performance Trend & Assessment

To date FFPC has been able to accommodate the connection of all microFIT and FIT applications that have been received. FFPC anticipates reaching photovoltaic generation connection limits on several of its distribution feeders over the 2014 to 2018 planning period. As such, FFPC is planning to invest in renewable enabling improvements at it its transformer station that will increase connection capacity. Accommodating the connection of renewable energy has had a material impact on FFPC's DS Plan, and $167k of capital investments are planned over the planning period to increase connection capacity. Without the planned capital investments, FFPC expects that its renewable generation connection performance to deteriorate as applications would be rejected due to capacity limitations. Refer to Section 5.4.3 for a detailed discussion regarding FFPC system limitations and corresponding renewable enabling improvements. FFPC does not have any industry statistics to compare its performance to at this time.

5.2.3.8 Financial Performance Measures

5.2.3.8.a. Liquidity Measure - (Current Assets/Current Liabilities)

FFPC's measure for the ability to pay off short term debt obligations is the commonly used Assets to Liabilities ratio, as per RRR filings. The measure is calculated as Current Assets divided by Current Liabilities. The higher the ratio, the higher the margin of safety for covering short term debt obligations.

5.2.3.8.a.i. Performance History

RRR Reported Financial Ratios	2005	2006	2007	2008	2009	2010	2011	2012
Current Ratio (Current Assets/Current Liabilities)	3.50	4.65	4.82	3.96	3.30	4.11	4.97	2.67

5.2.3.8.a.ii. Performance Trend & Assessment

FFPC long term objective is to maintain its "Current Assets / Current Liabilities" ratio well above 1. FFPC has a good history of being able to meet short term debt obligations.

5.2.3.8.b. Leverage - Total Debt (Includes short-term and long term debt) to Equity Ratio

FFPC's measure of what proportion of equity and debt is used to finance its assets is Total Debt / Total Equity. In the interest of long term minimization of customer rates, FFPC's historic operating strategy has been to avoid debt, to avoid passing on the associated interest expense to consumers. As such, FFPC still operates without the incurrence of any debt.

5.2.3.8.b.i. Performance History

RRR Reported Financial Ratios	2005	2006	2007	2008	2009	2010	2011	2012
Debt to Equity Ratio (Total Debt/Total Equity)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.2.3.8.b.ii. Performance Trend & Assessment

FFPC's performance trends reflect operating with no debt and as such the numerator of this ratio is (0), resulting in a zero (0) ratio. FFPC's performance history is aligned with its rate minimization philosophy of operating without debt, thereby not passing on debt related interest carrying charges to consumers.

5.2.3.8.c. Profitability - Financial Statement Return on Equity

FFPC's key measure of profitability is its Financial Statement Return on Equity (Comprehensive Income/Total Equity). FFPC operates under a zero-percent rate-of-return business model to uphold the requirements of the 1905 Historic Power Agreement on behalf of the residents and small businesses of the Town of Fort Frances. As such, FFPC's target ROE is 0% so not to violate "Commercialization" clauses of the agreement.

5.2.3.8.c.i. Performance History

RRR Reported Financial Ratios	2005	2006	2007	2008	2009	2010	2011	2012
Financial Statement Return on Equity (Net Income/Shareholder Equity)	**0.34%**	**1.28%**	**0.96%**	**-0.29%**	**-1.03%**	**0.30%**	**-0.10%**	**-5.93%**

5.2.3.8.c.ii. Performance Trend & Assessment

For the period 2005 to 2011, FFPC was able to achieve a sufficient rate-of-return in alignment with its target of zero percent (0). For the fiscal year 2012; however, FFPC was not able to achieve its target with a recorded shortfall of -5.93%. As FFPC does not have a "profit margin buffer", any shortfalls from its target of zero percent (0%) result in recorded deficits, whereas if FFPC operated for profit, the shortfall would only result in a reduction in profit. FFPC has embraced undertaking a Cost of Service Rate rebasing, due largely to the 2012 recorded shortfall, so as to avoid continued financial losses that undermine its viability. Furthermore, FFPC needs to realign its revenue requirement to address the need of increasing its staffing resources, to realign its business with the current demands of the industry. The current level of effort exerted by FFPC's salaried staff is not sustainable and as such FFPC is realigning its revenue requirement to fund additional resources (the addition of a Technical Customer Service Representative to staff, as well as more necessary services from third party service providers including Human Resources, Legal and IT expertise). As FFPC is not a profit driven but rather viability driven utility, FFPC was able to forgo raising its rates through the COS rebasing process, by postponing the rebasing from 2011 to 2014. FFPC is now required to realign its rates to better reflect the needs of its current operating conditions, as opposed to those of 2006, when FFPC completed its last rate rebasing.

5.3 Asset Management Process

Over the last few years, FFPC has worked extensively on formalizing its asset management process and on preparing its first formal asset management plan. FFPC and its predecessors had been managing distribution assets in the Town of Fort Frances since the early 1900's, long before the electrification of the Province as a whole occurred. Although FFPC has extensive experience managing assets, historically a formal process or plan was never documented. As such, this is FFPC's first attempt at formally documenting its Asset Management Process in alignment with the criteria set out in Chapter 5 of the March 28, 2013 released "Consolidated Distribution System Plan Filing Requirements". FFPC is very pleased with the OEB's impetus for distributors to develop DS Plans. FFPC believes that its newly developed asset management and capital planning processes, which are at the heart of the DS Plan, will bring tremendous future value to its customers. The initiative has allowed FFPC to transition from reactive short term planning and historic budgeting practices, to proactive long range planning and asset condition based budgeting.

5.3.1 Asset Management Process Overview

5.3.1.1 Asset Management Process Objectives

The overall objectives of FFPC's asset management process are to:

1. Enable wise decision making with respect to balancing cost, reliability and risk
2. Align spending decisions with corporate objectives
3. Enable multiyear planning based on rigorous data driven processes

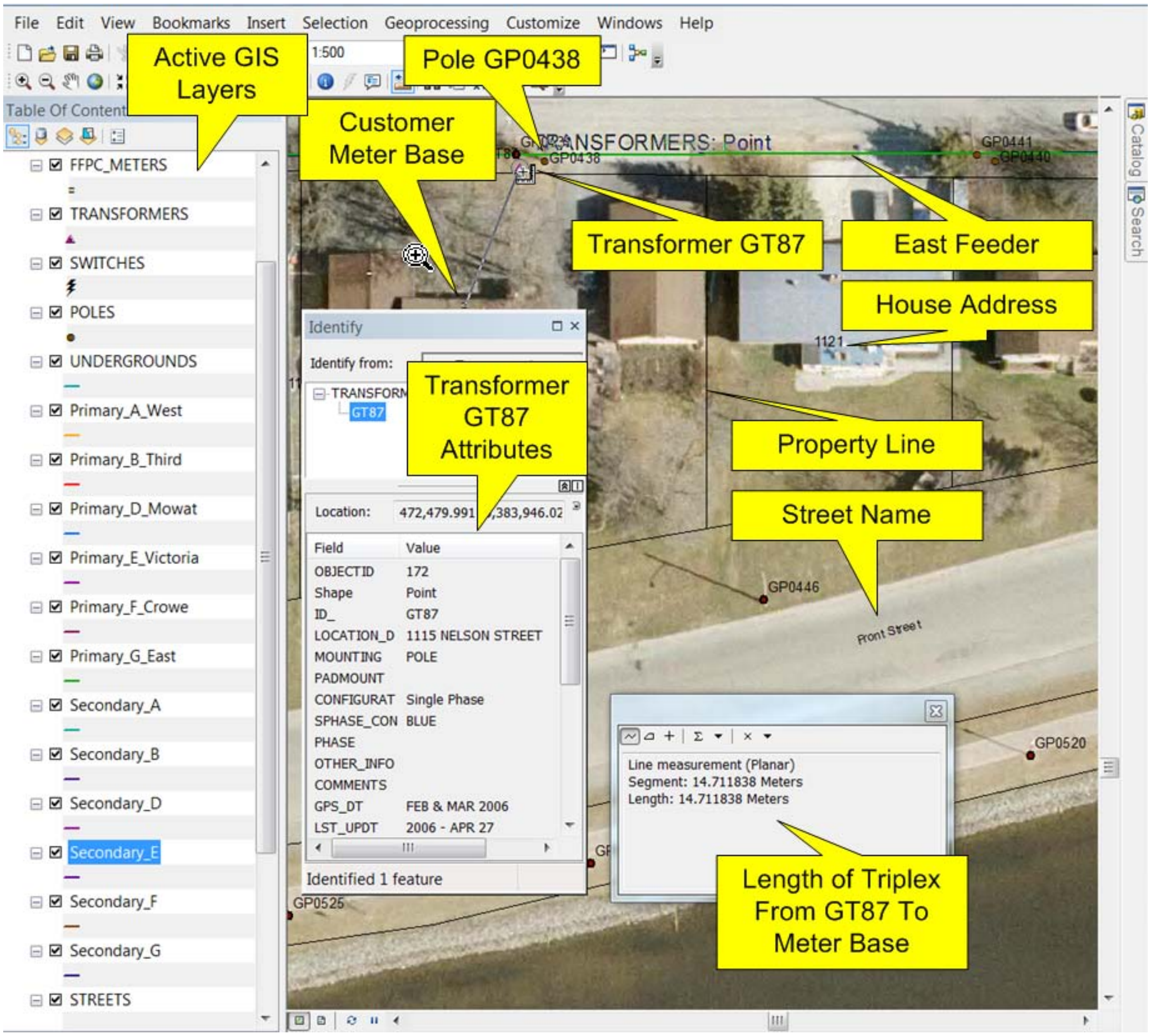
Refer to section 5.4.2 for details regarding FFPC's Vision, Mission, Values and planning objectives.

5.3.1.2 Integration of Geographic Information System into Asset Management

In 2005 FFPC invested in a Geographic Information System (GIS) and formally kicked-off gathering extensive information from its distribution system assets and general plant assets. The field information gathered combined with available office records essentially generated FFPC's asset register. To date FFPC has gathered key asset attribute information from all of its Transformers, Poles, Pole Attachments (including Third Party Attachments), Primary Overhead Conductors (Feeders), Primary Underground Conductors, Switches, Smart Meters, Fleet Vehicles, and from Key Transformer Station Components.

Other supporting records have also been imported into the tool such as; property data; customer contact information; zoning and property lines; street names and object specific files such as pictures. The tool is also used extensively in day-to-day operations to assist in capital, maintenance, and operations work planning; the processing of customer inquiries; and the costing of jobs and projects.

The following screen caption is a very simple illustration of various high level data contained in FFPC's GIS system:



In 2008, FFPC also developed a comprehensive system for compliance with the requirements of Ontario Regulation 22/04 (O.Reg. 22/04) - “Electrical Distribution System Safety”, as well as with the Distribution System Code Appendix C - “Minimum Inspection Requirements”. The compliance system was also built on FFPC’s asset register contained in the GIS system. The asset register has allowed FFPC to transition from generic inspection logs to very detailed asset specific inspection logs. For example; the pole inspection form contains an entry for each and every pole that FFPC owns. Thus FFPC has inspection data from every individual asset as opposed to only a listing of identified deficiencies from the distribution system in general. The main modules of the compliance system that FFPC developed include FFPC’s; Maintenance Inspection Program; Purchasing and Equipment Approval; Approval of Plans, Drawings and Specifications for Installation Work; and Construction Verification Program.

Since the implementation of the compliance system, FFPC has received very favourable results from ESA Regulation 22/04 Compliance audits, as well as from ESA Due Diligence Inspections. FFPC now has a solid foundation from which data driven decisions can be made with respect to the upkeep of its electrical distribution system.

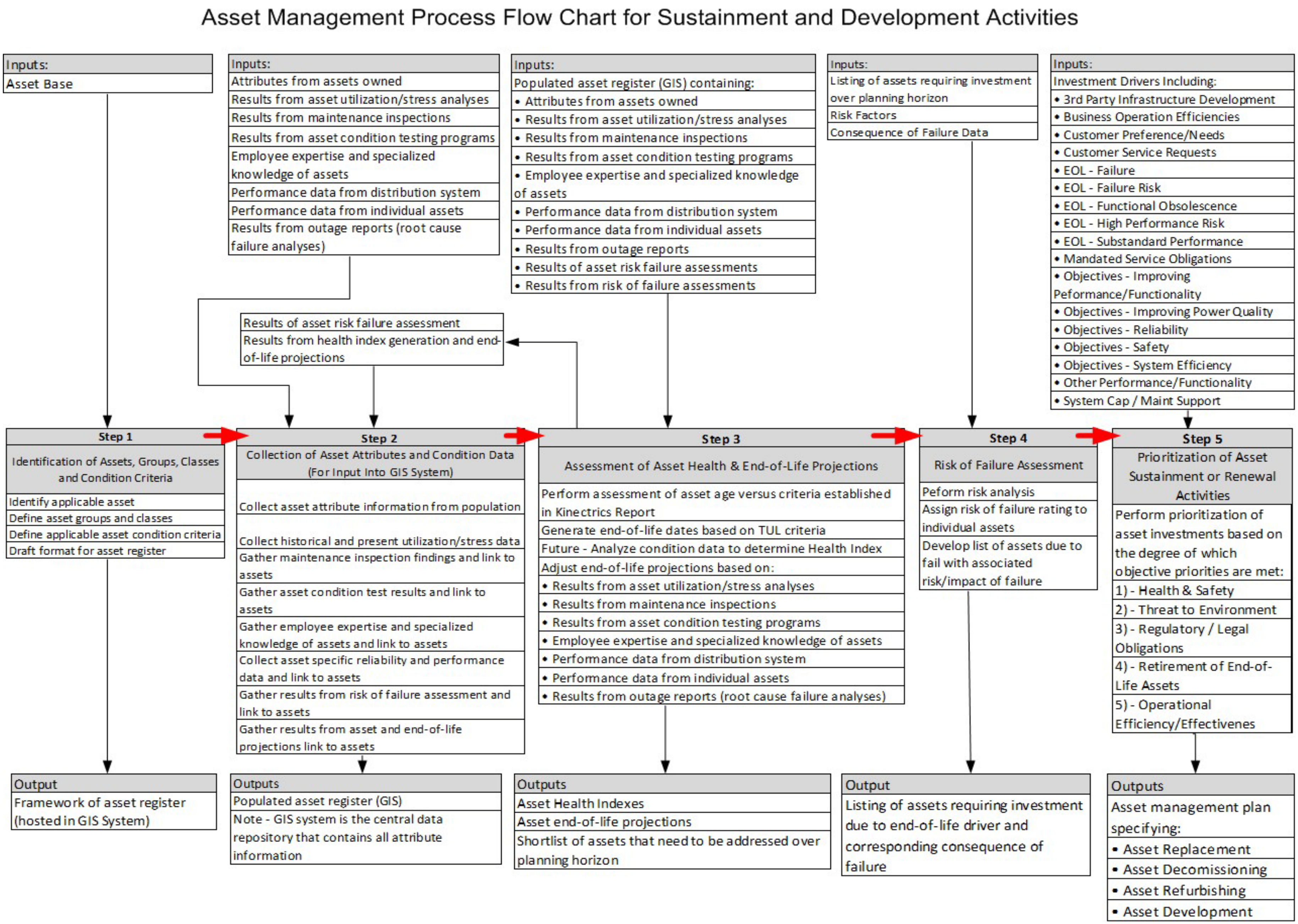
5.3.1.3 FFPC Bottom up Asset Specific Approach to Asset Lifecycle Management

The wealth of asset knowledge combined with the integration of inspection and condition testing process, has enabled FFPC to adopt an asset specific approach to asset management. FFPC now has oversight of virtually every individual asset, with insight into its age, overall health, operating conditions, projected failure date, impact of failure and replacement cost. The maintenance inspection process and condition testing process offer insight into the health of every asset. An asset's health is based on its relative age compared to industry established life expectancies, as well as on information that quantifies its operating environment. Assessing age and operating environment allow for the probability of failure to be assigned. Based on this approach, FFPC has developed a profile of the order in which assets are expected to fail, categorized by asset type. The year during which an asset is expected to fail due to exceeding its failure risk tolerance is called its "Adjusted End-of-Life" (AEOL). The AEOL profile of assets drives FFPC's pace of capital reinvestment needs for sustainment or development activities (also referred to as asset lifecycle management).

The asset data contained in the GIS system combined with FFPC's maintenance program (inspections and condition testing), are the heart of the Asset Management Process. In summation, the asset management process can be boiled down to two main modules that complement one another:

1. Process for Managing Asset Sustainment and Development Activities
2. Process for Managing the Operation and Maintenance Activities

5.3.1.4 Asset Management Process Overview Flow Chart



5.3.1.4.a. Asset Management Process Flow for Sustainment & Development Activities - Recipe Format

Step 1
Identification of Assets, Groups, Classes and Condition Criteria
Identify applicable assets
Define asset groups and classes
Define applicable asset condition criteria
Draft format for asset register
Inputs:
Asset Base
Output
Framework of asset register (hosted in GIS System)

Step 2
Collection of Asset Attributes and Condition Data (For Input Into GIS System)
Collect asset attribute information from population
Collect historical and present utilization/stress data and link to assets
Gather maintenance inspection findings and link to assets
Gather asset condition test results and link to assets
Gather employee expertise and specialized knowledge of assets and link to assets
Collect asset specific reliability and performance data and link to assets
Gather results from risk of failure assessment and link to assets
Gather results from asset end-of-life projections and link to assets
Inputs:
Attributes from assets owned
Results from asset utilization/stress analyses
Results from maintenance inspections
Results from asset condition testing programs
Employee expertise and specialized knowledge of assets
Performance data from distribution system
Performance data from individual assets
Results from outage reports (root cause failure analyses)
Inputs From Step 3
Results of asset risk failure assessment
Results from health index generation and end-of-life projections
Outputs
Populated asset register (GIS)
Note - GIS system is the central data repository that contains all attribute and condition information

Step 3
Assessment of Asset Health & End-of-Life Projections
Perform assessment of asset age versus criteria established in Kinectrics Report
Generate end-of-life dates based on TUL criteria
Analyze condition data to determine Health Index
Adjust end-of-life projections based on:
• Results from asset utilization/stress analyses
• Results from maintenance inspections
• Results from asset condition testing programs
• Employee expertise and specialized knowledge of assets
• Performance data from distribution system
• Performance data from individual assets
• Results from outage reports (root cause failure analyses)
Inputs:
Populated asset register (GIS) containing:
• Attributes from assets owned
• Results from asset utilization/stress analyses
• Results from maintenance inspections
• Results from asset condition testing programs
• Employee expertise and specialized knowledge of assets
• Performance data from distribution system
• Performance data from individual assets
• Results from outage reports
• Results of asset risk failure assessments
• Results from risk of failure assessments
Outputs
Asset Health Indexes
Asset end-of-life projections
Shortlist of assets that need to be addressed over planning horizon

Step 4
Risk of Failure Assessment
Perform risk analysis
Assign risk of failure rating to individual assets
Develop list of assets due to fail with associated risk/impact of failure
Inputs:
Listing of assets requiring investment over planning horizon
Risk Factors
Consequence of Failure Data
Output
Listing of assets requiring investment due to end-of-life driver and corresponding consequence of failure

Step 5
Prioritization of Asset Sustainment or Renewal Activities
Perform prioritization of asset investments based on the degree of which objective priorities are met:
1) - Health & Safety
2) - Threat to Environment
3) - Regulatory / Legal Obligations
4) - Retirement of End-of-Life Assets
5) - Operational Efficiency/Effectiveness
Inputs:
Investment Drivers Including:
• 3rd Party Infrastructure Development
• Business Operation Efficiencies
• Customer Preference/Needs
• Customer Service Requests
• EOL - Failure
• EOL - Failure Risk
• EOL - Functional Obsolescence
• EOL - High Performance Risk
• EOL - Substandard Performance
• Mandated Service Obligations
• Objectives - Improving Performance/Functionality
• Objectives - Improving Power Quality
• Objectives - Reliability
• Objectives - Safety
• Objectives - System Efficiency
• Other Performance/Functionality
• System Capital / Maintenance Support
Outputs
Asset management plan specifying:
• Asset Replacement Projects
• Asset Decommissioning Projects
• Asset Refurbishing Projects
• Asset Development Projects

5.3.1.4.b. Asset Management Process Explanation for Sustainment and Development Activities

FFPC's approach to managing the sustainment and development of its assets can be broken down into five logical steps.

Step 1 - Identification of Assets, Groups, Classes and Condition Data

FFPC's first step towards implementing a systematic data driven asset management process was to identify and quantify the assets that are within FFPC's scope to manage. Once the assets were quantified, FFPC developed a listing of key asset attributes, by asset type, to establish the data sets required to support data driven asset management decisions. FFPC's asset data sets can be broken into two categories; physical attribute data and condition data.

For example, typical physical attribute data includes; the type of asset (equipment type); its location; age; rating; or configuration. Arguably the most important attribute from this data set with respect to asset management is the "age" of the asset. The basic knowledge of the age profile of assets is a very good high level tool for estimating future expenditure requirements. The age profile of assets is a fundamental driver of investments and is a good starting point for prioritizing investments.

This step essentially creates the framework of the asset register that is required to be populated. It should be noted that FFPC is working towards having all asset attribute and condition data linked to the assets themselves within the GIS system. For example, for a typical pole FFPC now has the pole properties stored in the GIS such as it height, class, location, replacement cost and age, as well as condition data has been linked to it, such as the results of the last "hammer test" for structural integrity or of the last general inspection findings. In future iterations of the DS Plan FFPC, also plans to link risk ratings, health indexes and consequence of failure data to all individual assets.

Step 2 - Collection of Asset Attributes and Condition Data

Once the framework for necessary data required to manage assets has been established, the next logical step is to compile a listing of the population of assets owned, and to gather corresponding asset attribute information including condition and performance data. This step essentially generates a populated asset register.

FFPC has also compiled a listing of typical replacement costs for most common asset types and "replacement cost" is now an available attribute contained within the GIS based asset register.

Assets deteriorate as a function of time, as a function of their operating conditions and as a function of their physical environment. As such, FFPC's approach to asset management utilizes asset age, complimented by asset condition data. FFPC uses condition data to try and understand the operating conditions and environment of assets. This enables more accurate predictions of when assets will reach the end of their useful life, based on how quickly they are deteriorating. FFPC's key sources of condition data are the results from its maintenance inspection program, as well as the results from condition testing programs. In addition to this, FFPC also utilizes available performance data and the results from outage root cause failure reports.

The output of this step is a populated asset register that contains all pertinent attribute and condition data. The populated asset register enables data analysis to be performed on individual assets or on asset groups or classes.

Step 3 - Assessment of Asset Health & End-of-Life Projections

FFPC performs an analysis on all of its asset types by comparing the age of assets relative to the "Typical-Useful-Life" (TUL) standards established in the July 8, 2010 "Kinectrics Asset Depreciation Study for the Ontario Energy Board" ("Kinectrics Report"). FFPC then performs further analyses to determine how available asset condition data affects the longevity of individual assets. Condition data sources include inspection results, condition testing results, asset performance data, employee expertise, root cause failure data from outage reports and known manufacturer defect information.

Utilizing these inputs, FFPC adjusts the "Typical-Useful-Life" expectancy of individual assets based on assessing the health of individual assets. Favourable condition data extends the life expectancy of assets and unfavourable condition data decreases the life expectancy, relative to the normal TUL's established in the Kinectrics Report. The resulting end-of-life estimations are referred to as "Adjusted End-of-Life" (AEOL) projections. The AEOL value profile for asset classes essentially generates a listing that reflects FFPC's best guess as to the order in which assets will fail.

The life expectancy adjustments are currently performed based on the judgment and expertise of knowledgeable staff. FFPC plans to develop a more definitive set of criteria that underpin life expectancy adjustments in future iterations of the process.

The AEOL profile for each asset class is updated annually to incorporate the latest available inspection, condition testing and performance data results. The end-of-life profile of assets allows FFPC to focus on the portion of assets that require special attention over the planning horizon. In other words, it allows FFPC to focus its attention on the assets that demand attention.

With FFPC's replacement cost data available at the asset level, FFPC is able to quickly and easily generate high level cost projections for long range planning purposes.

Step 4 - Risk of Failure Assessment

After establishing end-of-life projections for individual assets, the next step is to assign a criticality of failure to the assets that are projected to fail over the planning horizon. In future iterations of the DS Plan, FFPC will assign a criticality rating to all of individual assets, not just those projected to fail over the planning horizon. FFPC uses the following risk factors when performing its failure assessment: impact on the health and safety of employees and the public; number of customers affected; location; accessibility; environmental impact; impact on reliability; cost of failure. The output of this step provides management with a listing of projected asset failures (high probability of failure) over the planning horizon, and an understanding of the impact of individual asset failures.

Step 5 - Prioritization of Asset Sustainment or Renewal Activities

This step is essentially the decision making engine or capital expenditure planning process, for the purpose of prioritizing long range investments and linking investment drivers to planned expenditures. The linking and prioritizing of investments essentially generates the foundation of a long range capital plan.

FFPC prioritizes investments or projects to the degree with which the following objectives are satisfied:

1. Ensuring that the health and safety of employees and the public is maintained
2. Eliminate or mitigate threats to the environment
3. Ensuring compliance to regulatory and legal obligations
4. Meeting the needs and preference of customers
5. Retiring assets that are at the end of their useful life
6. Improving operational efficiency and effectiveness

Steps 1 through 4 systematically identify assets that: are at the end of their service life; have failed; are due to fail (have a high risk of failure); are operating with substandard performance. These factors only represent a portion of drivers that need to be considered for capital planning. Steps 1 to 4 essentially encompass the management of asset lifecycles, which typically represents upwards of 70% of all capital expenditure requirements.

Step 5 holistically evaluates the impact of all investment drivers (not just lifecycle management) that FFPC must address as well including: customer service requests; other 3rd party infrastructure development requirements; mandated service obligations (accomplishment of regulatory requirements); expected changes in load or customer growth; achievement of corporate or strategic goals; achieving customer needs or expectations; and the achievement of regional planning activities.

The output of this step is a long range capital plan that specifies asset replacement, decommissioning, refurbishing and development projects to meet FFPC's business objectives.

5.3.1.5 Asset Management Process for Managing Maintenance Activities

FFPC's asset management process for managing maintenance activities can be broken down into the following three main programs:

1. Maintenance Inspection Program

    - Includes asset condition testing program
2. Transformer Station Preventative Maintenance Program
    - Includes asset condition testing & analysis
3. Vegetation Management Program

The Maintenance Inspection Program and Transformer Station Preventative Maintenance Program provide key inputs for Step 2 - “Collection of Asset Attributes and Condition Data” of FFPC’s Asset Management Process for Sustainment and Development Activities. The programs essentially provide asset specific condition data that is used to assess asset end-of-life projections.

5.3.1.5.a. Maintenance Inspection Program

FFPC has developed an extensive maintenance inspection program to meet the requirements of Ontario Regulation 22/04 Section 4 “Safety Standards”, section 5 “When Safety Standards Met” and of the Ontario Energy Board’s Distribution System Code Appendix C, “Minimum Inspection Requirements”. Refer to Appendix 4 for FFPC’s complete Maintenance Inspection Program.

5.3.1.5.b. Transformer Station Preventative Maintenance Program

FFPC has retained the services of Siemens Canada to perform annual maintenance inspections and asset condition testing of all major station components. All major components have been assigned to a three year maintenance schedule and asset condition assessments are performed annually due to the criticality of the station.

The following maintenance, testing and inspection schedule has been applied as per the recommendation of Siemens Canada:

Year 1 Inspection, Maintenance & Condition Analysis:

- OCB testing
- Relay testing
- Battery banks testing
- Yearly oil sampling (all assets containing oil - T1, T2 & OCB’s)

Year 2 Inspection, Maintenance & Condition Analysis:

- Transformer T1 and associated equipment (tap changer, arrestors), T1 15 kV Breakers
- Battery banks testing
- Yearly oil sampling (all assets containing oil- T1, T2 & OCB’s)

Year 3 Inspection, Maintenance & Condition Analysis:

- Transformer T2 and associated equipment (tap changer, arrestor), T2 15 kV Breakers
- Battery banks testing
- Yearly oil sampling (all - T1, T2 & OCB’s)

The following schedule will be applied for the period 2014 to 2018

Year	Asset Management Schedule
2014	Year 1 Schedule
2015	Year 2 Schedule
2016	Year 3 Schedule
2017	Year 1 Schedule
2018	Year 2 Schedule

5.3.1.5.c. Vegetation Management Program

FFPC has a regular line clearing and tree trimming maintenance program. Using FFPC's GIS system, FFPC has divided its service territory into five zones. Each zone is cleared on a 5 year cycle, unless inspection results find higher risk areas that demand priority trimming.

5.3.1.5.d. Insulator Washing

FFPC does not have any issues with salt build-up or contamination of its insulators. As such, FFPC does not perform insulator washing as it is an unnecessary expense.

5.3.1.5.e. Infrared Thermography

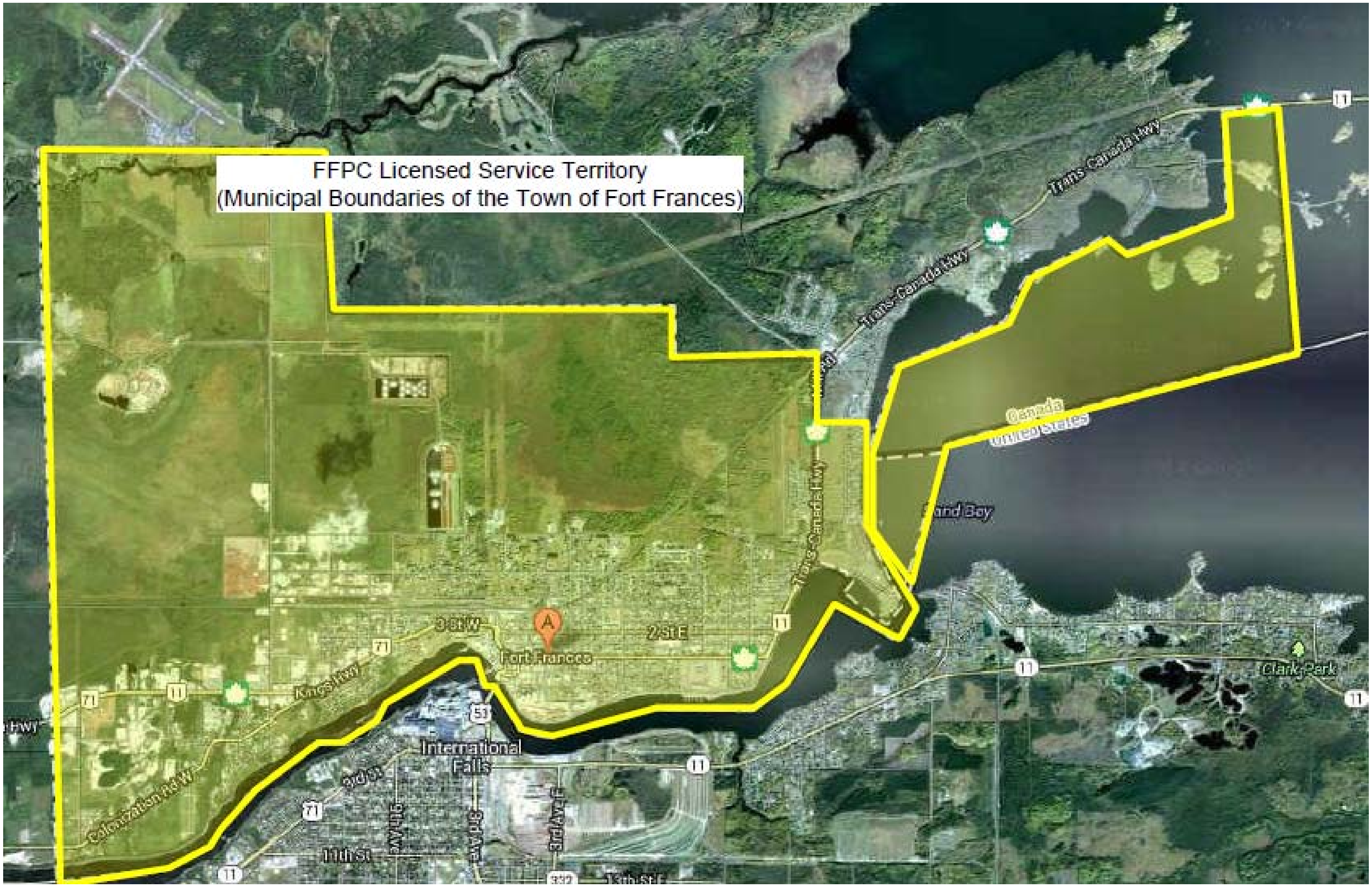
In the past, FFPC has hired a consultant to perform infrared thermography on overhead plant to identify "hot spots" and other general deficiencies. Virtually no hot spots or deficiencies were found, and as such it was recommended not to proceed with further testing as little value was recognized relative to the expense of the program.

5.3.2 Overview of assets managed

5.3.2.1 Licensed Distribution Service Territory

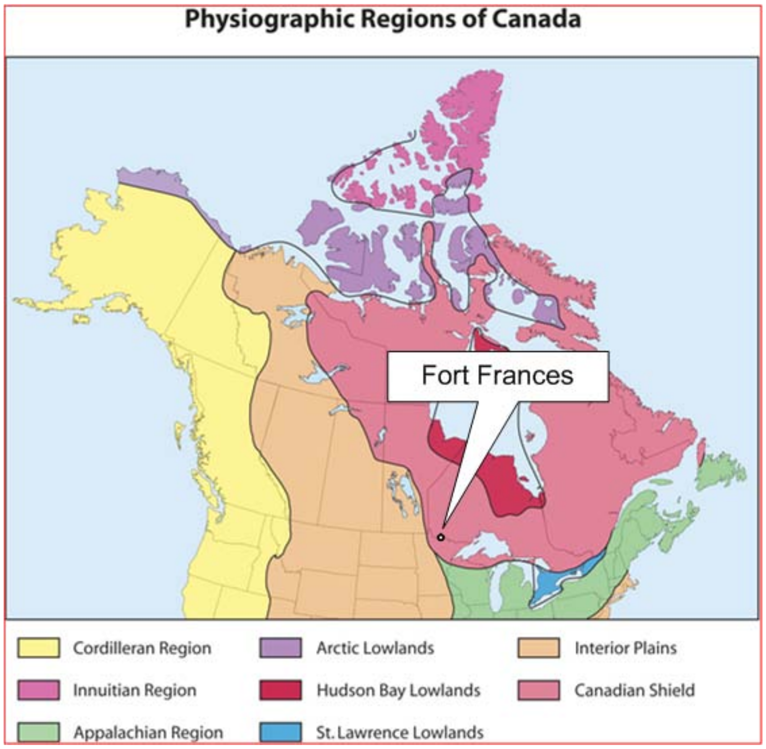
FFPC is licensed to distribute electricity within the municipal boundaries of the Town of Fort Frances. The Town is located approximately 300 km west of Thunder Bay, Ontario, approximately 250 km east of the Manitoba Border and is adjacent to the Town of International Falls, Minnesota. The Rainy River acts as the southern boundary of the community, and it is also the international boundary dividing Canada and the United States of America. The outlying service territory around Fort Frances is serviced by Hydro One Networks Inc (HONI) on the Ontario side, and by Minnesota Power and Lights on the Minnesota side. The following satellite picture illustrates FFPC's service territory and the Town of Fort Frances.

5.3.2.1.a. Map of FFPC Licensed Electrical Distribution Service Territory



5.3.2.1.b. Physiographic Attributes of Service Territory

The Town of Fort Frances is located on the edge of the Canadian Shield as illustrated by the following Physiographic Map of Canada.



The following is a description of the properties of the Canadian Shield as per Wikipedia.

> *"The Canadian Shield, also called the Laurentian Plateau, or Bouclier Canadien (French), is a large area of exposed Precambrian igneous and high-grade metamorphic rocks (geological shield) that forms the ancient geological core of the North American continent (North American or Laurentia craton), covered by a thin layer of soil. It is an area mostly composed of igneous rock which relates to its long volcanic history. It has a deep, common, joined bedrock region in Eastern and central Canada and stretches North from the Great Lakes to the Arctic Ocean, covering over half of Canada; it also extends South into the Northern reaches of the United States. Human population is sparse, and industrial development is minimal, while mining is very prevalent."*

FFPC's distribution system is subjected to the harsh conditions related to the Canadian Shield, as well as it is also subjected to extreme weather conditions (cold weather extremes).

5.3.2.1.c. Weather Conditions

Weather conditions in Northern Ontario are considerably different from Southern Ontario conditions. Wikipedia describes the climate in Fort Frances as:

"Fort Frances has a relatively extreme humid continental climate with bitterly cold winters and temperate summers. Temperatures beyond 34 degrees C has been measured in all five late spring and summer months. Summer highs are comparable to Paris and the Los Angeles Basin coastline in California, whereas winter lows on average resemble southern Siberia and polar subarctic inland Scandinavia."

Conditions in Fort Frances are best described as cold winters with relatively short and hot summers. Temperature variations are best described as being extreme. Large swings in daily temperature impose considerable thermal stress on electrical distribution system components and contribute significantly to their degradation.

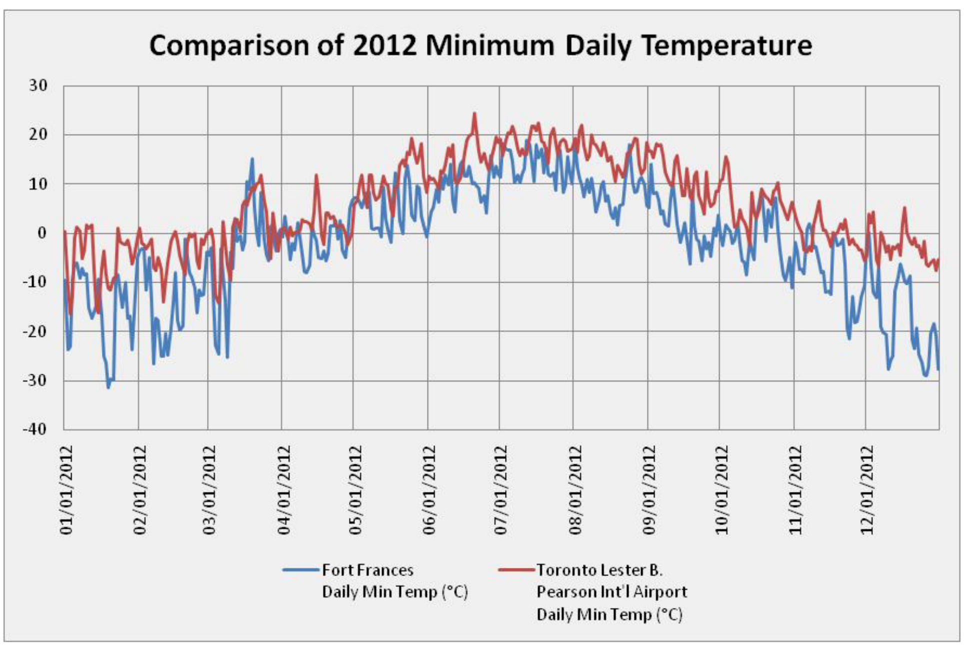
In general, consumers in the Northern Ontario require more electricity for heating related purposes rather than for cooling related purposes. The summer season in Fort Frances is also considerably shorter than that enjoyed in Southern Ontario. As such, the electricity consumption profile for Fort Frances is quite different from that of Southern Ontario.

The following graphs represent a comparison of key weather conditions of Fort Frances (measured at Airport) relative to Lester B. Pierson Airport. The information is based on Environment Canada weather station data which can be found for Fort Frances at:

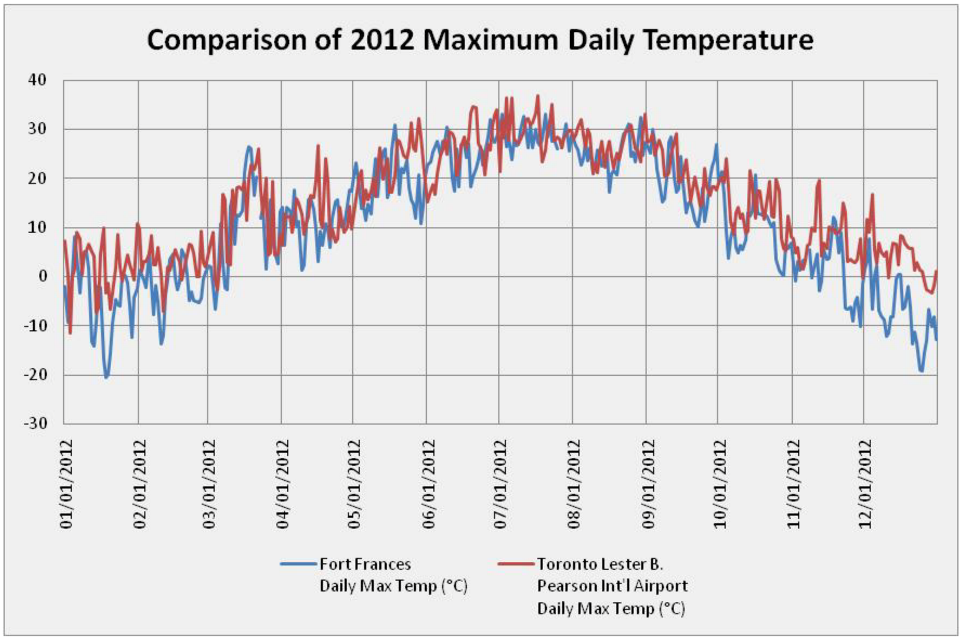
http://climate.weather.gc.ca/climateData/dailydata_e.html?StationID=46507

and for Lester B. Pierson International Airport at:

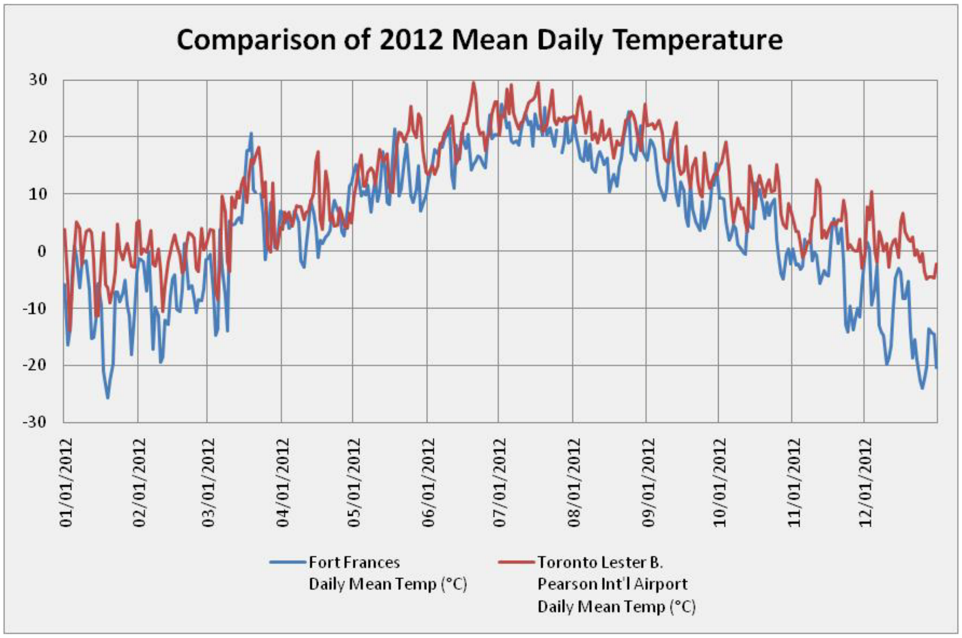
http://climate.weather.gc.ca/climateData/hourlydata_e.html?timeframe=1&Prov=ONT&StationID=5097&hlyRange=1953-01-01%7C2013-06-13&Year=2012&Month=6&Day=13&cmdB1=Go



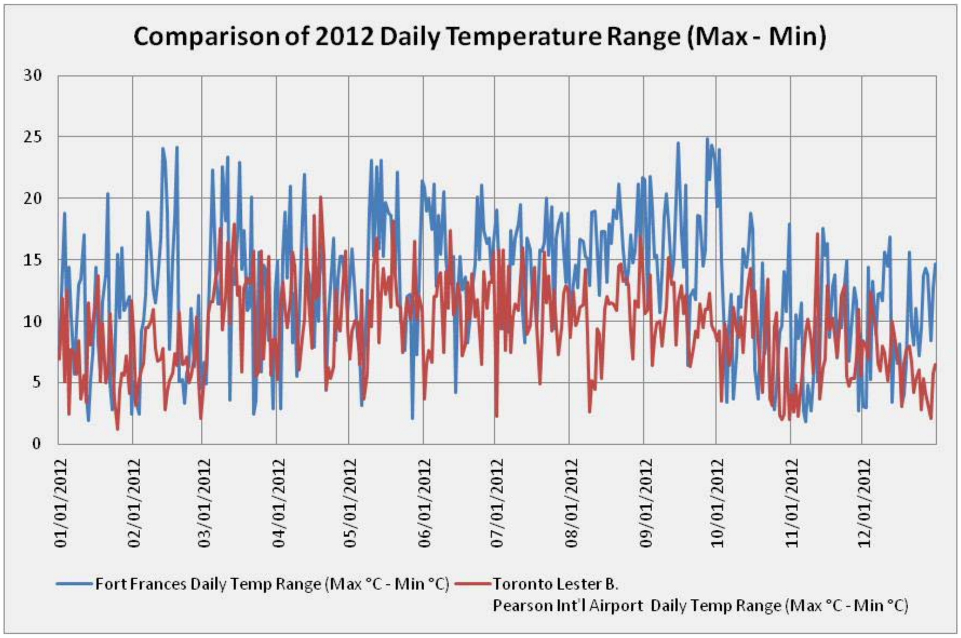
- Note the consistent pattern of daily lows being lower in Fort Frances
- Note the largest differential occurs during the winter months, illustrating extremely cold winters
- On average, Daily Minimum Temperatures are 7.4 °C cooler in Fort Frances



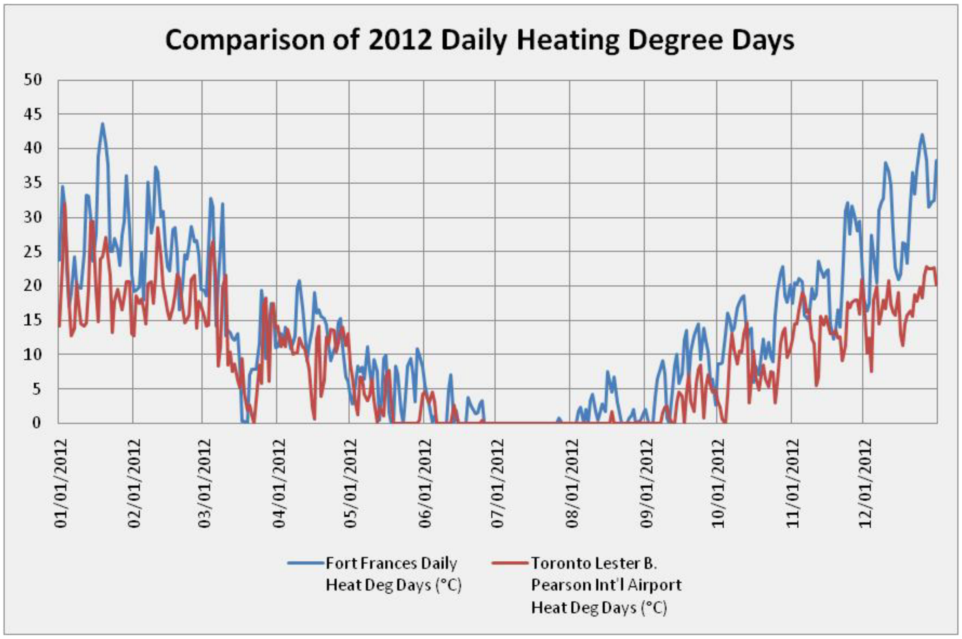
- Note that daily temperature highs track much closer than the daily temperature lows
- Note the largest differential again occurs during the winter months representative of extremely cold winters in Fort Frances
- Note that the summer time highs track fairly closely, although peaks are slightly higher at Lester B. Pierson Airport illustrating slightly warmer summers
- On average, Daily Maximum Temperatures are 4.0 °C cooler in Fort Frances



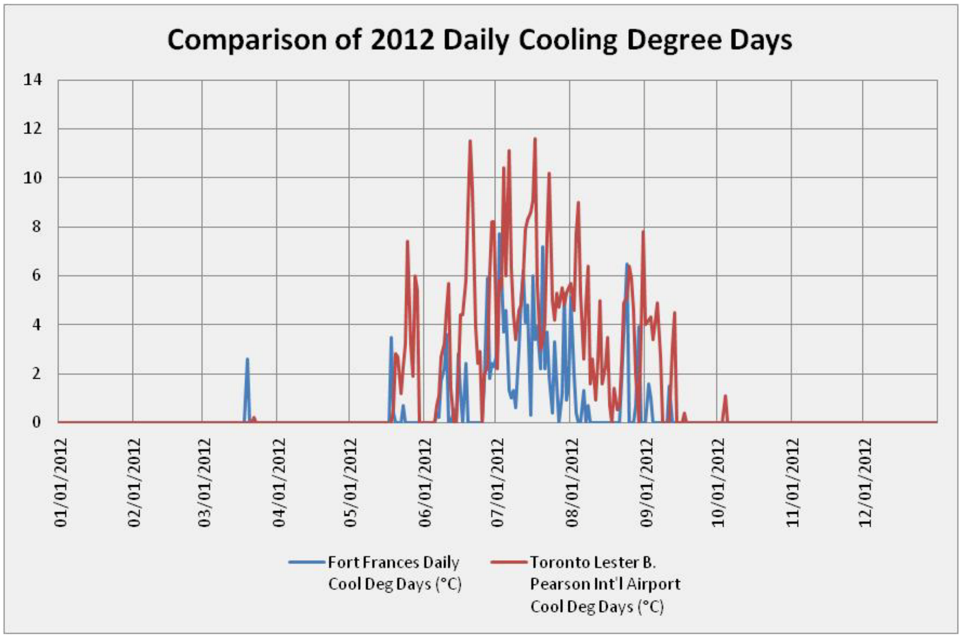
- Note that daily mean temperatures are consistently lower in Fort Frances
- Note that the largest differential occurs during the winter months
- On average, Daily Mean Temperatures are 5.7 °C cooler in Fort Frances



- Note that daily temperature variations are notably more extreme in Fort Frances
- On average, Daily Temperature fluctuations are 36% higher in Fort Frances



- Note that heating degree day demand is consistently higher in Fort Frances
- Notice the highest differential occurs over the winter months, illustrating extremely cold winters
- Notice that spring and fall seasons require more heating in Fort Frances
- Note that July is the only month in Fort Frances not requiring “heating” degrees (with the exception of one day)
- On average, heating degree day demand is 55% higher in Fort Frances



- Note that cooling degree day demand is considerably lower in Fort Frances over the summer months

- Note that the cooling season is considerably shorter in Fort Frances representative of a shorter summer.
- On average, cooling degree day demand is 66% lower in Fort Frances

5.3.2.1.d. Urban Versus Rural Service Territory

FFPC has chosen to treat its entire distribution service territory as "Urban" service territory, for the purpose of adhering to minimum inspection requirements as set out in Appendix C of the DSC. Appendix C defines "Urban" and "Rural" as per the following:

> *"Rural": Generally will be defined on a circuit or sub-circuit basis by each distributor, as areas with a customer density of less than 60 customers per kilometer of line. It is recognized that there may be circumstances where the distributor may choose to treat some parts of its distribution system as urban though it is "rural" according to this definition.*
>
> *"Urban": Each distributor will define "Urban", or more populated areas, on a circuit or sub-circuit basis, as areas with higher density and, by definition pose safety and reliability consequences to greater numbers of people.*

FFPC is currently working on identifying customer to transformer and customer to feeder relationships; however, at the time of preparing this DS Plan these relationships are not yet known. From a system wide perspective, FFPC's customer density would fall in the "Rural" category, as it is 49.5 customers per kilometer of line, which is below the threshold of 60 customers per kilometer of line as illustrated by the following:

Customer Density = (Total Number of Customers) / (Total KM of Distribution Line)
= (3780) / 76.4
= 49.5 Customers / KM

As previously mentioned, FFPC has chosen to treat its customer density as being "Urban" and thereby to adhere to the more stringent requirements set out in the DSC.

5.3.2.1.e. Underground versus Overhead Distribution Plant

The majority of FFPC's distribution system consists of overhead conductor runs affixed to wood poles. Underground conductors are primarily found in newer developments, as well as at larger three-phase customer installations. Several years ago, FFPC undertook a significant effort to map out the dimensions and properties of its distribution system in a GIS system. The results of the mapping exercise state that FFPC owns and operates:

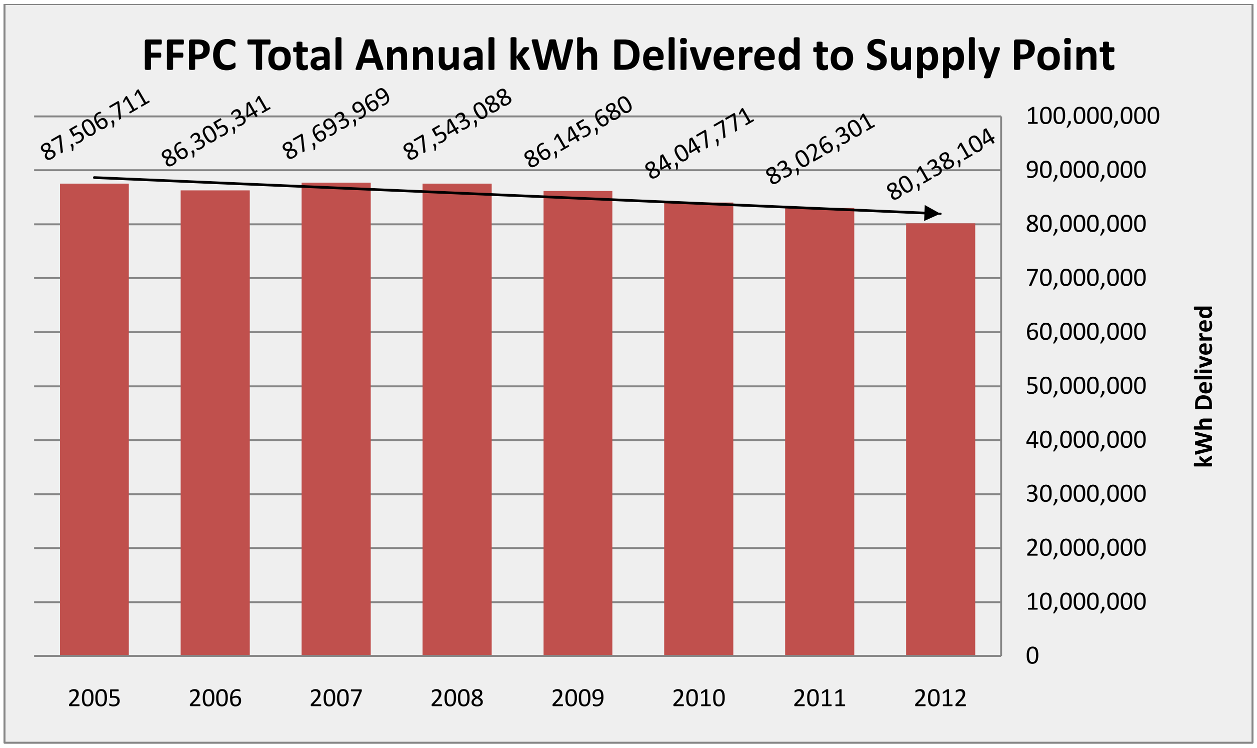
Type of Primary Power Line	Length in km	Units
Three Phase OH Primary Power Lines	46.3	km
Single Phase OH Primary Power Lines	19.5	km
Three Phase UG Primary Power Lines	6.2	km
Two Phase UG Primary Power Lines	0.5	km
Single Phase UG Primary Power Lines	3.9	km
Total	76.4	km

5.3.2.1.f. Local Economic Conditions

The Town of Fort Frances was built around a pulp and paper mill at the turn of the century, and this plant has historically been the single largest employer supporting the community. In 2009, the plant was owned and operated by Abitibi-Bowater, at which time the company filed for creditor protection, "CCAA." Since then, the operation has been largely curtailed and currently only 25% to 30% of all employees are still employed. Approximately 500 good paying positions have been lost, and this has had a significant impact on the local economy. Of the 500 positions lost, approximately 300 were lost during the spring and summer of 2013.

Although FFPC does not directly supply the manufacturing portions of the Pulp and Paper Mill (as it is transmission connected to HONI), FFPC does supply auxiliary support complexes including office buildings, parking lots, and warehouses. According to the billing history of the auxiliary support complexes, FFPC estimates that the continued curtailment of these facilities will equate to a direct loss of approximately 1.85% of FFPC's total customer load, based on 2012 consumption data. FFPC also anticipates that the mill's production curtailment and labour force layoffs will result in a drop in residential and commercial business load. FFPC estimates that the short term impact will be roughly three times the amount of load lost from servicing the auxiliary support complexes. In the event of prolonged production curtailments and labour force layoffs, FFPC estimates that by 2018 the impact on the community will be roughly five times that of the load lost from servicing the auxiliary support complexes.

There are many variables such as the Canadian Dollar to US Dollar exchange rate, which could have a significant impact on either the success or the demise of the plant, which FFPC cannot predict. Given the current state of the local economy, customer growth is not expected to be an investment driver over the rate horizon. The following graph illustrates FFPC's annual volume of electricity delivered to its supply point, transformer station Fort Frances MTS.



5.3.2.2 Summary of Assets Managed

FFPC owns and operates all electrical distribution assets necessary to distribute electricity to its customers throughout its licensed distribution service territory, including its own greater than 50 kV Transformer Station. The only exceptions to this are fourteen (14) Long Term Load Transfer customers that reside on the fringe of FFPC's service territory, which are currently physically connected to Hydro One Networks Inc.'s distribution assets. There are currently gaps between HONI and FFPC's infrastructure, such that the area between the two systems is not electrically serviced.

FFPC has organized its asset groupings according to the "Kinectrics Asset Depreciation Study for the Ontario Energy Board" ("Kinectrics Report"). The following table summarizes all of the significant assets managed by FFPC:

FFPC Summary of Assets Owned										
Asset Details					FFPC Assets			Kinectrics Useful Life		
Parent*	#	Category| Component | Type			Count	Units	Average Age of Population (Years)	MIN UL	TUL	MAX UL
OH	1	Fully Dressed Wood Poles	Overall		1776	Each	21.79	35	45	75
			Cross Arm	Wood	N/A			20	40	55
				Steel	N/A			30	70	95
	2	Fully Dressed Concrete Poles	Overall		N/A			50	60	80
			Cross Arm	Wood	N/A			20	40	55
				Steel	N/A			30	70	95
	3	Fully Dressed Steel Poles	Overall		N/A			60	60	80
			Cross Arm	Wood	N/A			20	40	55
				Steel	N/A			30	70	95
	4	OH Line Switch (Expressed as sets of 3 Phase Switches)			35	Each	24.34	30	45	55
	5	OH Line Switch Motor			N/A			15	25	25
	6	OH Line Switch RTU			N/A			15	20	20
	7	OH Integral Switches			N/A			35	45	60
	8	OH Conductors	Primary Conductor		224.2	km	33.77	50	60	75
			Secondary Conductor		114.8	km	28.00	25	35	40
	9	OH Transformers			629	Each	28.79	30	40	60
	10	OH Shunt Capacitor Banks			N/A			25	30	40
	11	Reclosers			N/A			25	40	55
TS & MS	12	Power Transformers	Overall		2	Each	38.00	30	45	60
			Bushing		12	Each	38.00	10	20	30
			Tap Changer		2	Each	38.00	20	30	60
	13	Station Service Transformer			1	Each	40.00	30	45	55
	14	Station Grounding Transformer			N/A	Each		30	40	40
	15	Station DC System	Overall		2	Each	23.00	10	20	30
			Battery Bank		2	Each	9.00	10	15	15

			Charger	2	Each	23.00	20	20	30
	16	Station Metal Clad Switchgear	Overall	11	Each	45.00	30	40	60
			Removable Breaker	11	Each	45.00	25	40	60
	17	Station Independent Breakers		1	Each	67.00	35	45	65
	18	Station Switch		5	Each	41.00	30	50	60
	19	Electromechanical Relays		34	Each	36.00	25	35	50
	20	Solid State Relays		N/A	Each		10	30	45
	21	Digital & Numeric Relays		8	Each	1.50	15	20	20
	22	Rigid Busbars		3	Each	36.00	30	55	60
	23	Steel Structure		1	Each	36.00	35	50	90
UG	24	Primary Paper Insulated Lead Covered (PILC) Cables		N/A			60	65	75
	25	Primary Ethylene-Propylene Rubber (EPR) Cables		N/A			20	25	25
	26	Primary Non-Tree Retardant (TR) Cross Linked Polyethylene (XLPE) Cables Direct Buried		N/A			20	25	30
	27	Primary Non-TR XLPE Cables in Duct		N/A			20	25	30
	28	Primary TR XLPE Cables Direct Buried		N/A			25	30	35
	29	Primary TR XLPE Cables in Duct		30.7	km	27.07	35	40	55
	30	Secondary PILC Cables		N/A			70	75	80
	31	Secondary Cables Direct Buried		3.8	km	28.00	25	35	40
	32	Secondary Cables in Duct		N/A			35	40	60
	33	Network Transformers	Overall	N/A			20	35	50
			Protector	N/A			20	35	40
	34	Pad-Mounted Transformers	Single Phase	215	Each	27.70	25	40	45
			Three Phase	38	Each	20.05	25	40	45
	35	Submersible/Vault Transformers		N/A			25	35	45
	36	UG Foundation		170	Each	27.52	35	55	70
	37	UG Vaults	Overall	N/A			40	60	80
			Roof	N/A			20	30	45
	38	UG Vault Switches		N/A			20	35	50
	39	Pad-Mounted Switchgear		N/A			20	30	45
	40	Ducts		23.5	km	27.95	30	50	85
	41	Concrete Encased Duct Banks		1.9	km	33.46	35	55	80

	42	Cable Chambers		5	Each	20.40	50	60	80
S	43	Remote SCADA		N/A			15	20	30
General Plant	1	Office Equipment		Various	Each	Various	*5*	*10.0*	*15*
	2	Vehicles	Trucks & Buckets	7	Each	8.00	*5*	*10.0*	*15*
			Trailers	2	Each	26.00	*5*	*12.5*	*20*
			Vans	N/A			*5*	*7.5*	*10*
	3	Administrative Buildings		1	Each	45.00	*50*	*62.5*	*75*
	4	Leasehold Improvements (Generator)		1	Each	5.00	*20*	*20.0*	*20*
	5	Station Buildings	Station Buildings	2	Each	39.0	*50*	*62.5*	*75*
			Parking	1	Each	24.00	*25*	*27.5*	*30*
			Fence	1	Each	42.00	*25*	*42.5*	*60*
			Roof	2	Each	39.00	*30*	*30.0*	*30*
	6	Computer Equipment	Hardware	Various	Each	Various	*3*	*4.0*	*5*
			Software	Various	Each	Various	*2*	*3.5*	*5*
	7	Equipment	Power Operated	Various	Each	Various	*5*	*7.5*	*10*
			Stores	N/A			*5*	*7.5*	*10*
			Tools, Shop, Garage Equip.	Various	Each	Various	*5*	*7.5*	*10*
			Measurement & Testing Equip	Various	Each	Various	*5*	*7.5*	*10*
	8	Communication	Towers	N/A			*60*	*65.0*	*70*
			Wireless	Various	Each	Various	*2*	*6.0*	*10*
	9	Residential Energy Meters		N/A			*25*	*30.0*	*35*
	10	Industrial/Commercial Energy Meters		N/A			*25*	*30.0*	*35*
	11	Wholesale Energy Meters		2	Each	5.00	*15*	*22.5*	*30*
	12	Current & Potential Transformer (CT & PT)		479	Each	Various	*35*	*42.5*	*50*
	13	Smart Meters		3966	Each	4.92	*5*	*10.0*	*15*
	14	Repeaters - Smart Metering		N/A			*10*	*12.5*	*15*
	15	Data Collectors - Smart Metering		7	Each	5.00	*15*	*17.5*	*20*

Note: For General Plant where TULs were not specified, FFPC has designated the midpoint between the Min UL and Max UL.

5.3.2.2.a. Available Asset Data to Support Asset Management Process

As previously discussed, the GIS system is the heart of FFPC's asset management process, as it is the central warehouse that contains all pertinent asset related data. FFPC's goal is to have its entire asset register contained in its GIS system, and to link all relevant available data to individual assets to support FFPC's asset management and capital planning processes. Over the planning horizon, FFPC is also planning to launch a new Work Order and Financial System, such that that all work history and costing data is tracked and directly linked to individual assets, to further enhance planning capabilities.

FFPC is currently working on linking individual assets to all corresponding relevant information or data sets. The completion of this initiative will provide FFPC with an invaluable tool enabling automated prioritizing of asset related investments with ease. The following summary table is an estimation of FFPC's progress towards the completion of the "GIS Initiative", in support of FFPC's asset management and capital planning processes:

Availability of Distribution System Asset Data in Support of Asset Management Process

		Asset Details			FFPC Assets		% of Assets Quantified	% Assets Mapped In GIS	% of Asset Attributes Linked	% Condition Data from Inspections Linked	% Condition Test Data Linked Data Collected	% Risk Data / Consequence of Failure Data Linked
Parent*	**#**	**Category| Component | Type**			**Count**	**Units**						
OH	1	Fully Dressed Wood Poles	Overall		1776	Each	100	>98	>93.8	100	100	20
			Cross Arm	Wood	N/A							
				Steel	N/A							
	2	Fully Dressed Concrete Poles	Overall		N/A							
			Cross Arm	Wood	N/A							
				Steel	N/A							
	3	Fully Dressed Steel Poles	Overall		N/A							
			Cross Arm	Wood	N/A							
				Steel	N/A							
	4	OH Line Switch			35	Each	100	100	100	100	N/A	25
	5	OH Line Switch Motor			N/A							
	6	OH Line Switch RTU			N/A							
	7	OH Integral Switches			N/A							
	8	OH Conductors	Primary Conductor		224.2	km	>95	>95	>90	100	N/A	0
			Secondary Conductor		114.8	km	>90	>70	>90	100	N/A	0
	9	OH Transformers			629	Each	100	100	100	100	N/A	20
	10	OH Shunt Capacitor Banks			N/A							
	11	Reclosers			N/A							
TS & MS	12	Power Transformers	Overall		2	Each	100	N/A	100	100	100	100
			Bushing		12	Each	100	N/A	100	100	100	100
			Tap Changer		2	Each	100	N/A	100	100	100	100
	13	Station Service Transformer			1	Each	100	N/A	100	100	100	100
	14	Station Grounding Transformer			N/A							
	15	Station DC System	Overall		2	Each	100	N/A	100	100	100	100
			Battery Bank		2	Each	100	N/A	100	100	100	100
			Charger		2	Each	100	N/A	100	100	100	100
	16	Station Metal Clad Switchgear	Overall		11	Each	100	N/A	100	100	100	100

			Removable Breaker	11	Each	100	N/A	100	100	100	100
	17	Station Independent Breakers		1	Each	100	N/A	100	100	100	100
	18	Station Switch		5	Each	100	N/A	100	100	100	100
	19	Electromechanical Relays		34	Each	100	N/A	100	100	100	100
	20	Solid State Relays		N/A							
	21	Digital & Numeric Relays		8	Each	100	N/A	100	100	100	100
	22	Rigid Busbars		3	Each	100	N/A	100	100	100	100
	23	Steel Structure		1	Each	100	N/A	100	100	100	100
UG	24	Primary Paper Insulated Lead Covered (PILC) Cables		N/A							
	25	Primary Ethylene-Propylene Rubber (EPR) Cables		N/A							
	26	Primary Non-Tree Retardant (TR) Cross Linked Polyethylene (XLPE) Cables Direct Buried		N/A							
	27	Primary Non-TR XLPE Cables in Duct		N/A							
	28	Primary TR XLPE Cables Direct Buried		N/A							
	29	Primary TR XLPE Cables in Duct		30.7	km	>95	>90	>90	100	0	20
	30	Secondary PILC Cables		N/A							
	31	Secondary Cables Direct Buried		3.8	km	>80	0	25	100	0	10
	32	Secondary Cables in Duct		N/A							
	33	Network Transformers	Overall	N/A							
			Protector	N/A							
	34	Pad-Mounted Transformers	Single Phase	215	Each	100	>98	>95	100	0	20
			Three Phase	38	Each	100	>98	>95	100	0	35
	35	Submersible/Vault Transformers		N/A							
	36	UG Foundation		170	Each	100	>98	50	100	0	35
	37	UG Vaults	Overall	N/A							
			Roof	N/A							
	38	UG Vault Switches		N/A							
	39	Pad-Mounted Switchgear									
	40	Ducts		23.5	km	100	>95	50	N/A	N/A	20
	41	Concrete Encased Duct Banks		1.9	km	>95	>95	50	N/A	N/A	80
	42	Cable Chambers		5	Each	100	0	50	100	0	0
S	43	Remote SCADA		N/A							

Availability of General Asset Data in Support of Asset Management Process												
		Asset Details		FFPC Assets		% of Assets Quantified	% Assets Mapped In GIS	% of Asset Attributes Linked	% Condition Data from Inspections Linked	% Condition Test Data Linked Data Collected	% Risk Data / Consequence of Failure Data Linked
Parent*	#	Category| Component | Type		Count	Units						
General Plant	1	Office Equipment		Various	Each	75	N/A	25	N/A	N/A	0
	2	Vehicles	Trucks & Buckets	7	Each	100	N/A	100	100	100	100
			Trailers	2	Each	100	N/A	100	100	100	100
			Vans	N/A							
	3	Administrative Buildings		1	Each	75	N/A	0	0	N/A	100
	4	Leasehold Improvements (Generator)		1	Each	100	N/A	0	0	N/A	10
	5	Station Buildings	Station Buildings	2	Each	100	N/A	0	0	N/A	100
			Parking	1	Each	100	N/A	0	0	N/A	100
			Fence	1	Each	100	N/A	0	0	N/A	100
			Roof	2	Each	100	N/A	0	0	N/A	100
	6	Computer Equipment	Hardware	Various	Each	100	N/A	0	0	N/A	0
			Software	Various	Each	>90	N/A	0	0	N/A	50
	7	Equipment	Power Operated	Various	Each	>80	N/A	0	0	N/A	0
			Stores	N/A							
			Tools, Shop, Garage Equip.	Various	Each	>60	N/A	0	0	N/A	0
			Measurement & Testing Equip	Various	Each	>80	N/A	0	0	N/A	0
	8	Communication	Towers	N/A							
			Wireless	Various	Each	100	N/A	0	0	N/A	0
	9	Residential Energy Meters		N/A							
	10	Industrial/Commercial Energy Meters		N/A							
	11	Wholesale Energy Meters		2	Each	100	0	100	100	100	100
	12	Current & Potential Transformer (CT & PT)		479	Each	100	0.95	25	0	0	0
	13	Smart Meters		3966	Each	100	>95	100	100	100	0
	14	Repeaters - Smart Metering		N/A							
	15	Data Collectors - Smart Metering		7	Each	100	100	100	N/A	N/A	100

5.3.2.2.b. History of FFPC's Electrical Distribution System

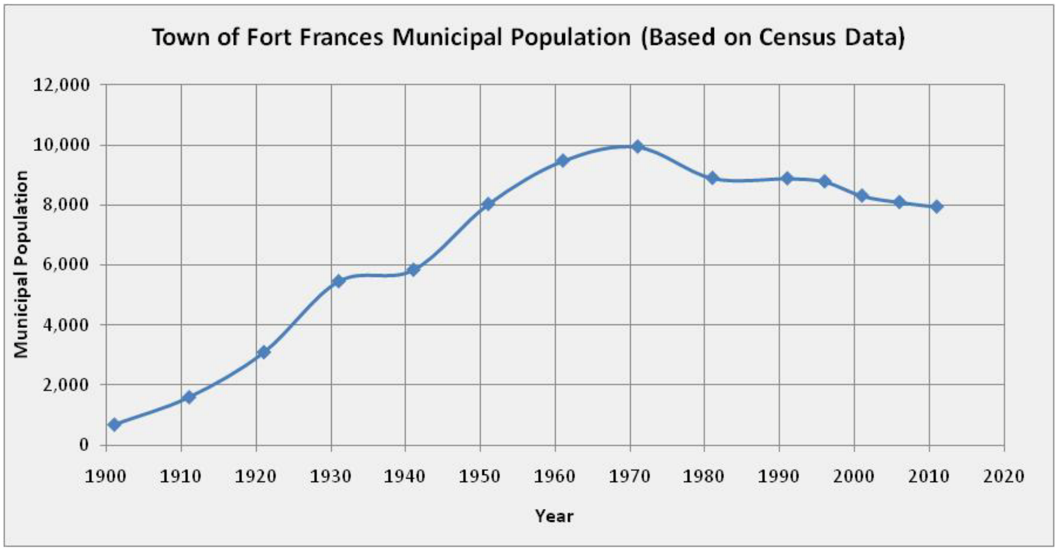
FFPC's DS Plan is largely influenced by the nature in which FFPC's distribution system evolved over the course of history. FFPC conducted a complete system wide rebuild and voltage conversion from the mid-1970s to the mid-1980s. During this period, FFPC converted its entire distribution system from a 2400 Volt system to a 7200 Volt system. All poles, transformers, pole line hardware were replaced as well as a transformer station was built to accommodate the new feeder voltages.

The voltage conversion project allowed FFPC to decommission five individual transformer stations that were located throughout Fort Frances, and to replace them with a single transformer station "Fort Frances MTS". To this day, FFPC relies on the station as its single point of supply, enabling delivery of electricity throughout all of FFPC's licensed service territory.

Due to the relatively narrow rebuild window, a large portion of FFPC's distribution system assets are of the same vintage including transformers, overhead primary and secondary conductors, as well as underground primary and secondary conductors and conduit. Over the last few decades FFPC has been operating in a maintenance mode; however, based on the results of its asset management and capital planning processes, a transition to a rebuild mode is required. Based on FFPC's asset management analyses, the distribution system as a whole has approximately 41.4% of service life remaining, which is considerably less than FFPC's target of 50%. FFPC expects to see a degree of "lumpiness" in future capital expenditure requirements, as large portions of assets reach the end of their useful service life over short time frames. One of FFPC's long range planning objectives is to smooth out the age distribution of its asset base, so that future capital expenditure requirements are more evenly distributed. FFPC recognizes that this may require several asset lifecycle iterations to accomplish.

Shortly after the completion of the system rebuild around 1985, FFPC began experiencing premature failures of wood poles due to manufacturing flaws in the treatment process. As a result of this, FFPC was forced to change pole suppliers and to continue on with its regular annual pole replacement program onwards to this day. Due to these premature failures, FFPC essentially smoothed out the age profile of its wood pole population. It is estimated that FFPC replaced approximately 42 poles per year, every year from the period 1972 until 2006. Historically FFPC did not use date nails or track installation dates of wood poles, and as such, a large portion of the poles could not have their actual date of manufacture verified during the GIS mapping initiative.

FFPC's rebuild window from the mid-1970s to mid-1980s also coincided with the period of highest customer growth in recent history. As a result, most of FFPC's newest subdivisions and other system expansions initiated by customer growth are also of 1970s and 1980s vintage. The Town of Fort Frances was essentially at its economic peak during this period. During the 1990s and 2000s, FFPC did not experience any significant customer growth and over the last few decades overall customer counts decreased gradually. The following graph illustrates the municipal population of the Town of Fort Frances, based on available Census Data:



It should be noted that the age distributions of the transformer station, distribution transformers, overhead conductors, underground conductors and smart meters are narrow, which will result in somewhat of a "tidal wave" affect as these assets approach the end of their useful service life.

5.3.2.2.c. Summary of Distribution System Configuration

FFPC's assets begin with its 115 kV to 12.47 kV step-down transformer station "Fort Frances MTS". Power transformers can have incremental power ratings based on the type of cooling system installed. Common power ratings are assigned using ONAN/ONAF cooling, where ONAN denotes "Oil Filled / Natural Convection / Air / Natural Circulation" and ONAF denotes "Oil Filled / Natural Convection / Air / Forced Circulation". As such, both station power transformers are rated at 20/25 MVA based on ONAN/ONAF cooling. As FFPC's power transformers are equipped with cooling fans, they are both rated for 25 MVA. The maximum station capacity is theoretically 50 MVA, based on the two power transformers operating in parallel; however, the station is designed to operate at up to 25 MVA which allows either transformer to service the entire customer load, thereby offering full redundancy in the event of a transformer outage or failure. As such, FFPC has assigned a total capacity of 25 MVA to its transformer station "Fort Frances MTS". Transformer redundancy is crucial for FFPC, as it underpins the overall reliability of electrical supply to distribution feeders. A power station transformer failure without redundancy could be devastating, possibly resulting in a loss of supply to feeders (affecting all customers) in the magnitude of days to weeks. Power transformers are typically not a stores stock item due to their high cost.

As previously mentioned, six 7.2/12.47 kV feeders propagate from the transformer station "Fort Frances MTS" throughout FFPC's licensed service territory, which is defined by the municipal boundaries of the Town of Fort Frances. Arithmetically, FFPC has a total 76.4 km of primary distribution plant. The following table is a summation of FFPC's distribution system configuration:

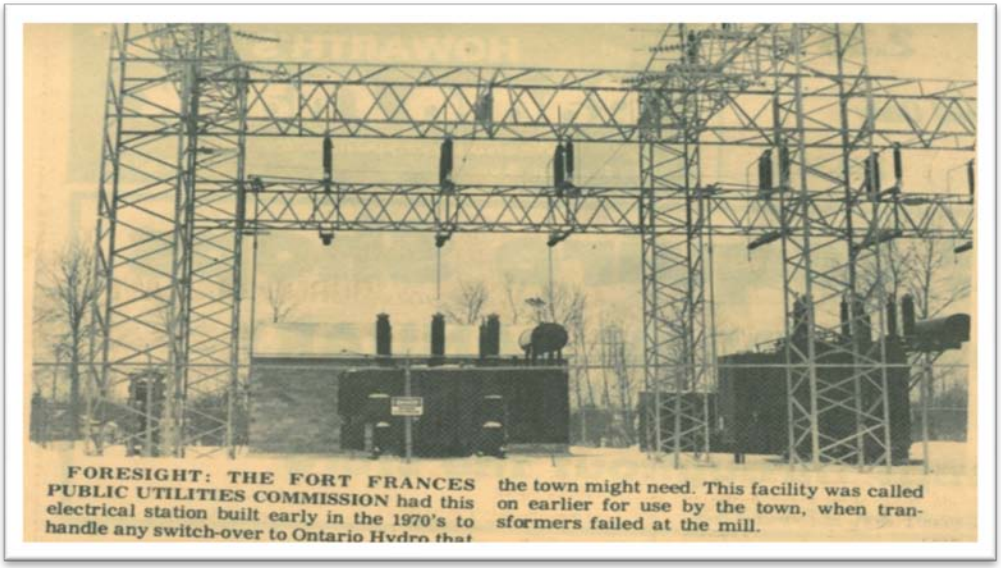
Fort Frances MTS Transformer & Feeder Properties

Transformer Rating (ONAF)	FFMTS Feeder Capacity Based on Ampacity Limit	Voltage (kV)	OH Primary Circuit Length (km)	UG Primary Circuit Length (km)	Total Primary Circuit Length (km)
T1 - 20/25 MVA	West Feeder (A): 10 MW	7.2/12.47	19.49	4.42	23.91
	Mowat Feeder (D): 10 MW	7.2/12.47	5.42	0.45	5.87
	East Feeder (G): 10 MW	7.2/12.47	13.04	2.20	15.23
		Transformer T1 Circuits Subtotal	**37.94**	**7.07**	**45.01**
T2 - 20/25 MVA	Third Street Feeder (B): 10 MW	7.2/12.47	9.50	0.52	10.03
	Victoria Feeder (E): 10 MW	7.2/12.47	7.78	1.00	8.78
	Crowe Feeder (F): 10 MW	7.2/12.47	10.57	2.02	12.59
		Transformer T2 Circuit Subtotal	**27.86**	**3.55**	**31.40**
		System Total	**65.80**	**10.61**	**76.41**
Note: Fort Frances MTS Load Capacity = 25 MVA under normal fully redundant operating mode					

5.3.2.2.d. Transformer Station Assets

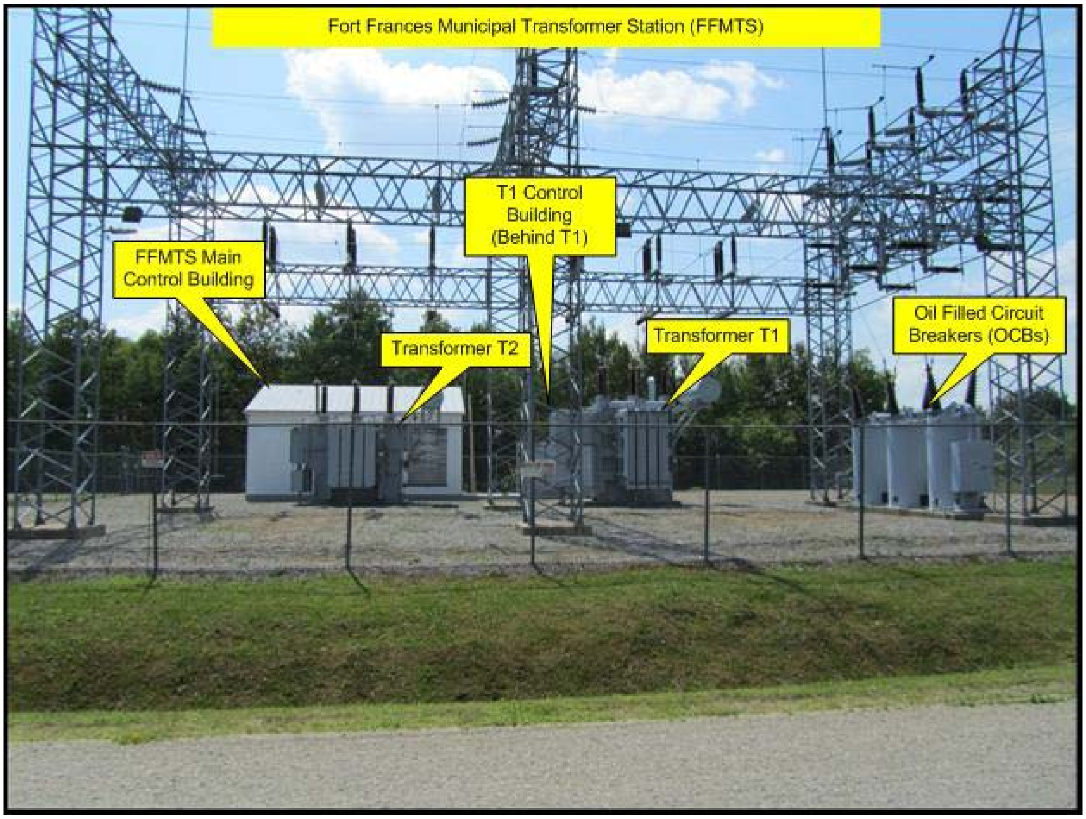
FFPC owns and operates one transformer station “Fort Frances MTS” (FFMTS), which is supplied from Hydro One Network Inc’s (HONI) transformer station “Fort Frances TS” (FFTS), at a supply voltage of 115kV. HONI’s transformer station “FFTS” is located directly across the street from FFPC’s transformer station “FFMTS”, and as such, a single 115kV span of transmission line connects the two stations. HONI’s “FFTS” station is used to supply the outlying service territory, as an international transmission connection point between Ontario and Minnesota, as well as it supplies the Pulp and Paper Mill’s production facility that is located within the Town of Fort Frances (the production facility is also connected at 115 kV). It is worth noting that HONI’s local distribution system does not utilize 7.2/12.47 kV and as such FFPC’s FFMTS was constructed to perform the voltage conversion. As a point of interest, 115 kV is commonly referred to as “sub-transmission” voltage. The power delivered through FFPC’s FFMTS transformer station electrifies FFPC’s entire distribution service territory, the Town of Fort Frances. As 115 kV is not a suitable distribution voltage (classified as transmission voltage), FFPC’s power transformers within “FFMTS” step down the voltage to 7.2/12.47 kV, which is suitable for distribution.

FFPC’s 115 kV transformer station “FFMTS” was constructed in two phases during the 1970’s and most of the station components including breakers, transformers, instrumentation, protection and controls are still of original vintage, lacking modern day functionality. In the early 1970’s, the transformer station consisted of only one power transformer “T1” and a corresponding control building. By the late 1970’s, a second power transformer “T2” and new main control building were installed for future load growth, as well as to offer full redundancy in the event that a station power transformer had to be taken out of service. The following newspaper clipping depicts FFMTS shortly after “T2” was installed in 1978.



It is important to note that due to the criticality of the transformer station, FFPC has contracted Siemens Canada to perform annual inspections and equipment condition testing, to monitor the health of core station assets. The asset condition test results are used to generate asset specific end-of-life projections for core station components in accordance to FFPC's asset management process. For more detailed information about the inspection and condition testing refer to Section 5.3.1.5.b "Transformer Station Preventative Maintenance Program".

The following picture depicts FFMTS as at July 2013.

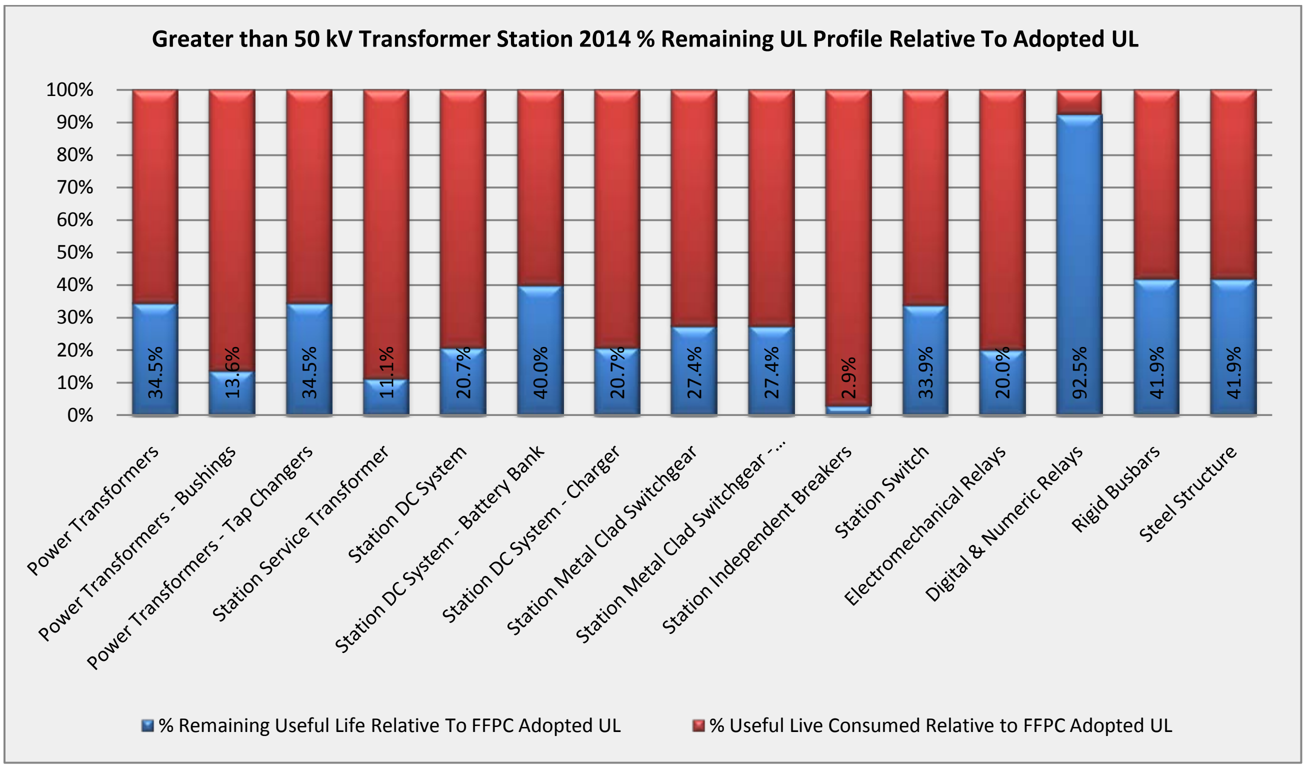


5.3.2.2.d.i. Transformer Station Lifecycle Profile, Reinvestment Needs Boundaries & Reinvestment Summary

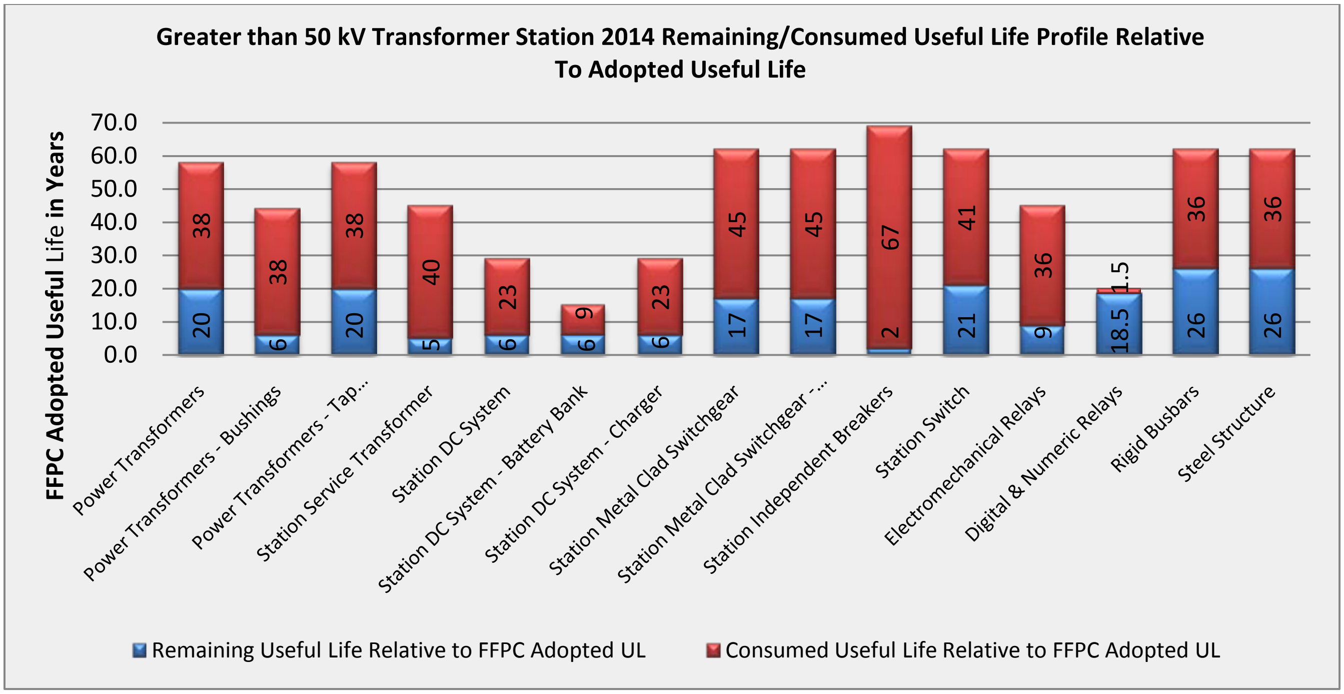
As per the Chapter 5 Filing Requirements guide, FFPC has relied on its newly developed Asset Management Process to collect, tabulate and assess information on physical assets, current and future system operating conditions, and FFPC's business and customer service goals and objectives to plan, prioritize and optimize expenditures on system-related modifications, renewal and operations and maintenance, and on general plant facilities, systems and apparatus.

FFPC's asset management process has established a total asset replacement value of $24,379,821 for all existing assets managed, based on FFPC's replacement cost structure. Of this asset base, the replacement value of Transformer Station assets is estimated to be $4,931,185 (excluding station buildings, which are included under General Plant), which is approximately 20.2% of the total replacement value. FFPC has utilized the replacement value established by its insurance carrier for the station. Based on FFPC's adopted useful life values, the average annual reinvestment needed to keep pace with Transformer Station asset deterioration is $90,712. The overall % remaining useful life (relative to FFPC's adopted UL and replacement cost) is 32.0%. FFPC's long term objective is to retire the station upon its major components reaching 0% "Remaining UL" simultaneously. As such, lifecycle sustaining capital investments are mainly driven by the risk of assets failing prior to the retirement of the station as a whole. The nature of transformer stations is that their lifecycle costs are very sporadic, as they are made up of a small number of high value components. As such, FFPC did not allocate capital funds based on an average annual investment need, but rather according to the requirements of individual station components, as identified by Step 4 of the asset management process. The average annual allocated capital of $41,400 is approximately 54% lower than the ideal average reinvestment need of $90,712. This will allow for intensified expenditures towards the upkeep of FFPC's aging distribution transformer fleet. The approach will ultimately help to minimize the impact of the significant increase in overall capital expenditure requirements, as FFPC transitions out of its "maintenance mode" of operation, to a "capital rebuild mode" of operation over the planning period.

The following graph illustrates the % UL Remaining profile of all Transformer Station asset categories.



The following graph illustrates the remaining and consumed years of useful life of all Transformer Station asset categories:



The following table summarizes planned capital expenditures over the 2014 to 2018 planning horizon, based on the output of Step 4 of the asset management process. Capital expenditures driven by other investment drivers, such as the Renewable Enabling Improvements, are not included in this summary. The table also illustrates the Useful Life and Reinvestment Need analysis for each asset category. Various reinvestment needs boundaries are illustrated representing various adoptions of useful service life philosophies, such as the "Kinectrics Report's" MIN UL, TUL, MAX UL as well as FFPC's adopted UL.

FFPC Asset Summary, Useful Life Assessment, Investment Boundaries and Capital Budget Allocations																						
		Asset Details		**FFPC Assets**			**Kinectrics Useful Life**			**Useful Life Assessment**					**Reinvestment Needs Assessment**					**Capital Budget Allocation**		
Parent*	**#**	**Category| Component | Type**		**Count**	**Units**	**Average Age of Population (Years)**	**MIN UL**	**TUL**	**MAX UL**	**FFPC Adopted Useful Life (UL)**	**Remaining Useful Life Relative to Kinectrics TUL**	**% Remaining Useful Life Relative Kinectrics TUL**	**Remaining Useful Life Relative to FFPC Adopted UL**	**% Remaining Useful Life Relative To FFPC Adopted UL**	**Total Replacement Cost of Asset Group**	**Average Annual Reinvestment Need Based on Kinectrics Min UL**	**Average Annual Reinvestment Need Based on Kinectrics TUL**	**Average Annual Reinvestment Need Based on Kinectrics Max UL**	**Average Annual Reinvestment Need Based on FFPC Adopted UL**	**Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation**	**Average Annual Capital Allocation (2014 to 2018)**	**% of Total DS Plan Capital Expenditures**
TS & MS	12	Power Transformers	Overall	2	Each	38.00	30	45	60	58.0	7.0	15.6%	20.0	34.5%	$ 1,930,575	$ 64,352	$ 42,902	$ 32,176	**$ 33,286**	$ -	$ -	0.0%
			Bushing	12	Each	38.00	10	20	30	44.0	0.0	0.0%	6.0	13.6%	$ 68,351	$ 6,835	$ 3,418	$ 2,278	**$ 1,553**	$ -	$ -	0.0%
			Tap Changer	2	Each	38.00	20	30	60	58.0	0.0	0.0%	20.0	34.5%	$ 1,127,792	$ 56,390	$ 37,593	$ 18,797	**$ 19,445**	$ -	$ -	0.0%
	13	Station Service Transformer		1	Each	40.00	30	45	55	45.0	5.0	11.1%	5.0	11.1%	$ 8,544	$ 285	$ 190	$ 155	**$ 190**	$ -	$ -	0.0%
	14	Station Grounding Transformer		N/A	Each		30	40	40													
	15	Station DC System	Overall	2	Each	23.00	10	20	30	29.0	0.0	0.0%	6.0	20.7%	$ 85,439	$ 8,544	$ 4,272	$ 2,848	**$ 2,946**	$ -	$ -	0.0%
			Battery Bank	2	Each	9.00	10	15	15	15.0	6.0	40.0%	6.0	40.0%	$ 51,263	$ 5,126	$ 3,418	$ 3,418	**$ 3,418**	$ 10,000	$ 2,000	0.3%
			Charger	2	Each	23.00	20	20	30	29.0	0.0	0.0%	6.0	20.7%	$ 34,176	$ 1,709	$ 1,709	$ 1,139	**$ 1,178**	$ 22,000	$ 4,400	0.6%
	16	Station Metal Clad Switchgear	Overall	11	Each	45.00	30	40	60	62.0	0.0	0.0%	17.0	27.4%	$ 845,844	$ 28,195	$ 21,146	$ 14,097	**$ 13,643**	$ -	$ -	0.0%
			Removable Breaker	11	Each	45.00	25	40	60	62.0	0.0	0.0%	17.0	27.4%	$ 205,053	$ 8,202	$ 5,126	$ 3,418	**$ 3,307**	$ -	$ -	0.0%
	17	Station Independent Breakers		1	Each	67.00	35	45	65	69.0	0.0	0.0%	2.0	2.9%	$ 138,411	$ 3,955	$ 3,076	$ 2,129	**$ 2,006**	$ 150,000	$ 30,000	4.3%
	18	Station Switch		5	Each	41.00	30	50	60	62.0	9.0	18.0%	21.0	33.9%	$ 68,351	$ 2,278	$ 1,367	$ 1,139	**$ 1,102**	$ -	$ -	0.0%
	19	Electromechanical Relays		34	Each	36.00	25	35	50	45.0	0.0	0.0%	9.0	20.0%	$ 131,576	$ 5,263	$ 3,759	$ 2,632	**$ 2,924**	$ -	$ -	0.0%
	20	Solid State Relays		N/A	Each		10	30	45													
	21	Digital & Numeric Relays		8	Each	1.50	15	20	20	20.0	18.5	92.5%	18.5	92.5%	$ 56,390	$ 3,759	$ 2,819	$ 2,819	**$ 2,819**	$ -	$ -	0.0%
	22	Rigid Busbars		3	Each	36.00	30	55	60	62.0	19.0	34.5%	26.0	41.9%	$ 42,719	$ 1,424	$ 777	$ 712	**$ 689**	$ -	$ -	0.0%
	23	Steel Structure		1	Each	36.00	35	50	90	62.0	14.0	28.0%	26.0	41.9%	$ 136,702	$ 3,906	$ 2,734	$ 1,519	**$ 2,205**	$ 25,000	$ 5,000	0.7%
Totals															$ 4,931,185	$ 200,223	$ 134,305	$ 89,277	**$ 90,712**	$ 207,000	$ 41,400	5.9%

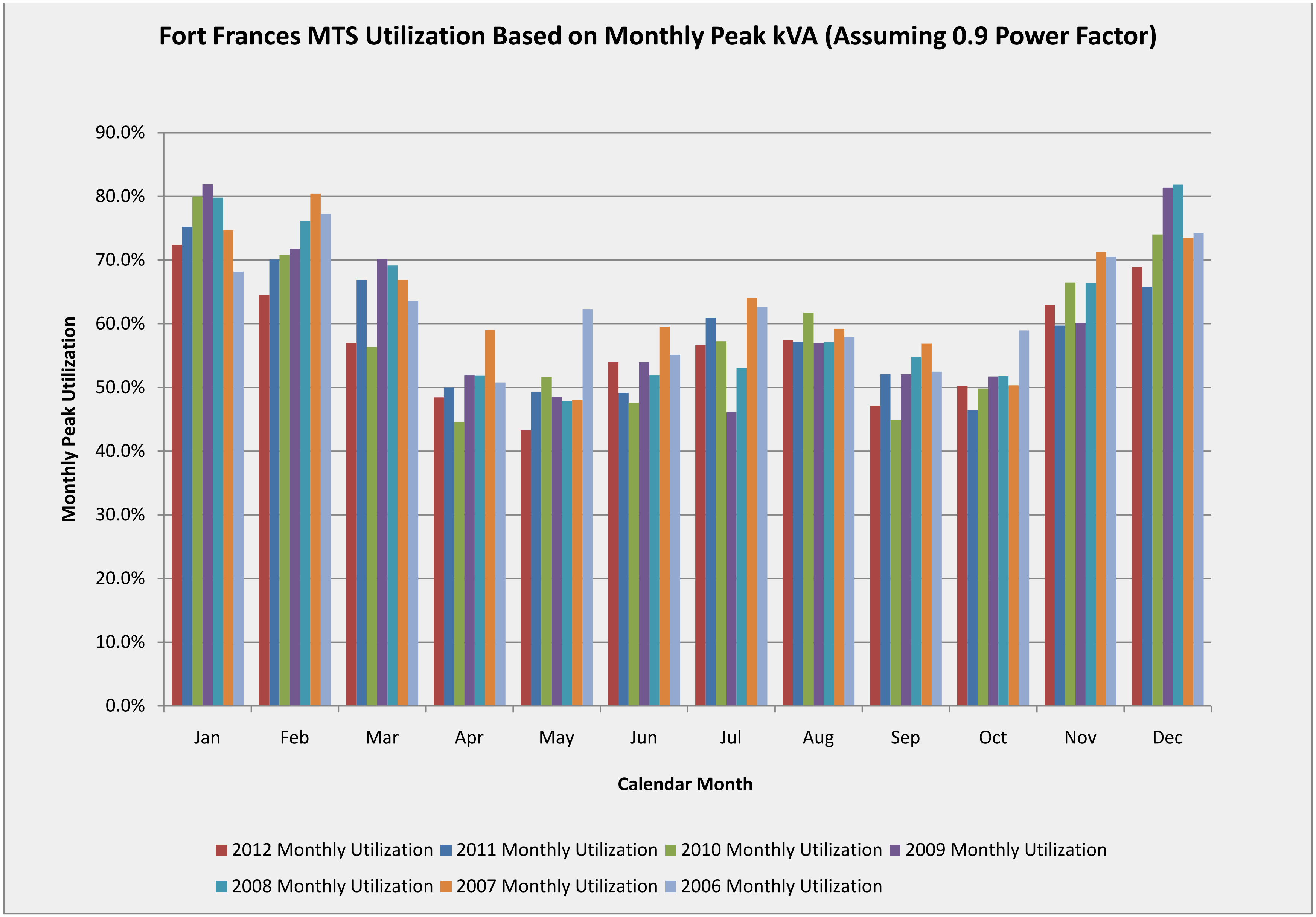
The following table summarizes FFPC's budgeted capital reinvestments, for each Transformer Station asset category over the 2014 to 2018 planning period. The planned reinvestments are all driven by the outputs of Step 4 of the asset management process, and as such they are allocated towards sustaining the lifecycle of existing assets. As previously mentioned, expenditures have been limited to the replacement or refurbishment of assets posing a high risk and impact of failure.

Asset Details				Capital Budget Allocation		
Parent*	#	Category| Component | Type		Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation	Average Annual Capital Allocation (2014 to 2018)	% of Total DS Plan Capital Expenditures
TS & MS	12	Power Transformers	Overall	$ -	$ -	0.0%
			Bushing	$ -	$ -	0.0%
			Tap Changer	$ -	$ -	0.0%
	13	Station Service Transformer		$ -	$ -	0.0%
	14	Station Grounding Transformer				
	15	Station DC System	Overall	$ -	$ -	0.0%
			Battery Bank	$ 10,000	$ 2,000	0.3%
			Charger	$ 22,000	$ 4,400	0.6%
	16	Station Metal Clad Switchgear	Overall	$ -	$ -	0.0%
			Removable Breaker	$ -	$ -	0.0%
	17	Station Independent Breakers		$ 150,000	$ 30,000	4.3%
	18	Station Switch		$ -	$ -	0.0%
	19	Electromechanical Relays		$ -	$ -	0.0%
	20	Solid State Relays				
	21	Digital & Numeric Relays		$ -	$ -	0.0%
	22	Rigid Busbars		$ -	$ -	0.0%
	23	Steel Structure		$ 25,000	$ 5,000	0.7%
Totals				$ 207,000	$ 41,400	5.9%

5.3.2.2.d.ii. Transformer Station Capacity & Utilization

Fort Frances MTS was designed to be a transformer station servicing strictly municipal load. As such, the station in its current state is not able to accommodate reverse power flow at any level. The station is currently designed for a maximum station load of 25 MVA. This limit is set by the rating of the two power transformers, which are both rated at 25 MVA. It is again important to note that the station was designed with transformer redundancy, such that either transformer is able to supply power to the entire distribution network in the event of a transformer failure or outage. As such, the station maximum capacity is set to 25 MVA as opposed to 50 MVA. As a winter peaking utility, the colder the temperature, the higher the consumer demands for electricity. The station capacity is suitable for FFPC's customer load and it offers room for future load growth. Transformer station capacity constraints are therefore not identified as being an investment driver over the 2014 to 2018 planning horizon. The following table and subsequent graph illustrate the monthly kW demand peaks and the corresponding percent utilization based on a power factor of 0.9 and a station capacity of 25 MVA.

Fort Frances MTS Monthly Utilization Based on Monthly kW Peak (Converted to kVA assuming 0.9 Power Factor)												
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
2012 Monthly Peak kW	16,288	14,508	12,826	10,900	9,733	12,137	12,749	12,915	10,607	11,296	14,169	15,506
2012 Monthly Utilization	72.4%	64.5%	57.0%	48.4%	43.3%	53.9%	56.7%	57.4%	47.1%	50.2%	63.0%	68.9%
2011 Monthly Peak kW	16,925	15,769	15,052	11,251	11,102	11,055	13,707	12,868	11,718	10,441	13,431	14,803
2011 Monthly Utilization	75.2%	70.1%	66.9%	50.0%	49.3%	49.1%	60.9%	57.2%	52.1%	46.4%	59.7%	65.8%
2010 Monthly Peak kW	18,000	15,927	12,681	10,038	11,618	10,708	12,881	13,893	10,106	11,211	14,954	16,653
2010 Monthly Utilization	80.0%	70.8%	56.4%	44.6%	51.6%	47.6%	57.2%	61.7%	44.9%	49.8%	66.5%	74.0%
2009 Monthly Peak kW	18,432	16,147	15,787	11,672	10,916	12,143	10,367	12,802	11,716	11,640	13,526	18,314
2009 Monthly Utilization	81.9%	71.8%	70.2%	51.9%	48.5%	54.0%	46.1%	56.9%	52.1%	51.7%	60.1%	81.4%
2008 Monthly Peak kW	17,957	17,131	15,553	11,667	10,772	11,671	11,938	12,843	12,329	11,643	14,935	18,421
2008 Monthly Utilization	79.8%	76.1%	69.1%	51.9%	47.9%	51.9%	53.1%	57.1%	54.8%	51.7%	66.4%	81.9%
2007 Monthly Peak kW	16,798	18,097	15,045	13,274	10,818	13,402	14,414	13,321	12,795	11,321	16,049	16,539
2007 Monthly Utilization	74.7%	80.4%	66.9%	59.0%	48.1%	59.6%	64.1%	59.2%	56.9%	50.3%	71.3%	73.5%
2006 Monthly Peak kW	15,338	17,382	14,304	11,424	14,017	12,404	14,085	13,028	11,808	13,268	15,859	16,707
2006 Monthly Utilization	68.2%	77.3%	63.6%	50.8%	62.3%	55.1%	62.6%	57.9%	52.5%	59.0%	70.5%	74.3%


Fort Frances MTS Utilization Based on Monthly Peak kVA (Assuming 0.9 Power Factor)
Monthly Peak Utilization
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Calendar Month
2012 Monthly Utilization
2011 Monthly Utilization
2010 Monthly Utilization
2009 Monthly Utilization
2008 Monthly Utilization
2007 Monthly Utilization
2006 Monthly Utilization

The following table summarizes the overall system capacity as established from power transformer ratings, as well as feeder ampacity limitations:

Fort Frances MTS & Feeder Capacity					
Transformer Rating (ONAF) In MVA	**FFMTS Feeder**	**Voltage (kV)**	**OH Primary Circuit Length (km)**	**UG Primary Circuit Length (km)**	**Total Primary Circuit Length (km)**
T1 - 20/25 MVA	West Feeder (A): 10 MW	7.2/12.47	19.49	4.42	23.91
	Mowat Feeder (D): 10 MW	7.2/12.47	5.42	0.45	5.87
	East Feeder (G): 10 MW	7.2/12.47	13.04	2.20	15.23
Transformer T1 Circuits Subtotal			**37.94**	**7.07**	**45.01**
T2 - 20/25 MVA	Third Street Feeder (B): 10 MW	7.2/12.47	9.50	0.52	10.03
	Victoria Feeder (E): 10 MW	7.2/12.47	7.78	1.00	8.78
	Crowe Feeder (F): 10 MW	7.2/12.47	10.57	2.02	12.59
Transformer T2 Circuit Subtotal			**27.86**	**3.55**	**31.40**
System Total			**65.80**	**10.61**	**76.41**
Note: Fort Frances MTS Load Capacity = 25 MVA under normal fully redundant operating mode					

5.3.2.2.d.iii. Transformer Station Asset Age Profile

According to Maximum Useful Life projections, the station is expected to have an end-of-life date of 2034, as many of the major components will be at their maximum useful life at that time. The following table illustrates the quantity of station components, their age, adjusted end-of-life projections based on FFPC's asset management process, as well as the replacement cost for components that demand replacements during the 2014 to 2018 rate horizon. Components requiring replacement over the rate horizon have been highlighted in red for ease of reference.

Transformer Station "Fort Frances MTS" Asset Age Profile & Adjusted End-of-Life Profile														
		Asset Details		FFPC Assets			Kinectrics Useful Life			Age Assessment		Adjusted End-of-Life	Replacement Cost
Parent*	**#**	**Category| Component | Type**		**Count**	**Year of Manufacture**	**Age (Years) Relative to 2014**	**MIN UL**	**TUL**	**MAX UL**	**TUL - Age**	**Max UL - Age**	**Adjusted End-of-Life Based on FFPC Asset Management Process**	**Replacement Cost**
TS & MS	12	Power Transformers (T1)	Overall	1	1974	40	30	45	60	***5***	***20***	***2034***	
			Bushing	6	1974	40	10	20	30	***-20***	***-10***	***2020***	
			Tap Changer	1	1974	40	20	30	60	***-10***	***20***	***2034***	
		Power Transformers (T2)	Overall	1	1978	36	30	45	60	***9***	***24***	***2034***	
			Bushing	6	1978	36	10	20	30	***-16***	***-6***	***2020***	
			Tap Changer	1	1978	36	20	30	60	***-6***	***24***	***2034***	
	13	Station Service Transformer		1	1974	40	30	45	55	***5***	***15***	***2019***	
	15	Station DC System (T1)	Overall	1	1990	24	10	20	30	***-4***	***6***	***2020***	
			Battery Bank	1	Various	2 to 15 Years	10	15	15	***Various***		***2014-2018***	$ 1,000
			Charger	1	1990	24	20	20	30	***-4***	***6***	***2018***	$ 22,000
		Station DC System (T2)	Overall	1	1992	22	10	20	30	***-2***	***8***	***2022***	
			Battery Bank	1	Various	2 to 15 Years	10	15	15	***Various***		***2014-2018***	$ 1,000
			Charger	1	1992	22	20	20	30	***-2***	***8***	***2022***	
	16	Station Metal Clad Switchgear (T1)	Overall	5	1965	49	30	40	60	***-9***	***11***	***2034***	
			Removable Breaker	5	1965	49	25	40	60	***-9***	***11***	***2034***	
		Station Metal Clad Switchgear (T2)	Overall	6	1973	36	30	40	60	***-1***	***19***	***2034***	
			Removable Breaker	6	1973	36	25	40	60	***-1***	***19***	***2034***	
	17	Station Independent Breakers		1	1947	67	35	45	65	***-22***	***-2***	***2018***	$ 150,000
	18	Station Switch		5	1973	41	30	50	60	***9***	***19***	***2034***	
	19	Electromechanical Relays		34	1978	36	25	35	50	***-1***	***14***	***2014-2018***	*See "Renewable Enabling Improvements"*
	20	Solid State Relays		N/A	1978	N/A	10	30	45	***N/A***	***N/A***	***N/A***	
	21	Digital & Numeric Relays		4	2012	2	15	20	20	***18***	***18***	***2034***	
		Digital & Numeric Relays		4	2013	1	15	20	20	***19***	***19***	***2034***	
	22	Rigid Busbars		3	1978	36	30	55	60	***19***	***24***	***2034***	
	23	Steel Structure		1	1978	36	35	50	90	***14***	***54***	***2034***	

5.3.2.2.d.iii.1 Power Transformers:

FFPC performs annual inspections and conducts annual oil testing (condition analysis) to determine the health of the transformers. Both power transformers are found to be in good condition relative to their age. Given current operating conditions and maintenance practices, both units are expected to achieve their maximum useful life of 60 years. The adjusted end-of-life dates have been set to 2034, at which time the station as a whole is expected to reach its end-of-life. FFPC does not plan on incurring any significant expenses in this category for years 2014 to 2018.

5.3.2.2.d.iii.2 Power Transformer Bushings:

The bushings of both station transformers have exceeded the maximum useful life established in the Kinectrics report. The bushings are also tested annually and are found to be in good health with no sign of physical deterioration. Although the bushings have exceeded their maximum useful life, FFPC does not plan on replacing them over the rate horizon, given the favourable condition test results, as well as based on expert advice stating that it is not necessary at this time. FFPC will continue to closely monitor the health of all bushings and look for signs of deterioration. FFPC does not plan on incurring any significant expenses in this category for years 2014 to 2018.

5.3.2.2.d.iii.3 Power Transformer Tap Changers:

The tap changers on both power transformers have had extensive maintenance work performed on them since their original install. Incoming supply voltage fluctuations were found to typically be short in duration, and often did not warrant an adjustment to be made. As such, FFPC recently detuned the tap changers which greatly reduced the number of operations required, thereby greatly extending service life. Overall, the tap changers are found to be in good condition relative to their age, and recent condition test results have not identified any health issues. The tap changers are also anticipated to reach their maximum useful life without failure, based on current operating conditions and maintenance practices. As such, the tap changers have also been assigned an adjusted end-of-life date of 2034 in alignment with the end-of-life of the station as a whole. FFPC does not plan on incurring any significant expenses in this category between the years 2014 to 2018.

5.3.2.2.d.iii.4 Station Service Transformer:

The station service transformer is also original to the construction of the transformer station. Condition test results have not found any signs of premature failure, and as such, the transformer is expected to achieve its typical-useful-life of 45 years. Due to its importance in regards to station functionality, FFPC plans to replace it in 2019 when it has reached the end of its typical useful service life. As such, the adjusted end-of-life has been set to 2019, and FFPC does not plan on incurring any significant expenses in this category for years 2014 to 2018.

5.3.2.2.d.iii.5 Station DC System:

The transformer station has two separate DC systems installed to supply power to key station protection components, as well as to emergency lights. Both systems were replaced within a two year window, and as such, neither system is original to the transformer station. The systems are inspected on a monthly basis to ensure their proper operation. FFPC also conducts annual condition tests on each battery cell to assess whether replacement in needed. The inspection and condition tests have found both systems to be in good overall working condition relative to their age. Both systems have surpassed their TUL. Due to the criticality of these systems, FFPC has assigned 2018 and 2022 respectively as adjusted end-of-life service life dates. As such, FFPC plans to replace the T1 DC system in 2018 with an estimated replacement cost of $22,000. FFPC also plans to continue with its annual replacement of deteriorated battery cells throughout the period 2014 to 2018, and has budgeted $2,000 per year accordingly.

5.3.2.2.d.iii.6 Station Metal Clad Switchgear:

The transformer station has two main metal clad switchgear lineups, each containing five breakers cells, as well as one additional bus-tie breaker that connects the two lineups if required. Transformer T1's switchgear was installed in 1972, however, the switchgear was purchased slightly used and as such, it was manufactured in 1965. Transformer T2's switchgear was purchased new and it was manufactured in 1973. Under FFPC's preventative maintenance program, all breakers are thoroughly inspected and condition tested on a three year cycle. Any maintenance issues identified are also addressed at that time. The latest condition assessments and inspections found all breakers and switchgear to be in good overall condition, relative to their age. The breakers have surpassed their TUL; however, given their current operating condition and environment, FFPC expects them to achieve their maximum useful service life of 60 years. Parts availability is a known issue and as such, an unexpected breaker failure could result in a breaker replacement, rather than a refurbishment. FFPC has assigned adjusted end-of-life dates of 2034, to align with the overall station end of service life. In the short term, for period 2014 to 2018, FFPC does not plan on incurring any significant expense in this category.

5.3.2.2.d.iii.7 Station Independent Breaker:

FFPC performs annual inspections and oil condition testing on its station independent breaker that protects the transformer station as a whole. The oil filled circuit breaker (OCB) has surpassed its maximum useful life of 65 years, as it was manufactured in 1947. Although the breaker has exceeded its MUL of 65 years, recent inspections and condition test results indicate that the unit is in good working condition relative to its age. Sourcing replacement parts for the unit is also a known issue. Siemens Canada has advised FFPC that the unit should be replaced by 2018, and as such FFPC has assigned an adjusted end-of-life date of 2018. FFPC plans to replace the unit in 2018 at an estimated cost of $150,000. This replacement of this unit is a significant cost driver for the 2014 to 2018 rate horizon. The following picture depicts the oil filled circuit breaker (three single phase units).

5.3.2.2.d.iii.8 Station Switches:

Fort Frances MTS contains five sets of three phase switches, which allow for the isolation of various components including Transformer T1, Transformer T2, as well as the Oil filled Circuit breakers that protect the station. FFPC has utilized planned loss of supply opportunities to inspect the units, as well as to perform condition tests. FFPC also used these opportunities to perform maintenance work including testing insulators and realigning switch linkages All five units are found to be in good working condition relative to their age, with no signs of excess deterioration. Given current operating conditions and continued maintenance practices, FFPC expects the units to surpass their maximum useful service life of 60 years. FFPC has assigned an adjusted end-of-life date of 2034, to align with the end of useful service life with that of the station as a whole. FFPC does not plan on incurring any significant expenses in this category for years 2014 to 2018.

5.3.2.2.d.iii.9 Electromechanical Relays:

During the construction of Fort Frances MTS, protection technology offered single function electromechanical relays. As such, the transformer station was equipment entirely with single function electromechanical relays. In 2012, FFPC began to convert the first lineup of single function electromechanical relays with modern processor based multifunction relays, in order to accommodate the connection of renewable generation. Refer to Section 5.4.3 for details regarding system limitations and planned Renewable Enabling Improvements to accommodate the connection of renewable generation. The electromechanical relays that have not yet been converted have a UL of 35 years. Under FFPC's preventative maintenance program all relays are inspected, calibrated and condition tested on a three year rotation. The most recent condition tests found all relays to be in good working condition relative to their age. The relays are expected to achieve their maximum useful life of 50 years under current operating conditions and maintenance practices. As such, the adjusted end-of-life values of 2023 were assigned; however, they will be revised upon approval of FFPC's planned Renewable

Enabling Improvements, which would deem the devices obsolete. As discussed under the Renewable Enabling Improvements section, modern day relays will allow for: reliability monitoring (statistics) of individual feeders, reverse power flow, automatic logging and time-stamping of events or data, remote annunciation of incidents or failures, broadcasting of operating data and conditions to FFPC and other regional stakeholders.

5.3.2.2.d.iii.10 Digital & Numeric Relays:

In 2012, FFPC installed the first digital multifunction protection relays (same a "Digital & Numeric Relays") in place of single function electromechanical relays for all breakers fed from Transformer T1. In 2013, FFPC replaced the electromechanical relays on all breakers that are fed from Transformer T2. As previously discussed, the driver for these replacements was to accommodate renewable generation rather than the equipment having reached the end of its useful service life. FFPC will continue with its preventative maintenance practices of inspecting and performing condition analysis of these relays on a three year rotation. FFPC has adopted the Kinectrics TUL for Digital & Numeric relays of 20 years. FFPC has set the adjusted useful life values accordingly, which are 2032 and 2033 respectively. FFPC will assess whether or not the relays are on track for a 20 year useful life in future iterations of condition testing. FFPC plans on continuing with the upgrades from electromechanical relays to digital multifunction protection relays (Digital & Numeric) under the REG initiative. The following picture illustrates the replacement of 1970s analog gauges and single function electromechanical relays with a single multifunction relay. FFPC is planning to continue to deploying "Schweitzer Engineering Laboratories (SEL) 751" relays.

Figure 2: West Feeder Original Single Function Electromechanical Relays

Figure 3: West Feeder Replacement Multifunction Protection Relay

5.3.2.2.d.iii.11 Rigid Busbars:

Fort France MTS contains three sections of rigid bus bars. The busbars are inspected annually as part of FFPC's preventative maintenance program. According to inspection and condition tests, the busbars are found to be in good condition relative to their age. FFPC expects that the units will all achieve their maximum useful life of sixty (60) years. As such, their adjusted end-of-life dates have been set to align with the overall end-of-useful life of the transformer station in 2034. FFPC does not expect to incur any significant expenses in this category over the period 2014 to 2018.

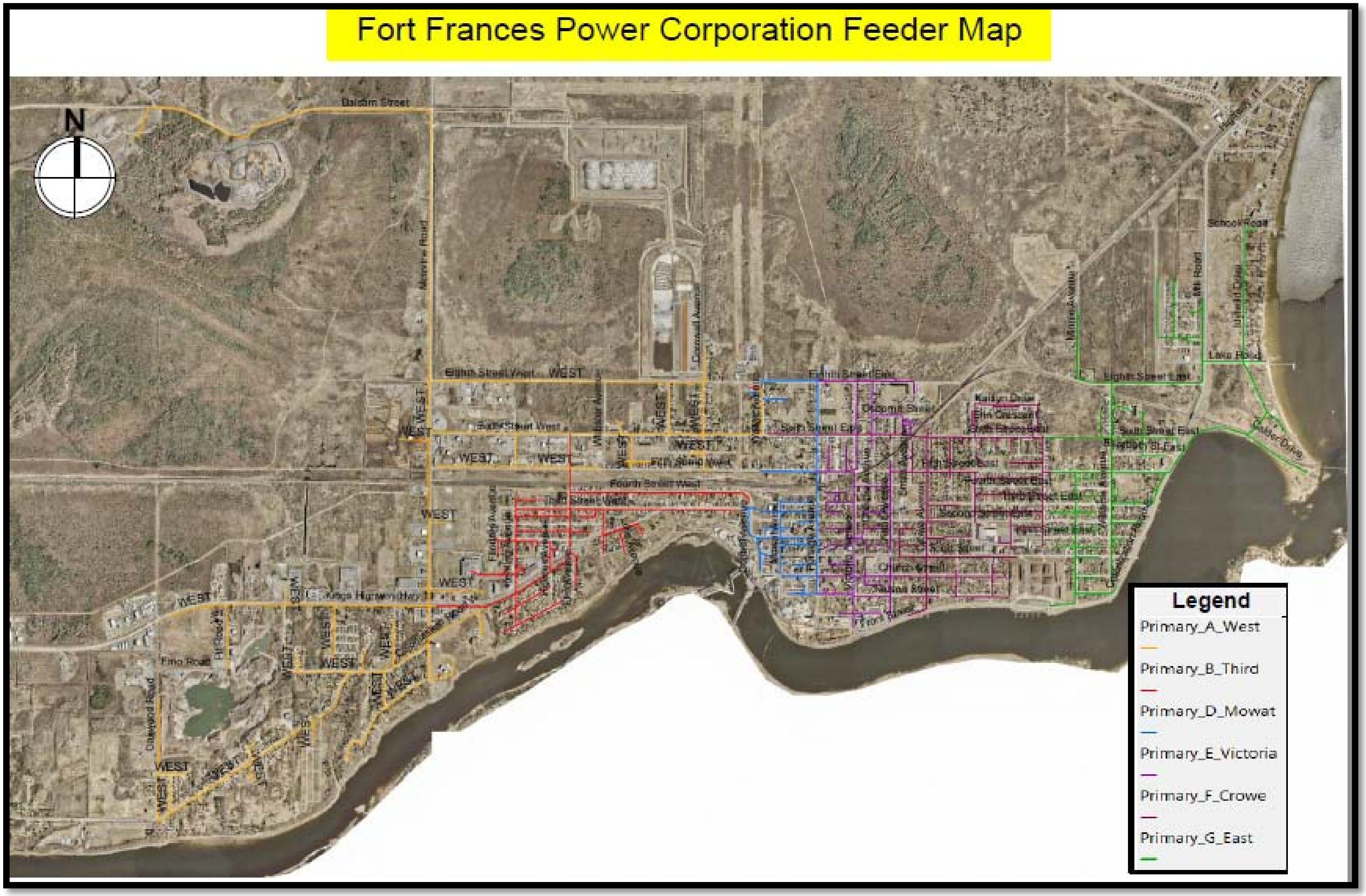
5.3.2.2.d.iii.12 Steel Structures:

Fort Frances MTS has one sky structure in the Steel Structure category. The structure was erected around 1978 and it is found to be in good condition relative to its age. Inspection and condition testing results have not identified any excessive deterioration. Under current operating conditions and maintenance practices, FFPC expects that the structure will surpass its TUL of fifty (50) years, as per the "Kinectrics Report". FFPC has set its adjusted end-of-life to 2034, to align with the end of useful life for the station as a whole. FFPC does not expect to incur any significant expenses in this category over the period 2014 to 2018. The following picture shows the steel structure being erected.

5.3.2.2.e. Overhead Distribution System Assets

FFPC operates a single voltage 7.2/12.47 kV electrical distribution system that spans throughout the community of the Town of Fort Frances. As previously mention, FFPC performed a complete system rebuild and voltage conversion from the mid-1970s to the mid-1980s.

FFPC utilizes six feeders that propagate from FFMTS throughout the Town of Fort Frances. The feeders do not extend beyond FFPC's licensed distribution service territory. The following map illustrates how FFPC's distribution feeders propagate throughout Fort Frances.

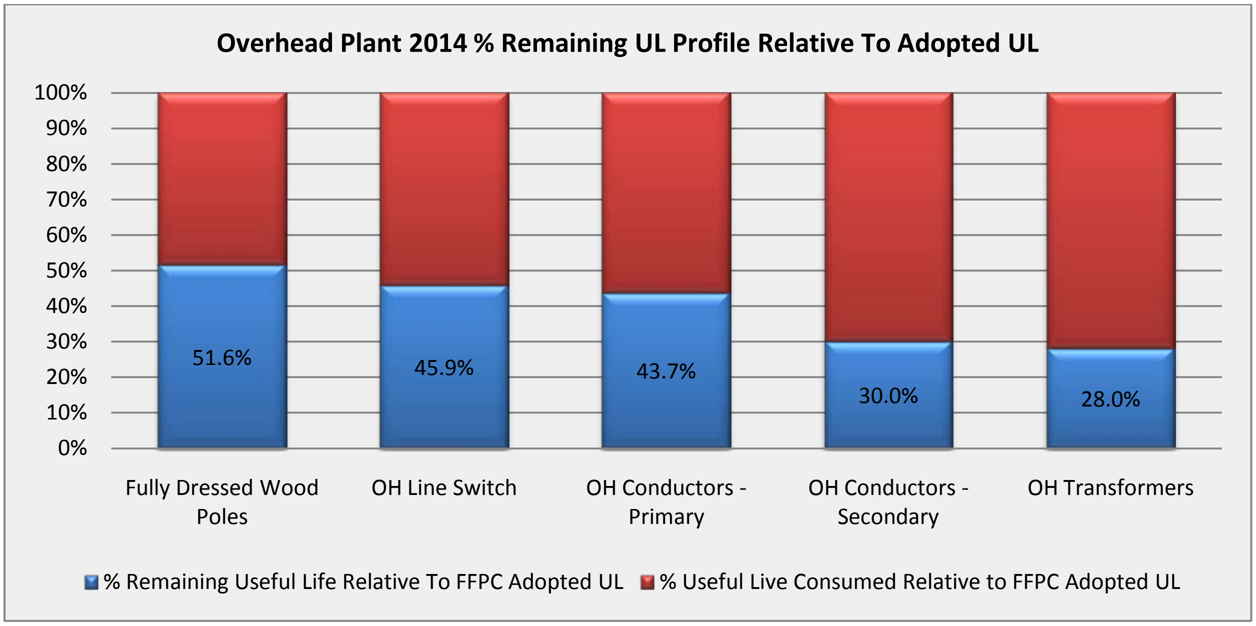

Fort Frances Power Corporation Feeder Map
N
Legend
Primary_A_West
Primary_B_Third
Primary_D_Mowat
Primary_E_Victoria
Primary_F_Crowe
Primary_G_East

5.3.2.2.e.i. Overhead Plant Lifecycle Profile, Reinvestment Needs Boundaries & Reinvestment Summary

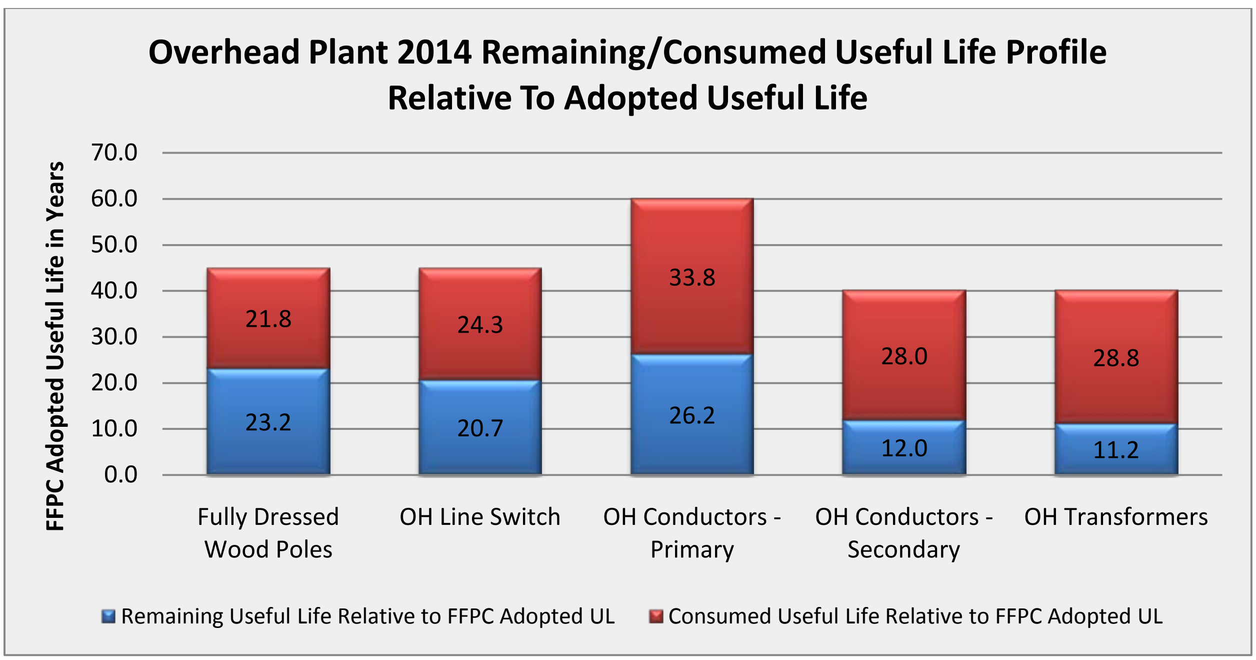
As per the Chapter 5 Filing Requirements guide, FFPC has relied on its newly developed Asset Management Process to collect, tabulate and assess information on physical assets, current and future system operating conditions, and FFPC's business and customer service goals and objectives to plan, prioritize and optimize expenditures on system-related modifications, renewal and operations and maintenance, and on general plant facilities, systems and apparatus.

FFPC's asset management process has established a total asset replacement value of $24,379,821 for all existing assets managed, based on FFPC's replacement cost structure. Of this asset base, the replacement value of Overhead Plant assets is estimated to be $10,566,447 which is approximately 43.3% of the total replacement value. Based on FFPC's adopted useful life values, the average annual reinvestment needed to keep pace with Overhead Plant asset deterioration is $241,566. The overall % remaining useful life (relative to FFPC's adopted UL and replacement cost) is 42.7%. FFPC's long term objective is to maintain a 50% "Remaining UL" profile where possible, to smooth long term spending requirements. As such, FFPC has an optimal capital reinvestment budget allocation of $241,566 to sustain the lifecycle of Overhead Plant assets. FFPC has allocated a total of $1,253,756 towards sustaining the lifecycle of Overhead Plant, which equates to an average annual reinvestment of $250,751. This closely aligned with the ideal average annual reinvestment need and accomplishes FFPC's objective to keep pace with the rate of deterioration.

The following graph illustrates the % UL Remaining profile of all Overhead Plant asset categories.



The following graph illustrates the remaining and consumed years of all Overhead Plant asset categories:



The following tables summarize planned capital expenditures over the 2014 to 2018 planning horizon, based on assets that were identified to be at the end of their useful service life, as per outputs of Step 4 of the asset management process. Capital expenditures driven by other investment drivers such as the elimination of LTLT's, Customer Preference or Renewable Enabling Improvements are not included in this summary. The table also illustrates the Useful Life and Reinvestment Need analysis for each asset category. Various reinvestment needs boundaries are illustrated representing various adoptions of useful service life philosophies, such as the “Kinectrics Report’s” MIN UL, TUL, MAX UL as well as FFPC’S adopted UL.

FFPC Asset Summary, Useful Life Assessment, Investment Boundaries and Capital Budget Allocations

		Asset Details			FFPC Assets			Kinectrics Useful Life			Useful Life Assessment					Reinvestment Needs Assessment					Capital Budget Allocation		
Parent*	**#**	**Category| Component | Type**			**Count**	**Units**	**Average Age of Population (Years)**	**MIN UL**	**TUL**	**MAX UL**	**FFPC Adopted Useful Life (UL)**	**Remaining Useful Life Relative to Kinectrics TUL**	**% Remaining Useful Life Relative Kinectrics TUL**	**Remaining Useful Life Relative to FFPC Adopted UL**	**% Remaining Useful Life Relative To FFPC Adopted UL**	**Total Replacement Cost of Asset Group**	**Average Annual Reinvestment Need Based on Kinectrics Min UL**	**Average Annual Reinvestment Need Based on Kinectrics TUL**	**Average Annual Reinvestment Need Based on Kinectrics Max UL**	**Average Annual Reinvestment Need Based on FFPC Adopted UL**	**Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation**	**Average Annual Capital Allocation (2014 to 2018)**	**% of Total DS Plan Capital Expenditures**
OH	1	Fully Dressed Wood Poles	Overall		1776	Each	21.79	35	45	75	45.0	23.2	51.6%	23.2	51.6%	$ 5,850,761	$ 167,165	$ 130,017	$ 78,010	**$ 130,017**	$ 679,638	$ 135,928	19.3%
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	2	Fully Dressed Concrete Poles	Overall		N/A			50	60	80													
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	3	Fully Dressed Steel Poles	Overall		N/A			60	60	80													
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	4	OH Line Switch (Expressed as sets of 3 Phase Switches)			35	Each	24.34	30	45	55	45.0	20.7	45.9%	20.7	45.9%	$ 254,409	$ 8,480	$ 5,654	$ 4,626	**$ 5,654**	$ 32,500	$ 6,500	0.9%
	5	OH Line Switch Motor			N/A			15	25	25													
	6	OH Line Switch RTU			N/A			15	20	20													
	7	OH Integral Switches			N/A			35	45	60													
	8	OH Conductors	Primary Conductor		224.2	km	33.77	50	60	75	60.0	26.2	43.7%	26.2	43.7%	$ 676,409	$ 13,528	$ 11,273	$ 9,019	**$ 11,273**	$ -	$ -	0.0%
			Secondary Conductor		114.8	km	28.00	25	35	40	40.0	7.0	20.0%	12.0	30.0%	$ 1,033,603	$ 41,344	$ 29,532	$ 25,840	**$ 25,840**	$ 50,000	$ 10,000	1.4%
	9	OH Transformers			629	Each	28.79	30	40	60	40.0	11.2	28.0%	11.2	28.0%	$ 2,751,265	$ 91,709	$ 68,782	$ 45,854	**$ 68,782**	$ 491,617	$ 98,323	14.0%
	10	OH Shunt Capacitor Banks			N/A			25	30	40													
	11	Reclosers			N/A			25	40	55													
Totals																$ 10,566,447	$ 322,226	$ 245,257	$ 163,349	**$ 241,566**	$ 1,253,756	$ 250,751	35.6%

The following table summarizes FFPC's budgeted capital reinvestments, for each Overhead Plant asset category over the 2014 to 2018 planning period. The planned reinvestments are all driven by the outputs of Step 4 of the asset management process, and as such they are allocated towards sustaining the lifecycle of existing assets.

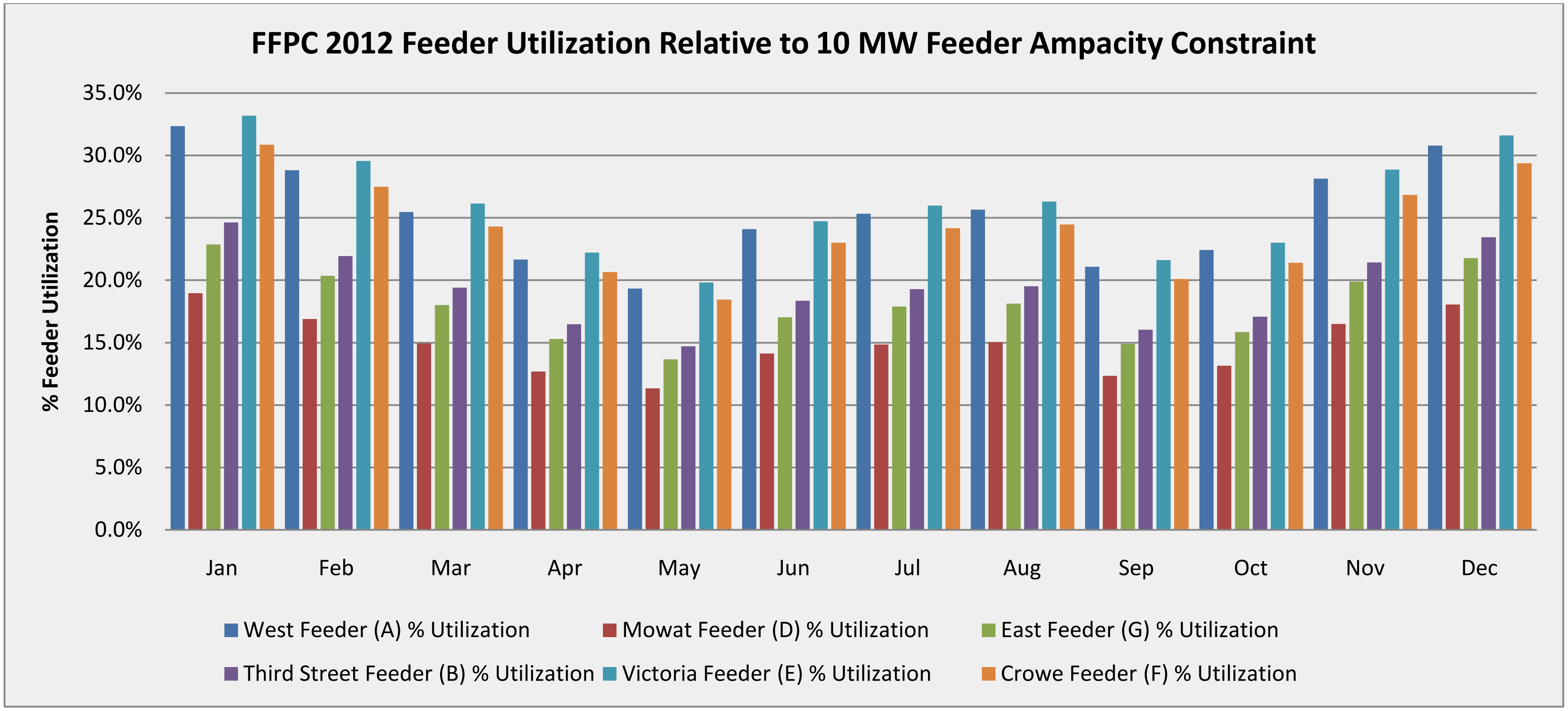
Asset Details					Capital Budget Allocation		
Parent*	#	Category| Component | Type			Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation	Average Annual Capital Allocation (2014 to 2018)	% of Total DS Plan Capital Expenditures
OH	1	Fully Dressed Wood Poles	Overall		$ 679,638	$ 135,928	19.3%
			Cross Arm	Wood			
				Steel			
	2	Fully Dressed Concrete Poles	Overall				
			Cross Arm	Wood			
				Steel			
	3	Fully Dressed Steel Poles	Overall				
			Cross Arm	Wood			
				Steel			
	4	OH Line Switch			$ 32,500	$ 6,500	0.9%
	5	OH Line Switch Motor					
	6	OH Line Switch RTU					
	7	OH Integral Switches					
	8	OH Conductors	Primary Conductor		$ -	$ -	0.0%
			Secondary Conductor		$ 50,000	$ 10,000	1.4%
	9	OH Transformers			$ 491,617	$ 98,323	14.0%
	10	OH Shunt Capacitor Banks					
	11	Reclosers					
Totals					$ 1,253,756	$ 250,751	35.6%

5.3.2.2.e.ii. Overhead Distribution System Capacity & Utilization

At the time of preparing this submission, FFPC had to rely on spot testing for determining how FFPC's load from its transformer station is distributed among its six feeders, as synchronized individual feeder metering data is not yet available. The total station load was determined using 2012 monthly wholesale metering data. FFPC's overhead distribution system has an overall ampacity constraint of 10 MW on each feeder, based on conductor size limitations. This constraint is much higher than other underlying constraints, and as such FFPC does not expect to encounter feeder capacity constraints, given the current load profile of its customer base. FFPC also does not anticipate significant customer growth, but rather is expecting a slight decrease in the number of customers served. As such, overhead distribution system capacity constraints are not identified as investment drivers for the period 2014 to 2018.

The following table and graph illustrates FFPC's estimated maximum monthly feeder loading and corresponding feeder utilization based on the 10 MW constraints. The feeder load distribution is based on the results of spot testing performed in the fall of 2012. The following graph illustrates 2012 feeder utilization by calendar month.

FFPC 2012 Monthly Feeder Utilization Based on % of 10 MW Ampacity Constraint												
FFMTS Feeder	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
West Feeder (A) Max kW Load	3235	2882	2548	2165	1933	2411	2532	2565	2107	2244	2814	3080
West Feeder (A) % Utilization	32.4%	28.8%	25.5%	21.7%	19.3%	24.1%	25.3%	25.7%	21.1%	22.4%	28.1%	30.8%
Mowat Feeder (D) Max kW Load	1897	1689	1493	1269	1133	1413	1484	1504	1235	1315	1650	1805
Mowat Feeder (D) % Utilization	19.0%	16.9%	14.9%	12.7%	11.3%	14.1%	14.8%	15.0%	12.4%	13.2%	16.5%	18.1%
East Feeder (G) Max kW Load	2287	2037	1801	1530	1367	1704	1790	1813	1489	1586	1989	2177
East Feeder (G) % Utilization	22.9%	20.4%	18.0%	15.3%	13.7%	17.0%	17.9%	18.1%	14.9%	15.9%	19.9%	21.8%
Third Street Feeder (B) Max kW Load	2464	2194	1940	1649	1472	1836	1928	1953	1604	1709	2143	2345
Third Street Feeder (B) % Utilization	24.6%	21.9%	19.4%	16.5%	14.7%	18.4%	19.3%	19.5%	16.0%	17.1%	21.4%	23.5%
Victoria Feeder (E) Max kW Load	3319	2956	2614	2221	1983	2473	2598	2632	2161	2302	2887	3160
Victoria Feeder (E) % Utilization	33.2%	29.6%	26.1%	22.2%	19.8%	24.7%	26.0%	26.3%	21.6%	23.0%	28.9%	31.6%
Crowe Feeder (F) Max kW Load	3087	2749	2430	2066	1844	2300	2416	2447	2010	2141	2685	2938
Crowe Feeder (F) % Utilization	30.9%	27.5%	24.3%	20.7%	18.4%	23.0%	24.2%	24.5%	20.1%	21.4%	26.8%	29.4%


FFPC 2012 Feeder Utilization Relative to 10 MW Feeder Ampacity Constraint
% Feeder Utilization
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
West Feeder (A) % Utilization
Mowat Feeder (D) % Utilization
East Feeder (G) % Utilization
Third Street Feeder (B) % Utilization
Victoria Feeder (E) % Utilization
Crowe Feeder (F) % Utilization

5.3.2.2.e.iii. Overhead Distribution System Asset Classifications

FFPC has grouped its overhead distribution assets according to the classifications contained in the “Kinectrics Report”. FFPC does not have any assets in the following categories, and as such they have been omitted: Fully Dressed Concrete Poles; Fully Dressed Steel Poles; Line Switch Motors; Line Switch RTU; Overhead Shunt Capacitor Banks; and Reclosers.

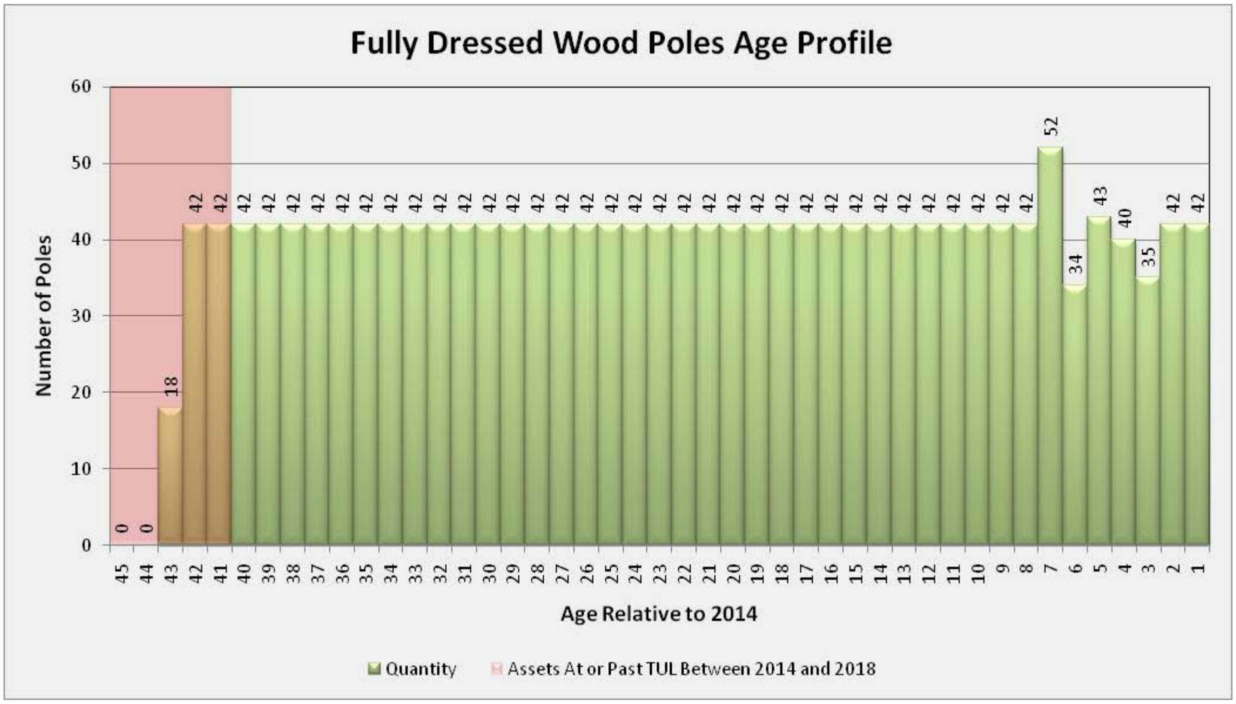
5.3.2.2.e.iii.1 Fully Dressed Wood Poles

All of FFPC’s overhead pole lines are constructed using treated wood poles. FFPC has adopted a UL of 45 years for wood poles, as per the “Kinetrics Report.” It is important to note that FFPC has experienced premature pole failures over the course of history due to manufacturing flaws in the wood treatment process. FFPC currently owns 1776 wood poles and would have to replace on average 39.4 poles every year to keep pace with the lifecycle of wood poles. FFPC’s maintenance inspection and condition testing program is currently identifying slightly more than 40 poles per year, which are deemed to be at the end of their useful service life due to excessive deterioration. Given the history of poor wood treatment and recent condition testing results, FFPC is planning to pace wood pole replacements at 42 planed replacements per year.

5.3.2.2.e.iii.1.a Fully Dressed Wood Poles Age Profile Relative to TUL

The following table and graph illustrate the age profile of FFPC’s wood poles with respect to a TUL of 45 years as per the “Kinectrics Report”. Note that FFPC does not have any poles in service which are older than 1970, due to entire system voltage conversion and rebuild that began then.

Fully Dressed Wood Poles Age Profile (Relative to 2014 - Based on July 2013 Data)				
In Service Year	Age	End-of-Life (Based on 45 Year TUL)	Quantity	Poles Age Could be Confirmed
1969	**45**	**2014**	**0**	
1970	**44**	**2015**	**0**	
1971	**43**	**2016**	**18**	
1972	**42**	**2017**	**42**	
1973	**41**	**2018**	**42**	
1974	40	2019	42	
1975	39	2020	42	3
1976	38	2021	42	
1977	37	2022	42	
1978	36	2023	42	1
1979	35	2024	42	1
1980	34	2025	42	6
1981	33	2026	42	
1982	32	2027	42	
1983	31	2028	42	2
1984	30	2029	42	1
1985	29	2030	42	
1986	28	2031	42	
1987	27	2032	42	32
1988	26	2033	42	12
1989	25	2034	42	34
1990	24	2035	42	14
1991	23	2036	42	36
1992	22	2037	42	13
1993	21	2038	42	26
1994	20	2039	42	21
1995	19	2040	42	6
1996	18	2041	42	21
1997	17	2042	42	7
1998	16	2043	42	40
1999	15	2044	42	19
2000	14	2045	42	4
2001	13	2046	42	52
2002	12	2047	42	62
2003	11	2048	42	1
2004	10	2049	42	
2005	9	2050	42	5
2006	8	2051	42	11
2007	7	2052	52	52
2008	6	2053	34	34
2009	5	2054	43	43
2010	4	2055	40	40
2011	3	2056	35	35
2012	2	2057	42	42
2013	1	2058	42	42
Total			**1776**	**715**
Note: Years 8 through 45 are estimated due to illegible manufacturer date stamps				

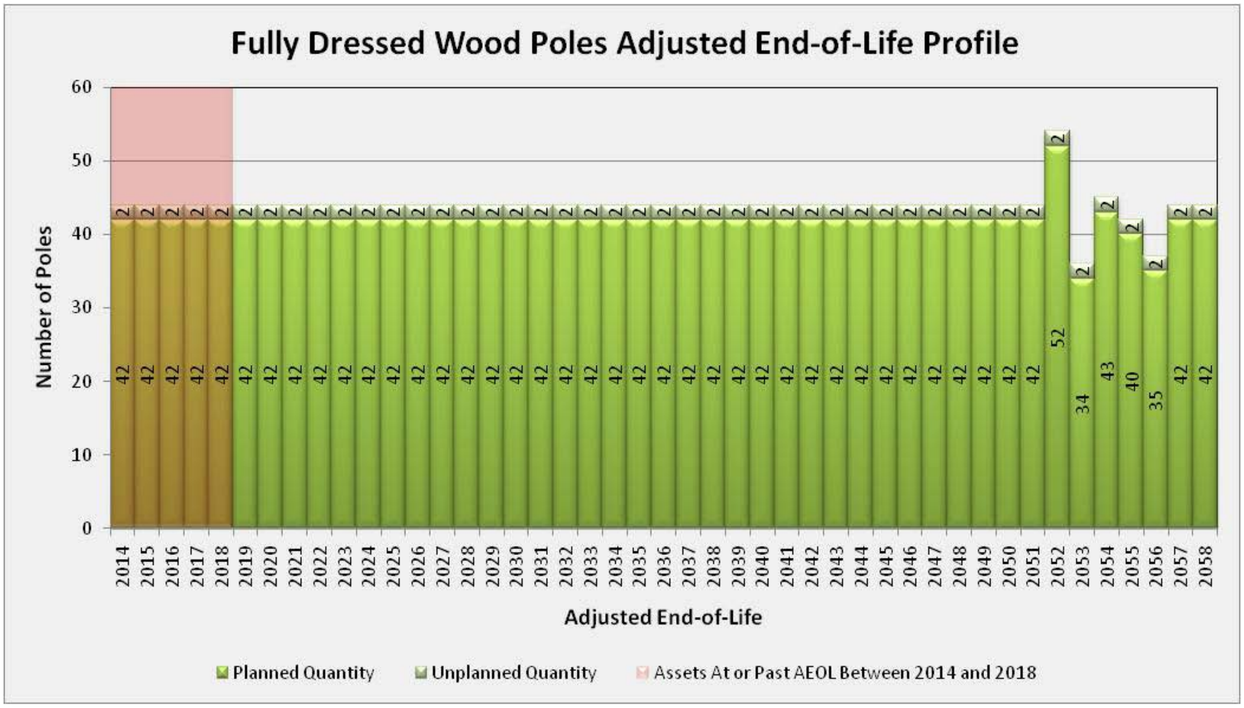


5.3.2.2.e.iii.1.b Fully Dressed Wood Poles Adjusted End-of-Life Projections

FFPC performs detailed inspections, as well as a pole condition testing on every pole, on a three year cycle. The results of the inspections and condition tests are used to project the date when the pole is expected to be at the end of its useful service life due to deterioration. FFPC terms this projection as the "Adjusted End-of-Life" (AEOL) date, as per FFPC's asset management process. Favourable inspection and condition testing results extend an asset's AEOL date beyond its TUL and alternately, unfavourable inspection and condition testing results will shorten an asset's AEOL date, with respect to its original TUL date assigned. It is important to note that adjusted AEOL projections are more meaningful as assets approach their TUL, as opposed during their early years of service. The timeframe when assets approach their TUL is the critical time at which investment and planning decisions must be made. FFPC's long term planning strategy is to establish and maintain evenly distributed asset populations. Due to wood poles failures posing a hazard to employees, the general public as well as undermining the structural integrity of the overhead distribution system, FFPC's strategy is to replace them just prior to their deemed failure. Just in time proactive replacements allows for the replacement to be conducted in a coordinated and planned manner, as opposed to under emergency repair circumstances, which often add unnecessary risk and expense.

The following table and graph represent FFPC's anticipated pole replacement schedule, over one complete typical lifecycle of 45 years. FFPC started replacing poles using the AEOL methodology in 2010. It is also important to note that wood poles frequently (on average two per year) fail prematurely, due to sudden devastating damage incurred by external influence such as wood peckers, snow ploughs or pole fires. As such, FFPC anticipates having to replace a slightly larger number of poles than are currently in the population. FFPC estimates that it will require approximately 1974 poles to sustain the existing population of 1776 over one complete 45 year lifecycle. FFPC expects that on average two poles per year will require replacement due to sudden unforeseen crippling damage. Wood pole replacements have been identified as having a significant impact on the DS Plan.

Fully Dressed Wood Poles Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)					
Lifecycle Year	Adjusted End-of-Life Year	Planned Quantity	Unplanned Quantity	Replacement Cost	Ideal Evenly Distributed Annual Replacement Rate
1	**2014**	**42**	**2**	**$ 129,928**	**39.5**
2	**2015**	**42**	**2**	**$ 129,928**	**39.5**
3	**2016**	**42**	**2**	**$ 129,928**	**39.5**
4	**2017**	**42**	**2**	**$ 129,928**	**39.5**
5	**2018**	**42**	**2**	**$ 129,928**	**39.5**
6	2019	42	2	$ 129,928	39.5
7	2020	42	2	$ 129,928	39.5
8	2021	42	2	$ 129,928	39.5
9	2022	42	2	$ 129,928	39.5
10	2023	42	2	$ 129,928	39.5
11	2024	42	2	$ 129,928	39.5
12	2025	42	2	$ 129,928	39.5
13	2026	42	2	$ 129,928	39.5
14	2027	42	2	$ 129,928	39.5
15	2028	42	2	$ 129,928	39.5
16	2029	42	2	$ 129,928	39.5
17	2030	42	2	$ 129,928	39.5
18	2031	42	2	$ 129,928	39.5
19	2032	42	2	$ 129,928	39.5
20	2033	42	2	$ 129,928	39.5
21	2034	42	2	$ 129,928	39.5
22	2035	42	2	$ 129,928	39.5
23	2036	42	2	$ 129,928	39.5
24	2037	42	2	$ 129,928	39.5
25	2038	42	2	$ 129,928	39.5
26	2039	42	2	$ 129,928	39.5
27	2040	42	2	$ 129,928	39.5
28	2041	42	2	$ 129,928	39.5
29	2042	42	2	$ 129,928	39.5
30	2043	42	2	$ 129,928	39.5
31	2044	42	2	$ 129,928	39.5
32	2045	42	2	$ 129,928	39.5
33	2046	42	2	$ 129,928	39.5
34	2047	42	2	$ 129,928	39.5
35	2048	42	2	$ 129,928	39.5
36	2049	42	2	$ 129,928	39.5
37	2050	42	2	$ 129,928	39.5
38	2051	42	2	$ 129,928	39.5
39	2052	52	2	$ 156,717	39.5
40	2053	34	2	$ 112,515	39.5
41	2054	43	2	$ 142,652	39.5
42	2055	40	2	$ 127,249	39.5
43	2056	35	2	$ 115,863	39.5
44	2057	42	2	$ 128,588	39.5
45	2058	42	2	$ 129,928	39.5
Totals		**1884**	**90**		**1776**



5.3.2.2.e.iii.1.c Lifecycle Analysis Summary & Budget Allocation

Fully Dressed Wood Poles			
1776	Quantity	41.4	10 Year Historic Replacement/Installation Rate (Units/Year)
45	UL	220	Quantity Reaching Adjusted End of Life Over Forecast Period
21.8	Average Age of Population	$649,638	Total Capital Replacement Cost over Forecast Period
39.47	Ideal Equalized Annual Replacement Rate (Units/Yr)	$30,000	Total Capital Refurbishment Cost over Forecast Period
48.4%	% UL Consumed	44.00	Average Replacements Per Year
59.5%	2019 % UL Consumed with no Reinvestment	$135,928	Average Annual Cost Per Year
		$130,017	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$649,638	2014 - 2018 Total Allocated Capital Replacement Amount
		$30,000	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 1776 wood poles is fairly evenly distributed over one lifecycle period beginning in 2014. The population is therefore not skewed, and as such, approximately the same number of assets will require replacement over the first and second half of the lifecycle. FFPC adopted a UL of 45 years, and based on the average age of 21.8 years for the population, 48.4% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 59.5% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced an average of 41.4 poles per year, which is aligned with the ideal average annual replacement rate of 39.5 poles per year, which does not take into account failures due to external interference or manufacturing flaws. Over the 2014 to 2018 forecast period, an estimated 220 poles will reach their AEOL, requiring replacement. The total estimated capital replacement cost is $649,638 and $30,000 for capital refurbishment is required (failing insulators identified from inspection process). The average annual replacement rate is 44 poles per year, and the average annual total reinvestment is $135,928 per year. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $130,017 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has allocated a total of $649,638 towards capital replacements and $30,000 for capital refurbishments over the 2014 to 2018 planning period. This is closely aligned with the ideal average annual reinvestment need and accomplishes FFPC's objective to keep pace with the rate of asset deterioration.

5.3.2.2.e.iii.1.d Impact of Fully Dressed Wood Poles on DS Plan

The planned replacement of wood poles, based on the output of FFPC's asset management process, will have a significant impact on the DS Plan. FFPC plans to replace 220 poles during the 2014 to 2018 planning period, at a total estimated replacement cost of $649,638, which represents 18.4% of all planned capital expenditures.

5.3.2.2.e.iii.2 Overhead Line Switches

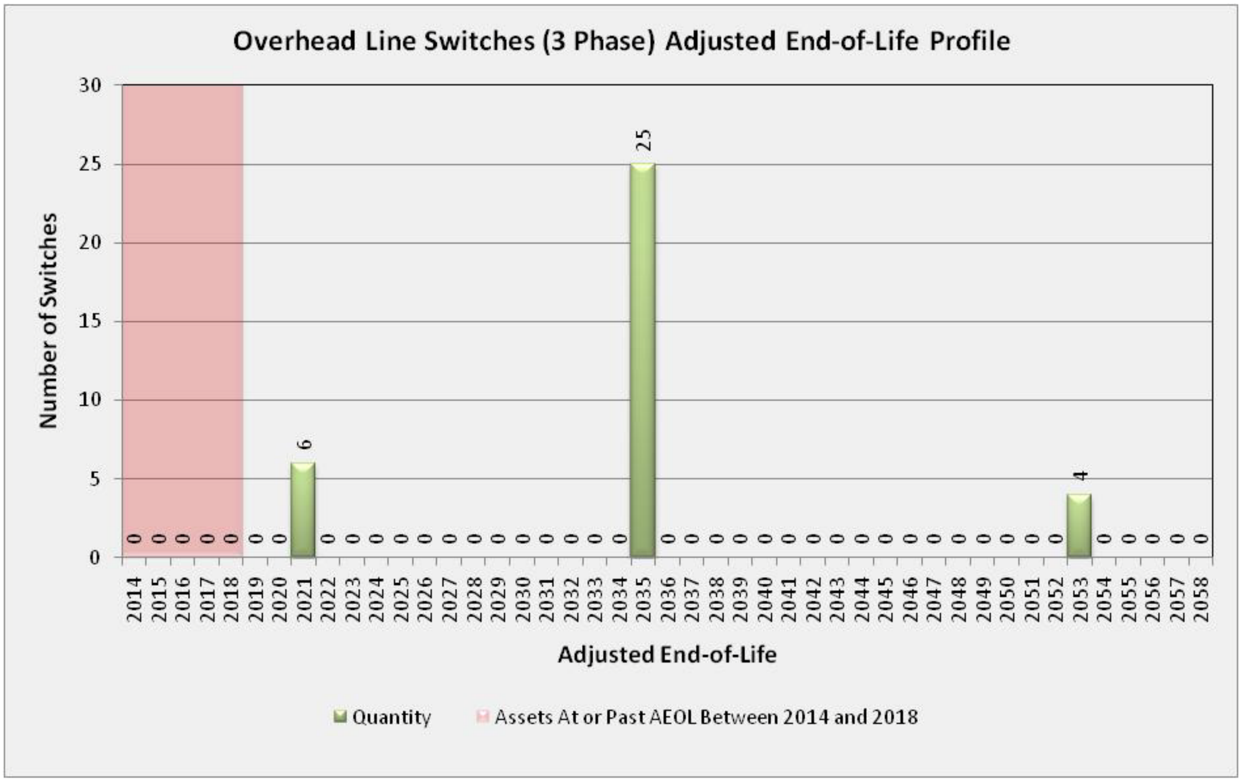
FFPC currently utilizes three types of overhead line switches that are grouped into this category. FFPC has manual gang operated sectionalizing switches, inline paralleling switches, as well as inline fused switches, all of which are three phase switch settings. FFPC uses the manual gang operated switches to sectionalize its feeders in the event of feeder damage, or if back-feeding of a feeder section is necessary. FFPC utilizes its paralleling switches to be able to energize feeder sections from adjacent feeders, under abnormal operating conditions. The sectionalizing switches combined with the paralleling switches, ultimately give FFPC the flexibility to isolate radial feeder sections, and to back-feed sections thereby minimizing customer impact of power outages. Radial feeders by nature only have one source and if a section of feeder was to be isolated, any section downstream would also be without a supply of power. Thus, paralleling allows for islanded feeder sections to be energized from adjacent feeders. The third type of overhead line switches are inline fused switches. The inline fused switches are designed to operate in conjunction with the feeder reclosers that are located at the transformer station. The fused switches allow for isolation of line sections in the event of a line fault. A tree falling onto a power line would be an example of this type of fault. The fused switch would be activated to isolate the fault condition, and the transformer station recloser (for the feeder) would restore power to the section of distribution line upstream of the fused switch. This again minimizes the number of customer interruptions in the event of a line fault.

5.3.2.2.e.iii.2.a Overhead Line Switches Age Profile Relative to TUL

FFPC has adopted a TUL value of 45 years as per the "Kinectrics Report" for all of its overhead line switches. The following table and graph illustrate the age profile of FFPC's overhead line switches, with respect to the TUL of 45 Years, over one typical lifecycle.

Overhead Line Switches Age Profile (Relative to 2014 - Based on July 2013 Data)

In Service Year	Age	End-of-Life (Based on 45 Year TUL)	Quantity
1969	**45**	**2014**	**0**
1970	**44**	**2015**	**0**
1971	**43**	**2016**	**0**
1972	**42**	**2017**	**0**
1973	**41**	**2018**	**0**
1974	40	2019	0
1975	39	2020	0
1976	38	2021	6
1977	37	2022	0
1978	36	2023	0
1979	35	2024	0
1980	34	2025	0
1981	33	2026	0
1982	32	2027	0
1983	31	2028	0
1984	30	2029	0
1985	29	2030	0
1986	28	2031	0
1987	27	2032	0
1988	26	2033	0
1989	25	2034	0
1990	24	2035	25
1991	23	2036	0
1992	22	2037	0
1993	21	2038	0
1994	20	2039	0
1995	19	2040	0
1996	18	2041	0
1997	17	2042	0
1998	16	2043	0
1999	15	2044	0
2000	14	2045	0
2001	13	2046	0
2002	12	2047	0
2003	11	2048	0
2004	10	2049	0
2005	9	2050	0
2006	8	2051	0
2007	7	2052	0
2008	6	2053	4
2009	5	2054	0
2010	4	2055	0
2011	3	2056	0
2012	2	2057	0
2013	1	2058	0
Total			**35**

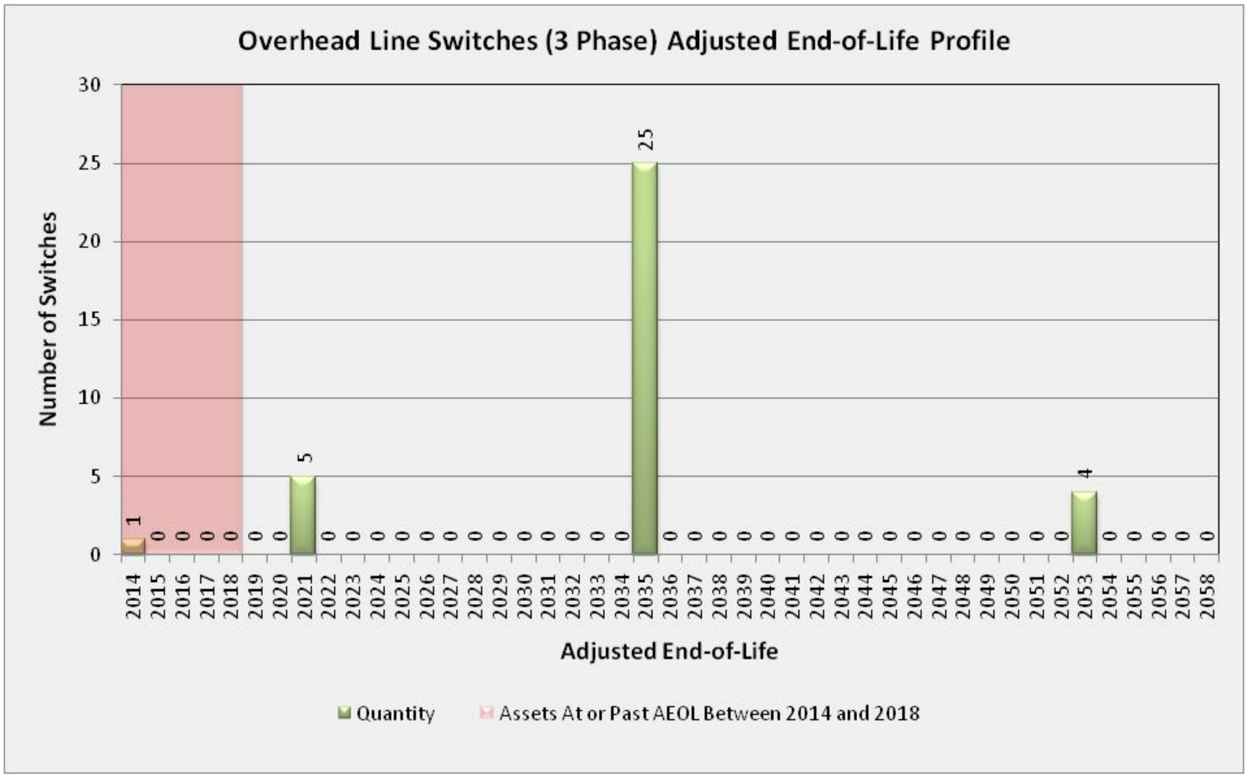


5.3.2.2.e.iii.2.b Overhead Line Switches Adjusted End-of-Life Projections

Overhead line switches are also part of FFPC's three-year inspection and condition testing cycle. Recent inspection and condition test results found that overall the switches are in fair working condition relative to their age; however, one switch was found to be in a poor location. Due to the recent construction of a new elementary school, the air break switch is now located in close proximity to the main entrance of the school yard. FFPC plans to replace the switch and at the same time to relocate it to a more suitable location. The inspections also found the insulators on the gang operated sectionalizing switches to be in poor condition, posing a high risk of failure due to potential tracking occurring. As such, FFPC replaced half of the insulators as part of its 2013 asset sustainment program, and is planning to replace the second half of insulators under the 2014 asset sustainment program. Given the current operating conditions and maintenance practices, FFPC expects that all but one switch will achieve or surpass their UL of 45 years. Over the 2014 to 2018 planning period, FFPC plans to relocate and replace one air break switch at an estimated cost of $28,000, as well as to replace $4,500 worth of insulators in 2014. The following table and graph illustrate the adjusted end-of-life profile for FFPC's overhead line switches based on the most recent inspection and condition testing results.

Overhead Line Switches Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)

Lifecycle Year	Adjusted End-of-Life Year	Quantity	Replacement Cost	Ideal Evenly Distributed Annual Replacement Rate
1	**2014**	**1**	**$ 28,000**	**0.8**
2	**2015**	**0**	**$ -**	**0.8**
3	**2016**	**0**	**$ -**	**0.8**
4	**2017**	**0**	**$ -**	**0.8**
5	**2018**	**0**	**$ -**	**0.8**
6	2019	0	$ -	0.8
7	2020	0	$ -	0.8
8	2021	5	$ 140,000	0.8
9	2022	0	$ -	0.8
10	2023	0	$ -	0.8
11	2024	0	$ -	0.8
12	2025	0	$ -	0.8
13	2026	0	$ -	0.8
14	2027	0	$ -	0.8
15	2028	0	$ -	0.8
16	2029	0	$ -	0.8
17	2030	0	$ -	0.8
18	2031	0	$ -	0.8
19	2032	0	$ -	0.8
20	2033	0	$ -	0.8
21	2034	0	$ -	0.8
22	2035	25	$ 81,904	0.8
23	2036	0	$ -	0.8
24	2037	0	$ -	0.8
25	2038	0	$ -	0.8
26	2039	0	$ -	0.8
27	2040	0	$ -	0.8
28	2041	0	$ -	0.8
29	2042	0	$ -	0.8
30	2043	0	$ -	0.8
31	2044	0	$ -	0.8
32	2045	0	$ -	0.8
33	2046	0	$ -	0.8
34	2047	0	$ -	0.8
35	2048	0	$ -	0.8
36	2049	0	$ -	0.8
37	2050	0	$ -	0.8
38	2051	0	$ -	0.8
39	2052	0	$ -	0.8
40	2053	4	$ 4,505	0.8
41	2054	0	$ -	0.8
42	2055	0	$ -	0.8
43	2056	0	$ -	0.8
44	2057	0	$ -	0.8
45	2058	0	$ -	0.8
Total		**35**	**$ 254,409**	**35**



5.3.2.2.e.iii.2.c Lifecycle Analysis Summary & Budget Allocation

Overhead Line Switches Profile			
35	Quantity	0.4	10 Year Historic Replacement/Installation Rate (Units/Year)
45	UL	1	Quantity Reaching Adjusted End of Life Over Forecast Period
24.3	Average Age of Population	$28,000	Total Capital Replacement Cost over Forecast Period
0.78	Ideal Equalized Annual Replacement Rate (Units/Yr)	$4,500	Total Capital Refurbishment Cost over Forecast Period
54.1%	% UL Consumed	0.20	Average Replacements Per Year
65.2%	2019 % UL Consumed with no Reinvestment	$6,500	Average Annual Cost Per Year
		$5,654	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$28,000	2014 - 2018 Total Allocated Capital Replacement Amount
		$4,500	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 35 overhead line switch settings is not evenly distributed over one lifecycle period beginning in 2014. The population is not densely populated, such that replacement needs are sporadic and thus not very uniform in nature. FFPC adopted a UL of 45 years, and based on the average age of 24.3 years for the population, 54.1% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 59.5% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced or installed an average of 0.4 switches per year, which is slightly lower than the ideal average annual replacement rate of 0.8 switches per year. Over the 2014 to 2018 forecast period, no switch will reach or surpass its UL of 45 years; however, one switch will reach it AEOL due to it posing a potential safety hazard. The total estimated capital replacement (cost to replace and relocate) cost is $28,000 and $4,500 for capital refurbishment is required. The average annual replacement rate is 0.2 switches per year, and the average total annual reinvestment cost is $6,500 per year. The average annual reinvestment need for this asset class, assuming an evenly distributed population is $5,654 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has allocated $28,000 toward capital replacements and $6,500 for capital refurbishment. This is closely aligned with the ideal average annual reinvestment need, and is also aligned with FFPC's objective of keeping pace with the rate of asset deterioration.

5.3.2.2.e.iii.2.d Impact of Overhead Line Switches on DS Plan

The planned air break switch and insulator replacements in 2014 have a very small impact on FFPC's DS Plan. The total combined capital cost of $32,500 represents 0.9% of the total planned capital expenditures over the 2014 to 2018 planning horizon.

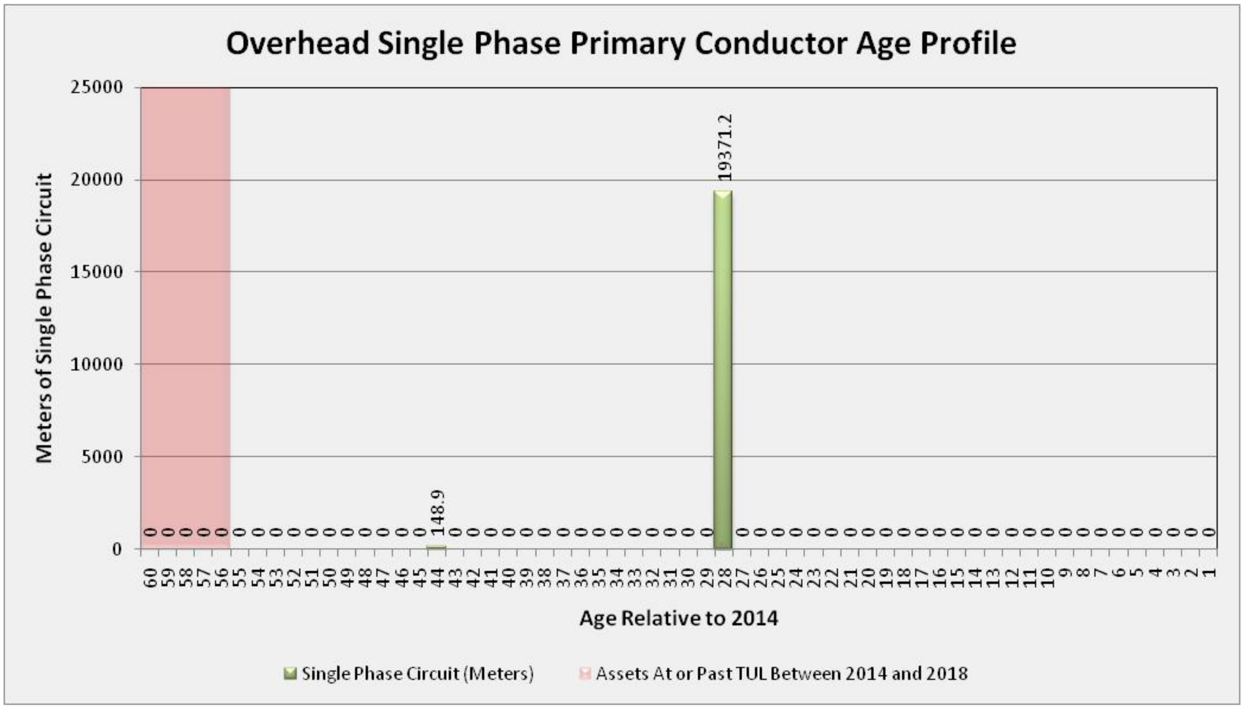
5.3.2.2.e.iii.3 Overhead Conductors

Over the course of history, FFPC's distribution system was reconductored over very short periods of time. Exact dates of individual overhead conductor runs are not known; however, the type of conductor used allowed FFPC to estimate their vintage. In recent history, there has not been a need for FFPC to undertake any feeder reconductoring or overhead expansions activities. The main trunks of the radial feeders are mostly three-phase circuits, with a combined ampacity limit corresponding to approximately 10 MW. FFPC has recorded the properties of individual primary overhead conductor runs, such as their length, type of conductor and wire gauge. FFPC has also started to record the properties of its secondary overhead conductor runs; however, the available data is limited to the conductor runs along distribution pole lines. As such, individual lengths of secondary conductor from the distribution transformer to individual customer premises are not yet know. FFPC is planning on continuing with its GIS mapping initiative, and hopes to have all secondary conductor runs assessed by 2018.

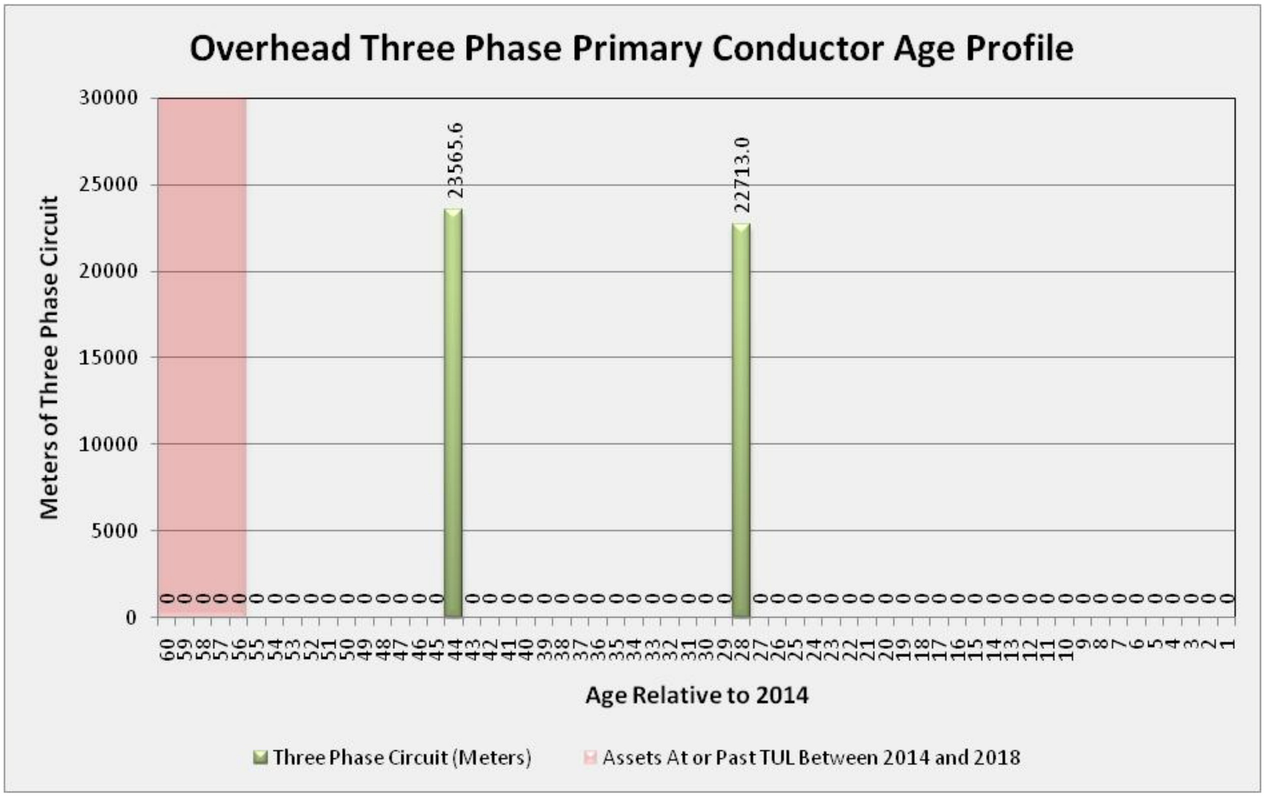
5.3.2.2.e.iii.3.a Overhead Primary Conductors Age Profile Relative to TUL

FFPC has adopted a TUL value of 60 years for overhead primary conductors as per "Kinectrics Report". FFPC has further divided its overhead conductor runs into Single Phase and Three Phase classes. The following table and graphs illustrate the age profile of FFPC's single phase and three phase overhead distribution lines, with respect to a 60 year TUL over one lifecycle.

Overhead Primary Conductor Age Profile (Relative to 2014 - Based on July 2013 Data)				
In Service Year	Age	End-of-Life (Based on 45 Year TUL)	Single Phase Circuit (Meters)	Three Phase Circuit (Meters)
1954	**60**	**2014**	**0**	**0**
1955	**59**	**2015**	**0**	**0**
1956	**58**	**2016**	**0**	**0**
1957	**57**	**2017**	**0**	**0**
1958	**56**	**2018**	**0**	**0**
1959	55	2019	0	0
1960	54	2020	0	0
1961	53	2021	0	0
1962	52	2022	0	0
1963	51	2023	0	0
1964	50	2024	0	0
1965	49	2025	0	0
1966	48	2026	0	0
1967	47	2027	0	0
1968	46	2028	0	0
1969	45	2029	0	0
1970	44	2030	148.9	23565.6
1971	43	2031	0	0
1972	42	2032	0	0
1973	41	2033	0	0
1974	40	2034	0	0
1975	39	2035	0	0
1976	38	2036	0	0
1977	37	2037	0	0
1978	36	2038	0	0
1979	35	2039	0	0
1980	34	2040	0	0
1981	33	2041	0	0
1982	32	2042	0	0
1983	31	2043	0	0
1984	30	2044	0	0
1985	29	2045	0	0
1986	28	2046	19371.2	22713.0
1987	27	2047	0	0
1988	26	2048	0	0
1989	25	2049	0	0
1990	24	2050	0	0
1991	23	2051	0	0
1992	22	2052	0	0
1993	21	2053	0	0
1994	20	2054	0	0
1995	19	2055	0	0
1996	18	2056	0	0
1997	17	2057	0	0
1998	16	2058	0	0
1999	15	2059	0	0
2000	14	2060	0	0
2001	13	2061	0	0
2002	12	2062	0	0
2003	11	2063	0	0
2004	10	2064	0	0
2005	9	2065	0	0
2006	8	2066	0	0
2007	7	2067	0	0
2008	6	2068	0	0
2009	5	2069	0	0
2010	4	2070	0	0
2011	3	2071	0	0
2012	2	2072	0	0
2013	1	2073	0	0
Totals			**19,520.1**	**46,278.6**



Overhead Single Phase Primary Conductor Age Profile
Meters of Single Phase Circuit
Age Relative to 2014
19371.2
148.9
Single Phase Circuit (Meters)
Assets At or Past TUL Between 2014 and 2018

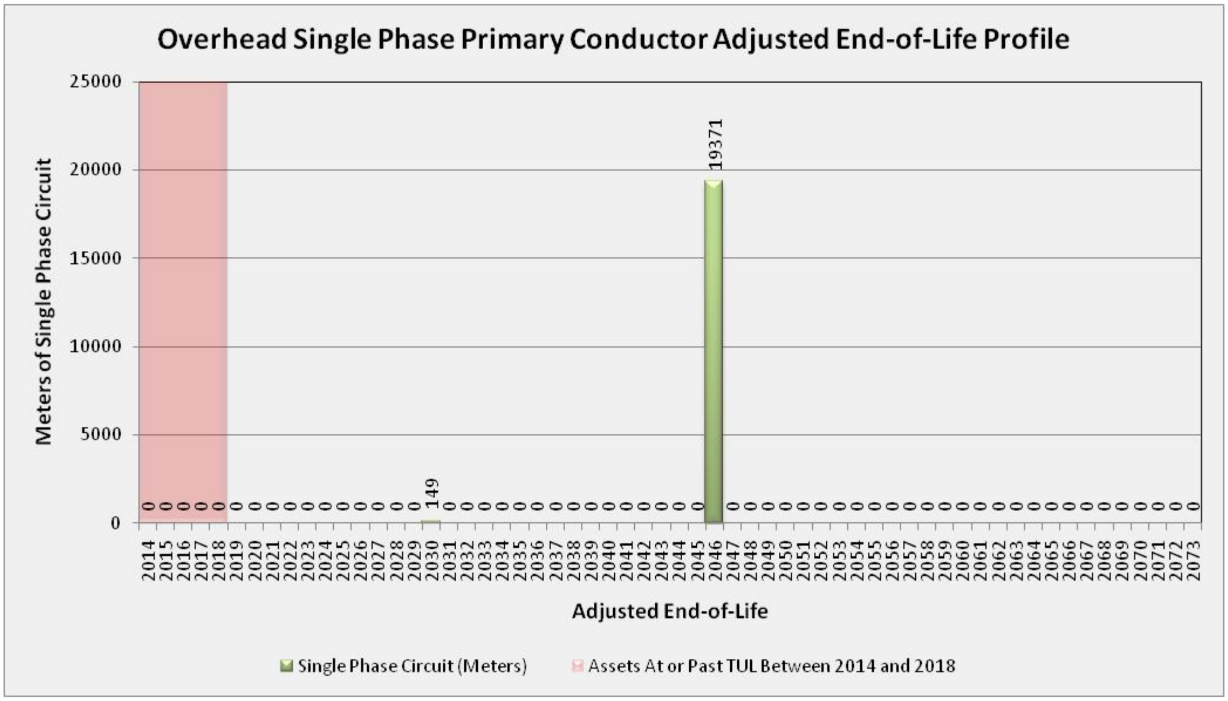


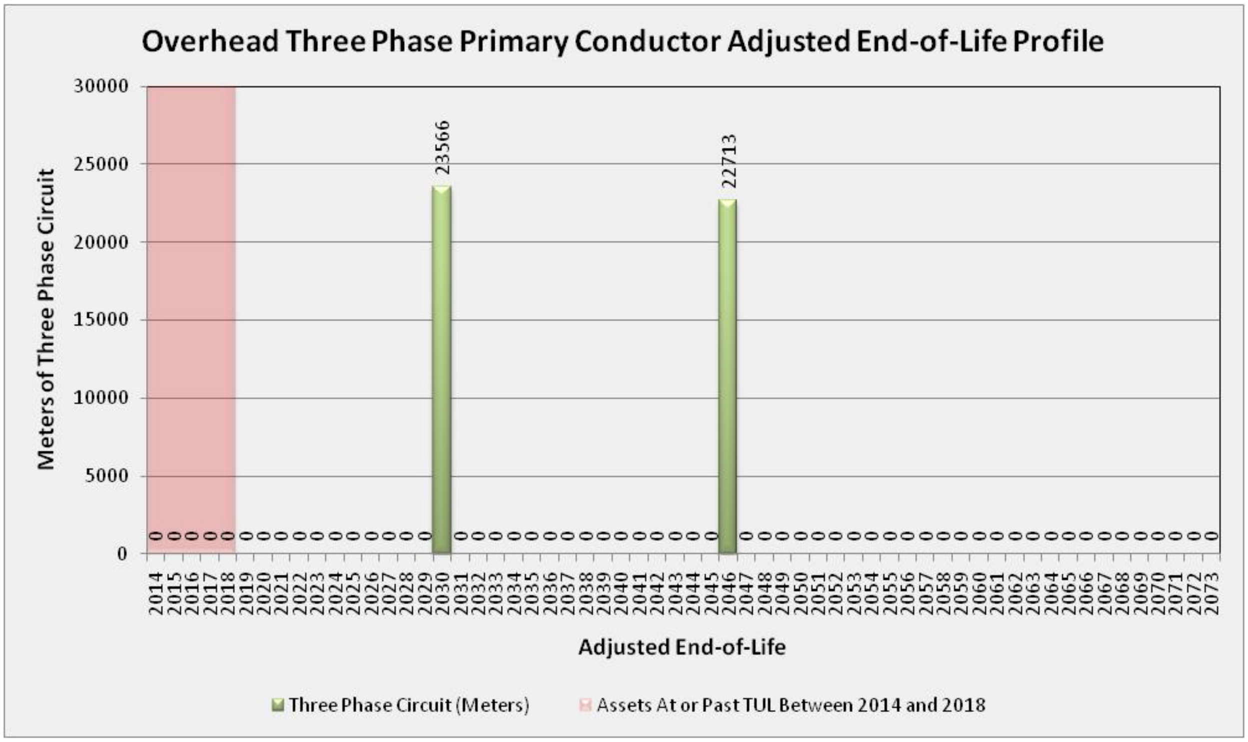
Overhead Three Phase Primary Conductor Age Profile
Meters of Three Phase Circuit
Age Relative to 2014
23565.6
22713.0
Three Phase Circuit (Meters)
Assets At or Past TUL Between 2014 and 2018

5.3.2.2.e.iii.3.b Overhead Primary Conductors Adjusted End-of-Life Projections

FFPC also performs detailed inspections of its overhead conductors on a three year cycle. The results of the inspections may trigger condition testing if deterioration is observed. To date, FFPC's inspections have not triggered the need for condition testing. FFPC anticipates that the conductors will achieve or surpass their UL of 60 years. FFPC has set the adjusted useful life dates to correspond to a 60 year TUL. FFPC does not expect to incur any reconductoring expenses for primary conductor over the 2014 to 2018 planning period. FFPC does plan; however, to extend its "West Feeder" to eliminate the Long Term Load Transfers with Hydro One Networks Inc, as per the requirement of the DSC. This topic is further discussed in Section 5.4.5.2.a.vi "Elimination of Long Term Load Transfers". The following table and graphs illustrate the adjusted end-of-life projections for FFPC's single phase and three phase overhead conductor runs.

Overhead Primary Conductor Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)						
Lifecycle Year	**Adjusted End-of-Life Year**	**Single Phase Circuit (Meters)**	**Three Phase Circuit (Meters)**	**Estimated Single Phase Replacement Cost**	**Estimated Three Phase Replacement Cost**	**Estimated Total Replacement Cost**
1	**2014**	**0**	**0**	**$ -**	**$ -**	**$ -**
2	**2015**	**0**	**0**	**$ -**	**$ -**	**$ -**
3	**2016**	**0**	**0**	**$ -**	**$ -**	**$ -**
4	**2017**	**0**	**0**	**$ -**	**$ -**	**$ -**
5	**2018**	**0**	**0**	**$ -**	**$ -**	**$ -**
6	2019	0	0	$ -	$ -	$ -
7	2020	0	0	$ -	$ -	$ -
8	2021	0	0	$ -	$ -	$ -
9	2022	0	0	$ -	$ -	$ -
10	2023	0	0	$ -	$ -	$ -
11	2024	0	0	$ -	$ -	$ -
12	2025	0	0	$ -	$ -	$ -
13	2026	0	0	$ -	$ -	$ -
14	2027	0	0	$ -	$ -	$ -
15	2028	0	0	$ -	$ -	$ -
16	2029	0	0	$ -	$ -	$ -
17	2030	149	23,566	$ 899	$ 284,446	$ 285,345
18	2031	0	0	$ -	$ -	$ -
19	2032	0	0	$ -	$ -	$ -
20	2033	0	0	$ -	$ -	$ -
21	2034	0	0	$ -	$ -	$ -
22	2035	0	0	$ -	$ -	$ -
23	2036	0	0	$ -	$ -	$ -
24	2037	0	0	$ -	$ -	$ -
25	2038	0	0	$ -	$ -	$ -
26	2039	0	0	$ -	$ -	$ -
27	2040	0	0	$ -	$ -	$ -
28	2041	0	0	$ -	$ -	$ -
29	2042	0	0	$ -	$ -	$ -
30	2043	0	0	$ -	$ -	$ -
31	2044	0	0	$ -	$ -	$ -
32	2045	0	0	$ -	$ -	$ -
33	2046	19,371	22,713	$ 116,909	$ 274,155	$ 391,064
34	2047	0	0	$ -	$ -	$ -
35	2048	0	0	$ -	$ -	$ -
36	2049	0	0	$ -	$ -	$ -
37	2050	0	0	$ -	$ -	$ -
38	2051	0	0	$ -	$ -	$ -
39	2052	0	0	$ -	$ -	$ -
40	2053	0	0	$ -	$ -	$ -
41	2054	0	0	$ -	$ -	$ -
42	2055	0	0	$ -	$ -	$ -
43	2056	0	0	$ -	$ -	$ -
44	2057	0	0	$ -	$ -	$ -
45	2058	0	0	$ -	$ -	$ -
46	2059	0	0	$ -	$ -	$ -
47	2060	0	0	$ -	$ -	$ -
48	2061	0	0	$ -	$ -	$ -
49	2062	0	0	$ -	$ -	$ -
50	2063	0	0	$ -	$ -	$ -
51	2064	0	0	$ -	$ -	$ -
52	2065	0	0	$ -	$ -	$ -
53	2066	0	0	$ -	$ -	$ -
54	2067	0	0	$ -	$ -	$ -
55	2068	0	0	$ -	$ -	$ -
56	2069	0	0	$ -	$ -	$ -
57	2070	0	0	$ -	$ -	$ -
58	2071	0	0	$ -	$ -	$ -
59	2072	0	0	$ -	$ -	$ -
60	2073	0	0	$ -	$ -	$ -
Totals		**19,520**	**46,279**	**$ 117,808**	**$ 558,601**	**$ 676,409**


Overhead Single Phase Primary Conductor Adjusted End-of-Life Profile
Meters of Single Phase Circuit
Adjusted End-of-Life
19371
149
Single Phase Circuit (Meters)
Assets At or Past TUL Between 2014 and 2018


Overhead Three Phase Primary Conductor Adjusted End-of-Life Profile
Meters of Three Phase Circuit
Adjusted End-of-Life
23566
22713
Three Phase Circuit (Meters)
Assets At or Past TUL Between 2014 and 2018

5.3.2.2.e.iii.3.c Lifecycle Analysis Summary & Budget Allocation

Overhead Primary Single Phase Circuit Conductor Profile			
19,520	Quantity (Meters)	0	10 Year Historic Replacement/Installation Rate (Units/Year)
60	UL	0	Quantity Reaching Adjusted End of Life Over Forecast Period
28.1	Average Age of Population	$0	Total Capital Replacement Cost over Forecast Period
325.34	Ideal Equalized Annual Replacement Rate (Meters/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
46.9%	% UL Consumed	0.00	Average Replacements Per Year
55.2%	2019 % UL Consumed with no Reinvestment	$0	Average Annual Cost Per Year
		$1,963	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$0	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

Overhead Primary Three Phase Circuit Conductor Profile			
46,279	Quantity (Meters)	0	10 Year Historic Replacement/Installation Rate (Units/Year)
60	UL	0	Quantity Reaching Adjusted End of Life Over Forecast Period
36.1	Average Age of Population	$0	Total Capital Replacement Cost over Forecast Period
771.31	Ideal Equalized Annual Replacement Rate (Meters/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
60.2%	% UL Consumed	0.00	Average Replacements Per Year
68.6%	2019 % UL Consumed with no Reinvestment	$0	Average Annual Cost Per Year
		$9,310	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$0	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the populations of 19.5 km of single phase circuit and 46.3 km of three phase circuit are not evenly distributed over one lifecycle period beginning in 2014. The populations are not densely populated, such that replacement needs are extremely sporadic and thus not uniform in nature. FFPC adopted a UL of 60 years, and based on the average age of 28.1 years for the population of single phase circuits, 46.9% UL has been consumed. The average age of the three phase circuit population is 36.1 years, and as such 60.2 %UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 55.2% and 68.2% respectively by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC did not replace or install any primary conductors. Over the 2014 to 2018 forecast period, no primary overhead conductor runs will reach or surpass their UL of 60 years. As such, no replacements or refurbishments are planned over the forecast period. The average total annual reinvestment need for both classes combined is $11,273 per year, assuming evenly distributed populations, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has not allocated any capital towards replacements or refurbishment, as they are not necessary given the nature of this asset class. This will allow FFPC to shift expenditures towards asset classes that require intensified reinvestment to smooth long term spending requirements.

5.3.2.2.e.iii.3.d Impact of Overhead Primary Conductors on DS Plan

As no primary conductor replacements are necessary over the planning period, this asset class will not impact the DS Plan. This will allow for intensified capital reinvestments into asset classes where it is required.

5.3.2.2.e.iii.4 Overhead Secondary Conductor

FFPC performs inspections and condition assessments on overhead secondary conductors as part of its maintenance inspection program that is conducted on a three year cycle. FFPC has adopted a TUL of 40 years for secondary overhead cables. FFPC's overhead secondary conductor runs consist of secondary buses, to which multiple customers are connected to, as well as service conductors that connect customer's services to the secondary bus or directly to transformers.

5.3.2.2.e.iii.4.a Overhead Secondary Conductors Age Profile

Currently secondary buses along distribution pole lines have been mapped in the GIS system; however, service conductors from the pole line (transformer or bus connections) to individual meter bases have not yet been mapped. As such, the complete age profile of individual cable runs is not available yet. FFPC estimates that the average age for secondary conductors is 28 years.

5.3.2.2.e.iii.4.b Overhead Secondary Conductor Adjusted End-of-Life Profile

Adjusted end-of-life projections for individual overhead secondary cable runs are not available yet.

5.3.2.2.e.iii.4.c Lifecycle Analysis Summary & Budget Allocation

The total average annual reinvestment need for this asset class as established by the asset management process is $25,840. The annual reinvestment need is based on the total cost to replace the asset class, divided by the period established by the UL that FFPC adopted ($1,033,603 / 40 years). FFPC has allocated a total of $10,000 for capital overhead service conductor replacements, as well as $40,000 for secondary bus replacements over the planning horizon, which equate to a total annual reinvestment of

$10,000. FFPC's strategy is to complete gathering age profile and condition data, and once it has been obtained, to refine reinvestment needs accordingly.

5.3.2.2.e.iii.4.d Impact of Overhead Secondary Conductor on DS Plan

The planned reinvestment into overhead secondary conductors has a small impact on FFPC's DS Plan. The total replacement cost of $50,000 for overhead secondary service conductor and secondary bus represent 1.4% of the total planned capital expenditures over the 2014 to 2018 planning horizon.

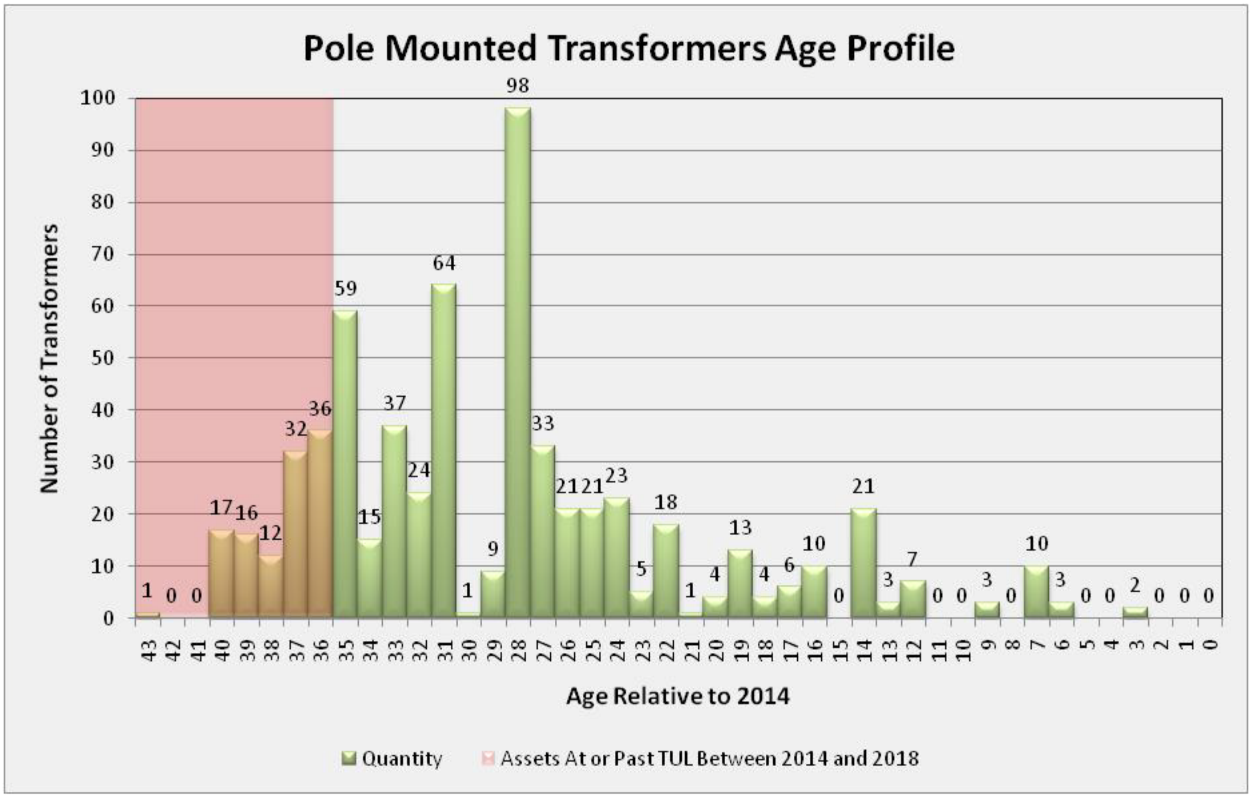
5.3.2.2.e.iii.5 Overhead Transformers

A significant portion of FFPC's asset base is overhead transformers. The overhead transformer fleet consists of 629 single phase units. It is worth mentioning that three phase customers who are supplied from overhead transformers, require three individual single phase transformers that are arranged as a three phase setting (which is an industry standard).

5.3.2.2.e.iii.5.a Overhead Transformers Age Profile Relative to TUL

FFPC has adopted a TUL of 40 years for overhead transformers as per the "Kinectrics Report". As a result of FFPC's system wide voltage conversion and rebuild project, 79% of FFPC's overhead transformers are of 1970s to 1980s vintage. As such, FFPC will experience somewhat of a "tidal wave" affect over the next 20 years as the majority of transformers will have surpassed the end of their useful service life, implying a high risk of failure. FFPC recognizes that it must ramp up its transformer replacements as of 2014. The following table and graph represents the age profile of FFPC's overhead transformers with respect to a TUL of 40 years.

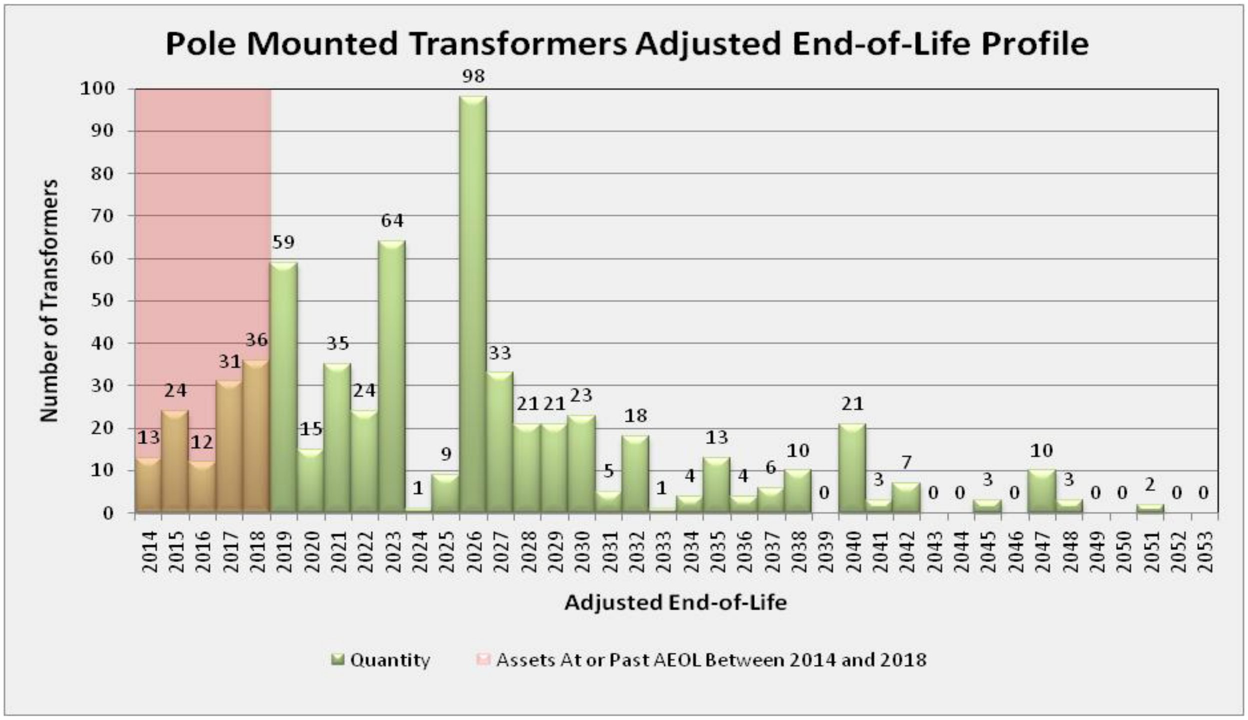
Pole Mounted Transformers Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 40 Year TUL)**	**Quantity**
1971	43	2011	1
1972	42	2012	0
1973	41	2013	0
1974	40	2014	17
1975	39	2015	16
1976	38	2016	12
1977	37	2017	32
1978	36	2018	36
1979	35	2019	59
1980	34	2020	15
1981	33	2021	37
1982	32	2022	24
1983	31	2023	64
1984	30	2024	1
1985	29	2025	9
1986	28	2026	98
1987	27	2027	33
1988	26	2028	21
1989	25	2029	21
1990	24	2030	23
1991	23	2031	5
1992	22	2032	18
1993	21	2033	1
1994	20	2034	4
1995	19	2035	13
1996	18	2036	4
1997	17	2037	6
1998	16	2038	10
1999	15	2039	0
2000	14	2040	21
2001	13	2041	3
2002	12	2042	7
2003	11	2043	0
2004	10	2044	0
2005	9	2045	3
2006	8	2046	0
2007	7	2047	10
2008	6	2048	3
2009	5	2049	0
2010	4	2050	0
2011	3	2051	2
2012	2	2052	0
2013	1	2053	0
2014	0	2054	0
Total			629



5.3.2.2.e.iii.5.b Overhead Transformers Adjusted End-of-Life Projections

FFPC performs detailed inspections of overhead transformers on a three year cycle. The results of the inspections are used to assess the overall health of transformers with respect to age. Physical defects such as oil leaks or cracked bushing indicate that a transformer is very near to the end of its useful service life, with a high probability of failure. FFPC has assigned AEOL dates to individual transformers using FFPC's asset management process. It is important to note that the AEOL values are of higher importance as assets approach their TUL, as opposed to in their earlier years. FFPC is also currently working on recording the relationship of transformers to customers, which will allow for analysis of electrical loading from smart meter data. Smart meter data will essentially give FFPC insight into individual transformer utilization (electrical loading profile). Electrical loading is a large contributor of transformer degradation, and as such, being able to quantify it will greatly enhance FFPC's ability in predicting transformer failure. The following table and graph illustrate the AEOL profile for FFPC's overhead transformers, based on the most recent inspection results.

Pole Mounted Transformers Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	Adjusted End-of-Life Year	Quantity	Replacement Cost	Ideal Evenly Distributed Annual Replacement Rate
1	**2014**	**13**	**$ 59,506.00**	**15.725**
2	**2015**	**24**	**$ 104,893.60**	**15.725**
3	**2016**	**12**	**$ 68,081.40**	**15.725**
4	**2017**	**31**	**$ 129,708.80**	**15.725**
5	**2018**	**36**	**$ 129,427.60**	**15.725**
6	2019	59	$ 256,421.80	15.725
7	2020	15	$ 58,781.40	15.725
8	2021	35	$ 144,346.40	15.725
9	2022	24	$ 82,605.80	15.725
10	2023	64	$ 303,640.60	15.725
11	2024	1	$ 6,414.60	15.725
12	2025	9	$ 55,231.40	15.725
13	2026	98	$ 454,834.80	15.725
14	2027	33	$ 143,058.80	15.725
15	2028	21	$ 95,623.20	15.725
16	2029	21	$ 86,829.40	15.725
17	2030	23	$ 122,306.60	15.725
18	2031	5	$ 19,958.40	15.725
19	2032	18	$ 68,962.80	15.725
20	2033	1	$ 2,300.00	15.725
21	2034	4	$ 13,093.80	15.725
22	2035	13	$ 66,389.80	15.725
23	2036	4	$ 20,593.80	15.725
24	2037	6	$ 20,593.80	15.725
25	2038	10	$ 43,146.00	15.725
26	2039	0	$ -	15.725
27	2040	21	$ 91,606.60	15.725
28	2041	3	$ 10,243.80	15.725
29	2042	7	$ 20,998.40	15.725
30	2043	0	$ -	15.725
31	2044	0	$ -	15.725
32	2045	3	$ 10,243.80	15.725
33	2046	0	$ -	15.725
34	2047	10	$ 42,216.80	15.725
35	2048	3	$ 15,525.00	15.725
36	2049	0	$ -	15.725
37	2050	0	$ -	15.725
38	2051	2	$ 3,680.00	15.725
39	2052	0	$ -	15.725
40	2053	0	$ -	15.725
Totals		**629**	**$ 2,751,265.00**	**629**



5.3.2.2.e.iii.5.c Lifecycle Analysis Summary & Budget Allocation

Pole Mounted Transformers Profile			
629	Quantity	1.8	10 Year Historic Replacement/Installation Rate (Units/Year)
40	UL	116	Quantity Reaching Adjusted End of Life Over Forecast Period
28.8	Average Age of Population	$491,617	Total Capital Replacement Cost over Forecast Period
15.73	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
72.0%	% UL Consumed	23.20	Average Replacements Per Year
84.5%	2019 % UL Consumed with no Reinvestment	$98,323	Average Annual Cost Per Year
		$68,782	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$491,617	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 629 pole mounted transformers is not evenly distributed over one lifecycle period beginning in 2014. The population has high positive skew, and as such, approximately 86% (543 transformers) will require replacement over the first half of the lifecycle period (over the next 20 years). FFPC adopted a UL of 40 years, and based on the average age of 28.8 years for the population, 72.0% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 84.5% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced an average of 1.8 pole mounted transformers per year, which is significantly lower than the ideal average annual replacement rate of 15.7 pole mounted transformers per year. Over the 2014 to 2018 forecast period, an estimated 116 pole mounted transformers will reach their AEOL, requiring replacement. The total estimated capital replacement cost is $491,617, which has been allocated. No capital refurbishments have been allocated as transformers are not conducive to distributor refurbishing. The average annual replacement rate is projected to be 23.3 transformers per year, and the average total annual reinvestment is $98,323 per year. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $68,782 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has allocated a total of $491,617 towards capital replacements and no capital for refurbishments over the 2014 to 2018 planning period. This is approximately 42% higher than the ideal average annual reinvestment need, due to the large number of projected failures based on the large positive skew of the transformer age profile.

5.3.2.2.e.iii.5.d Impact of Overhead Transformers on DS Plan

The planned reinvestment into pole mounted transformers has a very large impact on FFPC's DS Plan. The total capital replacement cost of $491,617 for the transformers represents 14.0% of the total planned capital expenditures over the 2014 to 2018 planning horizon.

5.3.2.2.f. Underground Distribution System Assets

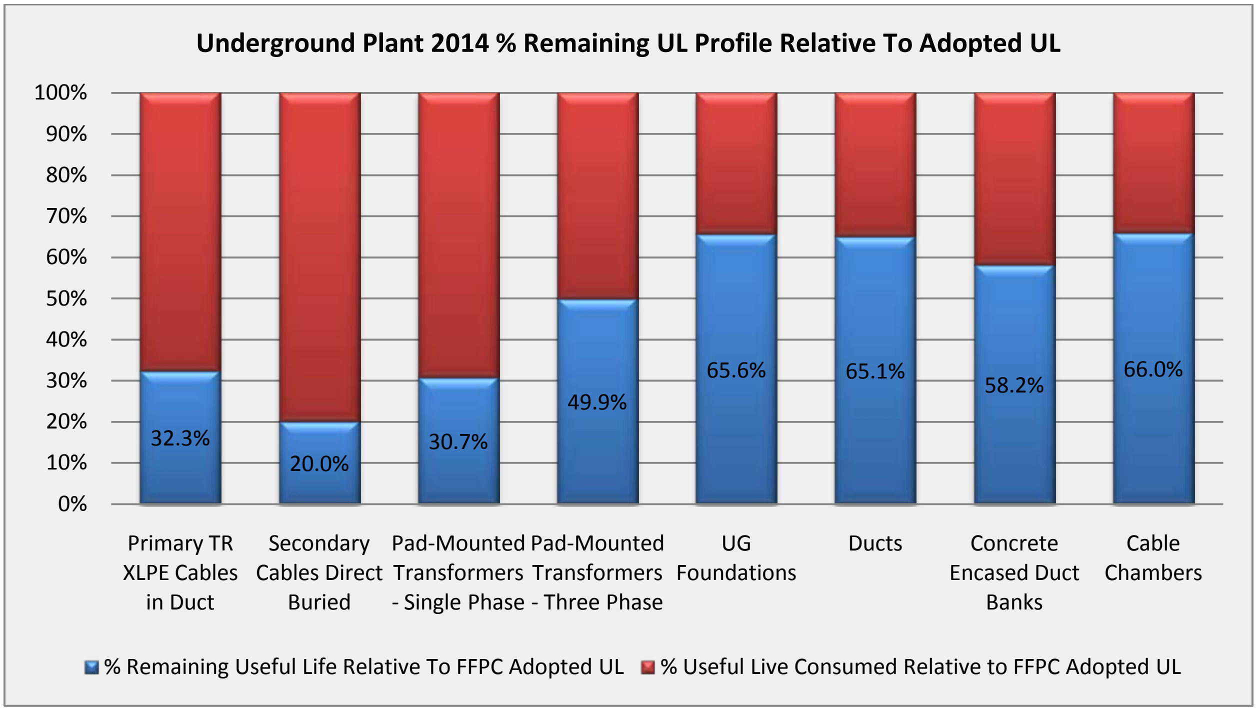
FFPC's underground distribution assets consist mainly of Pad-Mounted Transformer settings and Underground Cable installations. FFPC's underground transformer population consists of 215 single phase and 38 three phase units. All of FFPC's primary underground cables are ducted, where some of the ducts are cement encased for additional protection. FFPC's total conductor length of underground primary cable is 30.7 km (includes the length of conductor that is above ground which is required to connect the shielded cables to the distribution feeders via dip poles). In terms of circuit length or "trench length", the 30.7 km of conductor represent 3.9 km of single phase circuit, 0.5 km of two phase circuit and 6.2 km of three phase circuit. The oldest conductor runs correspond to the construction of the Fort Frances MTS transformer station in the early 1970s.

5.3.2.2.f.i. Underground Plant Lifecycle Profile, Reinvestment Needs Boundaries & Reinvestment Summary

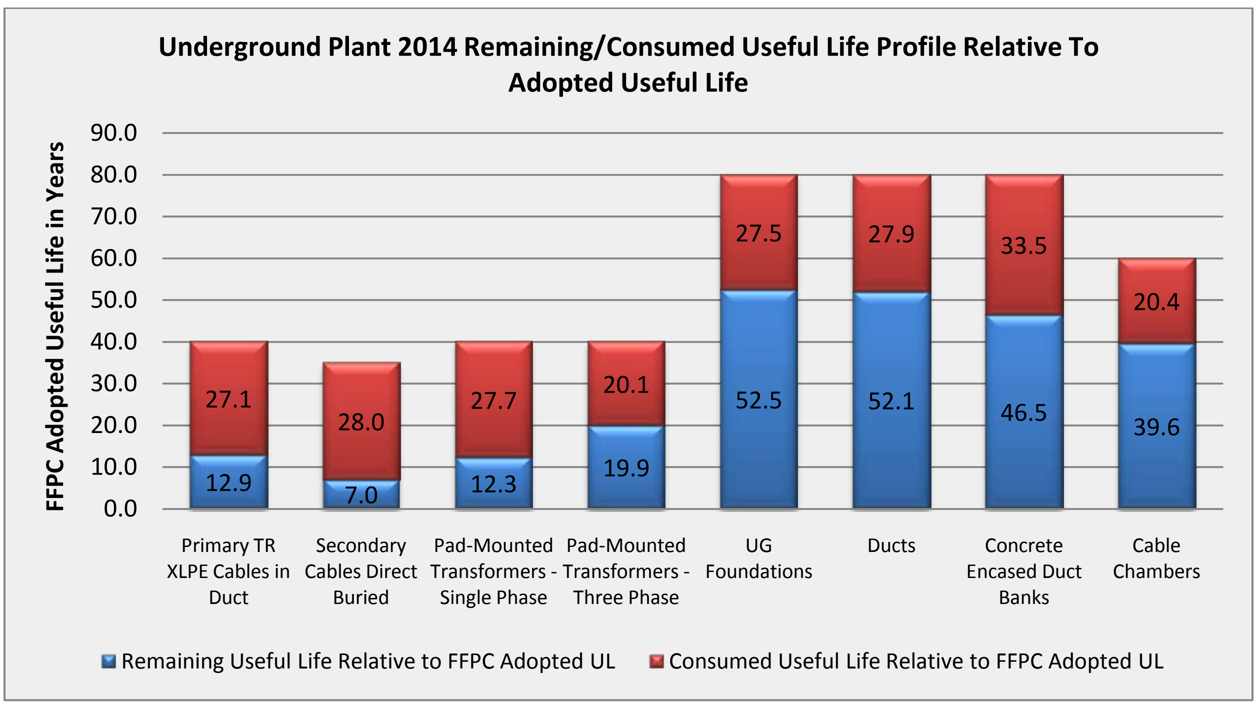
As per the Chapter 5 Filing Requirements guide, FFPC has relied on its newly developed Asset Management Process to collect, tabulate and assess information on physical assets, current and future system operating conditions, and FFPC's business and customer service goals and objectives to plan, prioritize and optimize expenditures on system-related modifications, renewal and operations and maintenance, and on general plant facilities, systems and apparatus.

FFPC's asset management process has established a total asset replacement value of $24,379,821 for all existing assets managed, based on FFPC's replacement cost structure. Of this asset base, the replacement value of Underground Plant assets is estimated to be $5,912,815, which is approximately 24.3% of the total replacement value. Based on FFPC's adopted useful life values, the average annual reinvestment needed to keep pace with Underground Plant asset deterioration is $124,638. The overall % remaining useful life (relative to FFPC's adopted UL and replacement cost) is 43.7%. FFPC's long term objective is to maintain a 50% "Remaining UL" profile where possible, to smooth long term spending requirements. As such, FFPC has an optimal capital reinvestment budget allocation of $124,638 to sustain the lifecycle of Underground Plant assets. FFPC has allocated a total of $706,460 towards sustaining the lifecycle of Underground Plant, which equates to an average annual reinvestment of $141,292. This annual investment rate is approximately 13.3% higher than the ideal average annual reinvestment need, as the population has deteriorated well below FFPC's target. The reinvestment will support FFPC's objective of keeping pace with the rate of asset deterioration.

The following graph illustrates the % UL Remaining profile of all Underground Plant asset categories.



The following graph illustrates the remaining and consumed years of all Underground Plant asset categories:



The following tables summarizes planned capital expenditures over the 2014 to 2018 planning horizon, based on assets that were identified to be at the end of their useful service life, as per outputs of Step 4 of the asset management process. Capital expenditures driven by other investment drivers such as the elimination of LTLT's, Customer Preference or Renewable Enabling Improvements are not included in this summary. The table also illustrates the Useful Life and Reinvestment Need analysis for each asset category. Various reinvestment needs boundaries are illustrated representing various adoptions of useful service life philosophies, such as the "Kinectrics Report's" MIN UL, TUL, MAX UL, as well as FFPC's adopted UL.

FFPC Asset Summary, Useful Life Assessment, Investment Boundaries and Capital Budget Allocations

		Asset Details	FFPC Assets			Kinectrics Useful Life			Useful Life Assessment					Reinvestment Needs Assessment					Capital Budget Allocation		
Parent*	**#**	**Category| Component | Type**	**Count**	**Units**	**Average Age of Population (Years)**	**MIN UL**	**TUL**	**MAX UL**	**FFPC Adopted Useful Life (UL)**	**Remaining Useful Life Relative to Kinectrics TUL**	**% Remaining Useful Life Relative Kinectrics TUL**	**Remaining Useful Life Relative to FFPC Adopted UL**	**% Remaining Useful Life Relative To FFPC Adopted UL**	**Total Replacement Cost of Asset Group**	**Average Annual Reinvestment Need Based on Kinectrics Min UL**	**Average Annual Reinvestment Need Based on Kinectrics TUL**	**Average Annual Reinvestment Need Based on Kinectrics Max UL**	**Average Annual Reinvestment Need Based on FFPC Adopted UL**	**Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation**	**Average Annual Capital Allocation (2014 to 2018)**	**% of Total DS Plan Capital Expenditures**
UG	24	Primary Paper Insulated Lead Covered (PILC) Cables	N/A			60	65	75													
	25	Primary Ethylene-Propylene Rubber (EPR) Cables	N/A			20	25	25													
	26	Primary Non-Tree Retardant (TR) Cross Linked Polyethylene (XLPE) Cables Direct Buried	N/A			20	25	30													
	27	Primary Non-TR XLPE Cables in Duct	N/A			20	25	30													
	28	Primary TR XLPE Cables Direct Buried	N/A			25	30	35													
	29	Primary TR XLPE Cables in Duct	30.7	km	27.07	35	40	55	40.0	12.9	32.3%	12.9	32.3%	$ 931,695	$ 26,620	$ 23,292	$ 16,940	**$ 23,292**	$ 180,537	$ 36,107	5.1%
	30	Secondary PILC Cables	N/A			70	75	80													
	31	Secondary Cables Direct Buried	3.8	km	28.00	25	35	40	35.0	7.0	20.0%	7.0	20.0%	$ 68,366	$ 2,735	$ 1,953	$ 1,709	**$ 1,953**	$ 10,000	$ 2,000	0.3%
	32	Secondary Cables in Duct	N/A			35	40	60													
	33	Network Transformers – Overall	N/A			20	35	50													
		Network Transformers – Protector	N/A			20	35	40													
	34	Pad-Mounted Transformers – Single Phase	215	Each	27.70	25	40	45	40.0	12.3	30.7%	12.3	30.7%	$ 2,218,967	$ 88,759	$ 55,474	$ 49,310	**$ 55,474**	$ 368,761	$ 73,752	10.5%
		Pad-Mounted Transformers – Three Phase	38	Each	20.05	25	40	45	40.0	19.9	49.9%	19.9	49.9%	$ 808,033	$ 32,321	$ 20,201	$ 17,956	**$ 20,201**	$ 147,163	$ 29,433	4.2%
	35	Submersible/Vault Transformers	N/A			25	35	45													
	36	UG Foundation	170	Each	27.52	35	55	70	80.0	27.5	50.0%	52.5	65.6%	$ 814,956	$ 23,284	$ 14,817	$ 11,642	**$ 10,187**	$ -	$ -	0.0%
	37	UG Vaults – Overall	N/A			40	60	80													
		UG Vaults – Roof	N/A			20	30	45													
	38	UG Vault Switches	N/A			20	35	50													
	39	Pad-Mounted Switchgear	N/A			20	30	45													
	40	Ducts	23.5	km	27.95	30	50	85	80.0	22.1	44.1%	52.1	65.1%	$ 322,801	$ 10,760	$ 6,456	$ 3,798	**$ 4,035**	$ -	$ -	0.0%
	41	Concrete Encased Duct Banks	1.9	km	33.46	35	55	80	80.0	21.5	39.2%	46.5	58.2%	$ 712,998	$ 20,371	$ 12,964	$ 8,912	**$ 8,912**	$ -	$ -	0.0%
	42	Cable Chambers	5	Each	20.40	50	60	80	60.0	39.6	66.0%	39.6	66.0%	$ 35,000	$ 700	$ 583	$ 438	**$ 583**	$ -	$ -	0.0%
Totals														$ 5,912,815	$ 205,550	$ 135,741	$ 110,706	**$ 124,638**	$ 706,460	$ 141,292	20.1%

The following table summarizes FFPC's budgeted capital reinvestments, for each Underground Plant asset category over the 2014 to 2018 planning period. The planned reinvestments are all driven by the outputs of Step 4 of the asset management process, and as such they are allocated towards sustaining the lifecycle of existing assets.

Asset Details				Capital Budget Allocation		
Parent*	#	Category| Component | Type		Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation	Average Annual Capital Allocation (2014 to 2018)	% of Total DS Plan Capital Expenditures
UG	24	Primary Paper Insulated Lead Covered (PILC) Cables				
	25	Primary Ethylene-Propylene Rubber (EPR) Cables				
	26	Primary Non-Tree Retardant (TR) Cross Linked Polyethylene (XLPE) Cables Direct Buried				
	27	Primary Non-TR XLPE Cables in Duct				
	28	Primary TR XLPE Cables Direct Buried				
	29	Primary TR XLPE Cables in Duct		$ 180,537	$ 36,107	5.1%
	30	Secondary PILC Cables				
	31	Secondary Cables Direct Buried		$ 10,000	$ 2,000	0.3%
	32	Secondary Cables in Duct				
	33	Network Transformers	Overall			
			Protector			
	34	Pad-Mounted Transformers	Single Phase	$ 368,761	$ 73,752	10.5%
			Three Phase	$ 147,163	$ 29,433	4.2%
	35	Submersible/Vault Transformers				
	36	UG Foundation		$ -	$ -	0.0%
	37	UG Vaults	Overall			
			Roof			
	38	UG Vault Switches				
	39	Pad-Mounted Switchgear				
	40	Ducts		$ -	$ -	0.0%
	41	Concrete Encased Duct Banks		$ -	$ -	0.0%
	42	Cable Chambers		$ -	$ -	0.0%
Totals				$ 706,460	$ 141,292	20.1%

5.3.2.2.f.ii. Underground Distribution System Capacity & Utilization

The underground portions of FFPC's distribution feeders were also designed to accommodate a combined three phase load of 10 MW. Three feeders propagate out of transformer station Fort Frances MTS in underground cement encased ducts. The combined three phase ampacity of the cables also corresponds to a limitation of 10 MW. Refer to the "Transformer Station Capacity Utilization" section for more details.

FFPC is currently mapping out transformer to customer meter relationships to enable individual transformer utilizations to be calculated using smart meter data. FFPC does not have any distribution transformer utilization data available at this time.

5.3.2.2.f.iii. Underground Distribution System Asset Classifications

FFPC has grouped its underground distribution system asset classifications according to the "Kinectrics Report". FFPC does not have assets in many of the groupings and as such they have been omitted. FFPC has assets in the following groupings: Primary TR XLPE Cables in Duct; Secondary Cables Direct Buried; Pad-Mounted Transformers; Underground Foundation; Ducts; Concrete Encased Duct Banks; and Cable Chambers

5.3.2.2.f.iv. Primary TR XLPE Cables in Duct

FFPC's underground primary conductor is used to connect feeders to the transformer station, in newer subdivisions in place of overhead lines, as well as to connect the distribution system to pad-mounted transformers.

5.3.2.2.f.iv.1 Primary TR XLPE Cables in Duct Age Profile Relative to TUL

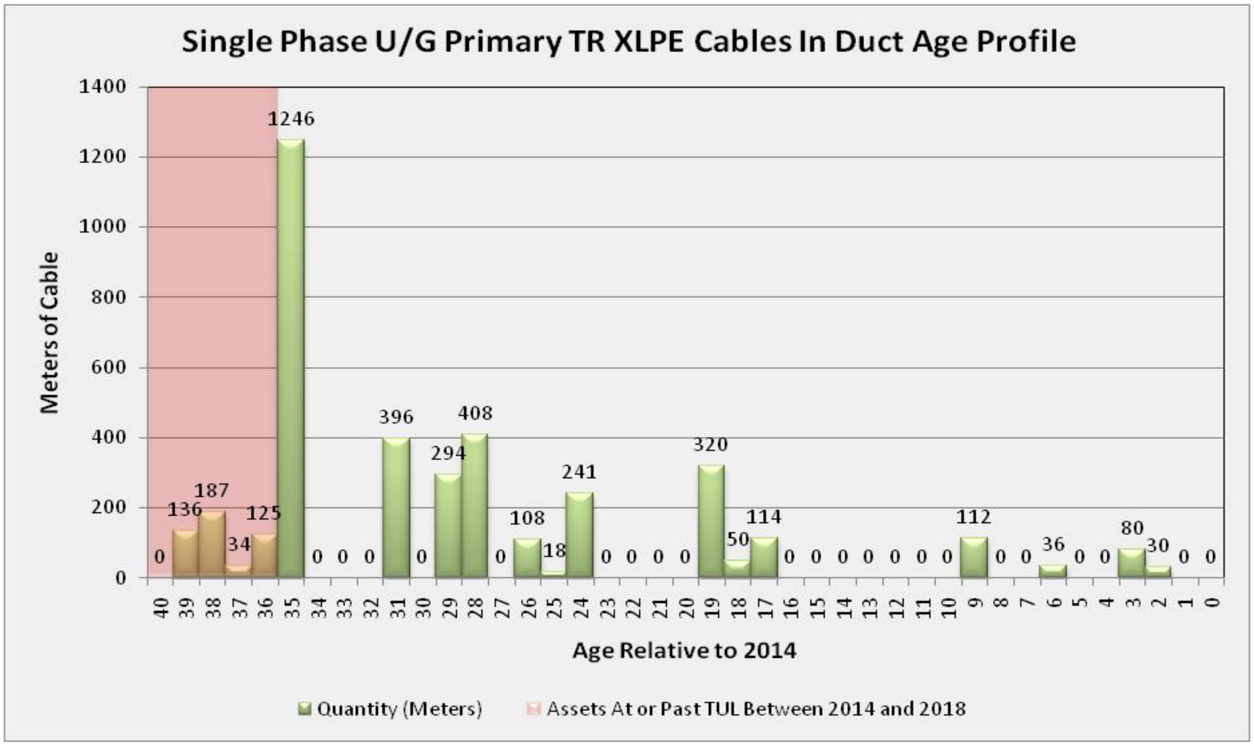
FFPC has adopted the TUL of 40 years as per the "Kinectrics Report". FFPC has divided the conductor runs into Single Phase, Two Phase and Three Phase Circuits and lastly into Overall Conductor Length. The following tables and graphs illustrate the age distribution of Single Phase, Two Phase, Three Phase Circuits, as well as Overall Conductor Length with respect to a TUL of 40 years.

Single Phase U/G Primary TR XLPE Cables In Duct Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 40 Year TUL)**	**Quantity (Meters)**
1974	**40**	**2014**	**0**
1975	**39**	**2015**	**136**
1976	**38**	**2016**	**187**
1977	**37**	**2017**	**34**
1978	**36**	**2018**	**125**
1979	35	2019	1,246
1980	34	2020	0
1981	33	2021	0
1982	32	2022	0
1983	31	2023	396
1984	30	2024	0
1985	29	2025	294
1986	28	2026	408
1987	27	2027	0
1988	26	2028	108
1989	25	2029	18
1990	24	2030	241
1991	23	2031	0
1992	22	2032	0
1993	21	2033	0
1994	20	2034	0
1995	19	2035	320
1996	18	2036	50
1997	17	2037	114
1998	16	2038	0
1999	15	2039	0
2000	14	2040	0
2001	13	2041	0
2002	12	2042	0
2003	11	2043	0
2004	10	2044	0
2005	9	2045	112
2006	8	2046	0
2007	7	2047	0
2008	6	2048	36
2009	5	2049	0
2010	4	2050	0
2011	3	2051	80
2012	2	2052	30
2013	1	2053	0
2014	0	2054	0
Total			**3,935.8**

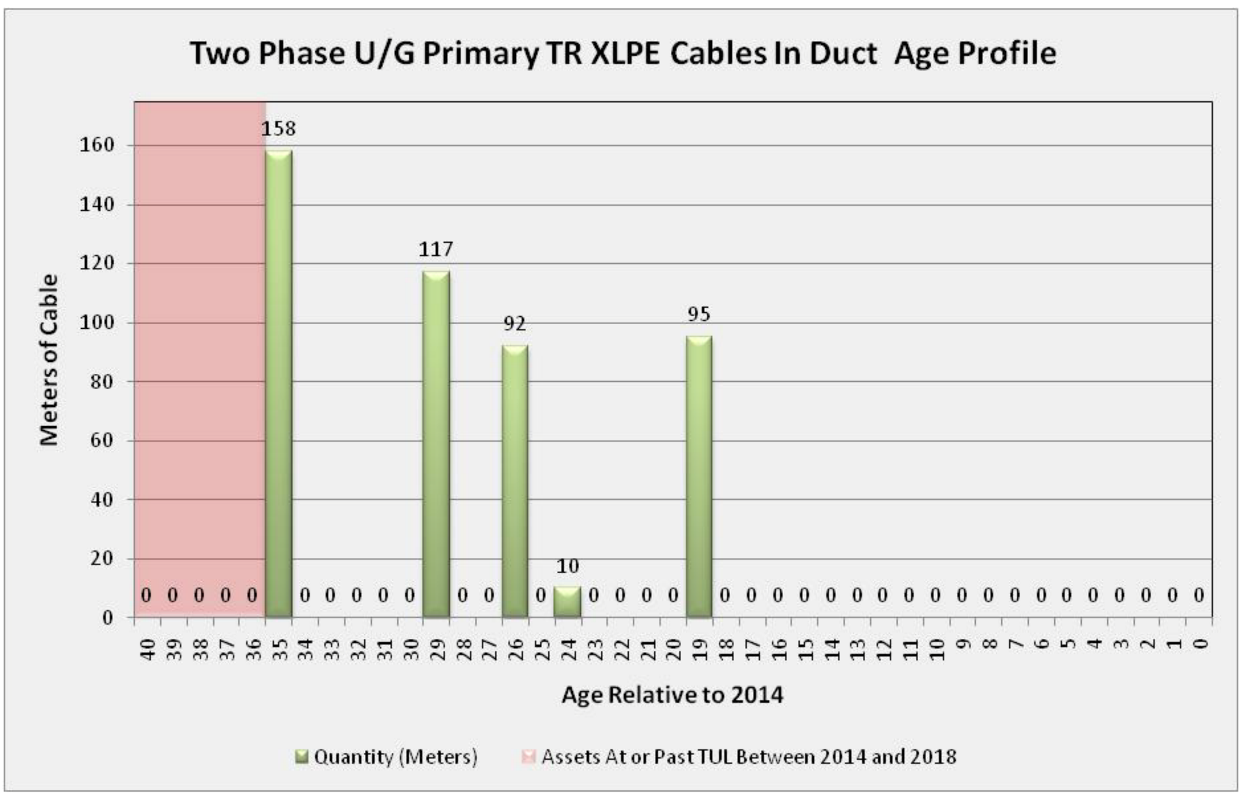
Two Phase U/G Primary TR XLPE Cables In Duct Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	Age	End-of-Life (Based on 40 Year TUL)	Quantity (Meters)
1974	40	2014	0
1975	39	2015	0
1976	38	2016	0
1977	37	2017	0
1978	36	2018	0
1979	35	2019	158
1980	34	2020	0
1981	33	2021	0
1982	32	2022	0
1983	31	2023	0
1984	30	2024	0
1985	29	2025	117
1986	28	2026	0
1987	27	2027	0
1988	26	2028	92
1989	25	2029	0
1990	24	2030	10
1991	23	2031	0
1992	22	2032	0
1993	21	2033	0
1994	20	2034	0
1995	19	2035	95
1996	18	2036	0
1997	17	2037	0
1998	16	2038	0
1999	15	2039	0
2000	14	2040	0
2001	13	2041	0
2002	12	2042	0
2003	11	2043	0
2004	10	2044	0
2005	9	2045	0
2006	8	2046	0
2007	7	2047	0
2008	6	2048	0
2009	5	2049	0
2010	4	2050	0
2011	3	2051	0
2012	2	2052	0
2013	1	2053	0
2014	0	2054	0
Total			472.0

Three Phase U/G Primary TR XLPE Cables In Duct Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 40 Year TUL)**	**Quantity (Meters)**
1974	**40**	**2014**	**0**
1975	**39**	**2015**	**439**
1976	**38**	**2016**	**57**
1977	**37**	**2017**	**115**
1978	**36**	**2018**	**1755**
1979	35	2019	683
1980	34	2020	249
1981	33	2021	298
1982	32	2022	40
1983	31	2023	37
1984	30	2024	0
1985	29	2025	118
1986	28	2026	382
1987	27	2027	108
1988	26	2028	158
1989	25	2029	53
1990	24	2030	96
1991	23	2031	0
1992	22	2032	0
1993	21	2033	0
1994	20	2034	0
1995	19	2035	255
1996	18	2036	31
1997	17	2037	0
1998	16	2038	134
1999	15	2039	0
2000	14	2040	0
2001	13	2041	15
2002	12	2042	27
2003	11	2043	336
2004	10	2044	149
2005	9	2045	0
2006	8	2046	64
2007	7	2047	35
2008	6	2048	51
2009	5	2049	96
2010	4	2050	89
2011	3	2051	226
2012	2	2052	32
2013	1	2053	76
2014	0	2054	0
Total			**6,204.0**

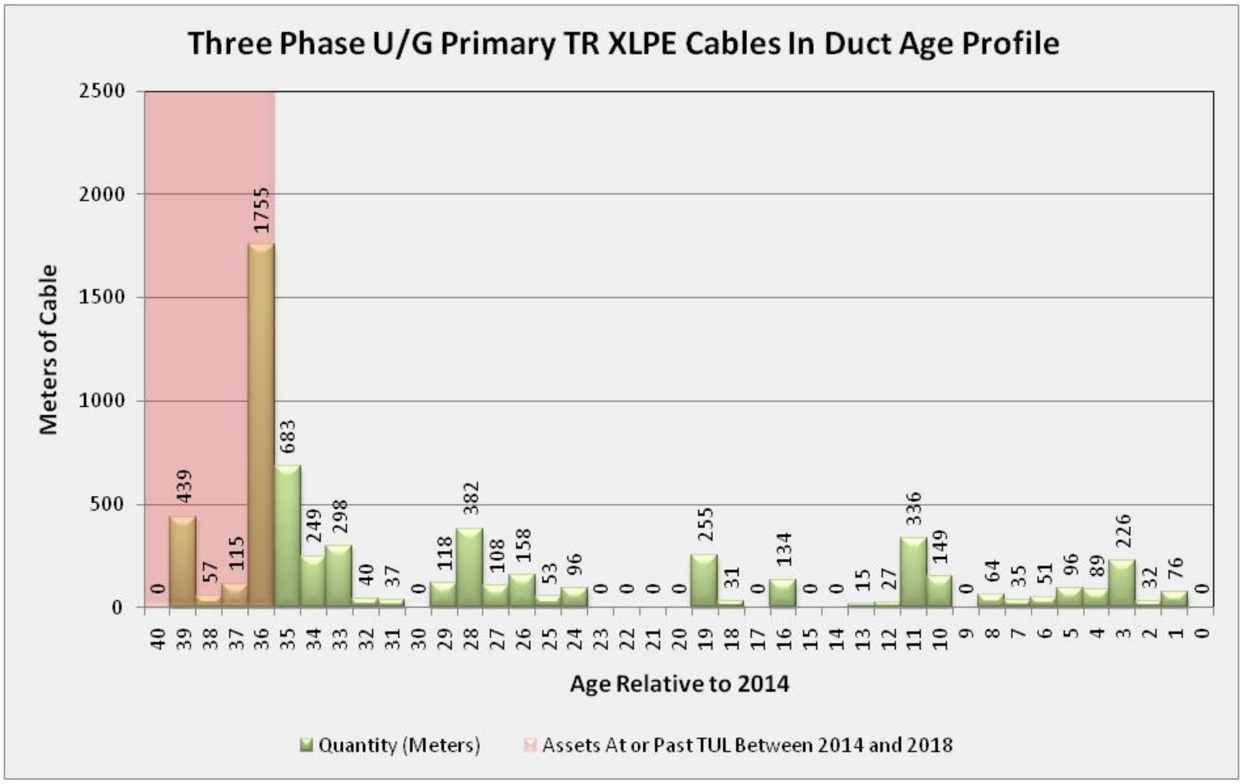
Total Cable Length of U/G Primary TR XLPE Cables In Duct Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 40 Year TUL)**	**Quantity (Meters)**
1974	40	2014	0.0
1975	39	2015	1613.1
1976	38	2016	558.9
1977	37	2017	629.3
1978	36	2018	5948.9
1979	35	2019	4271.7
1980	34	2020	1106.9
1981	33	2021	1104.0
1982	32	2022	240.7
1983	31	2023	680.3
1984	30	2024	0.0
1985	29	2025	1222.9
1986	28	2026	1944.0
1987	27	2027	744.7
1988	26	2028	1225.8
1989	25	2029	375.4
1990	24	2030	1029.5
1991	23	2031	0.0
1992	22	2032	0.0
1993	21	2033	0.0
1994	20	2034	0.0
1995	19	2035	1473.5
1996	18	2036	211.6
1997	17	2037	143.6
1998	16	2038	522.9
1999	15	2039	0.0
2000	14	2040	0.0
2001	13	2041	105.0
2002	12	2042	200.6
2003	11	2043	1247.5
2004	10	2044	686.2
2005	9	2045	132.1
2006	8	2046	311.5
2007	7	2047	225.4
2008	6	2048	330.1
2009	5	2049	468.0
2010	4	2050	386.5
2011	3	2051	967.9
2012	2	2052	206.2
2013	1	2053	409.0
2014	0	2054	0.0
Total			**30,724.0**

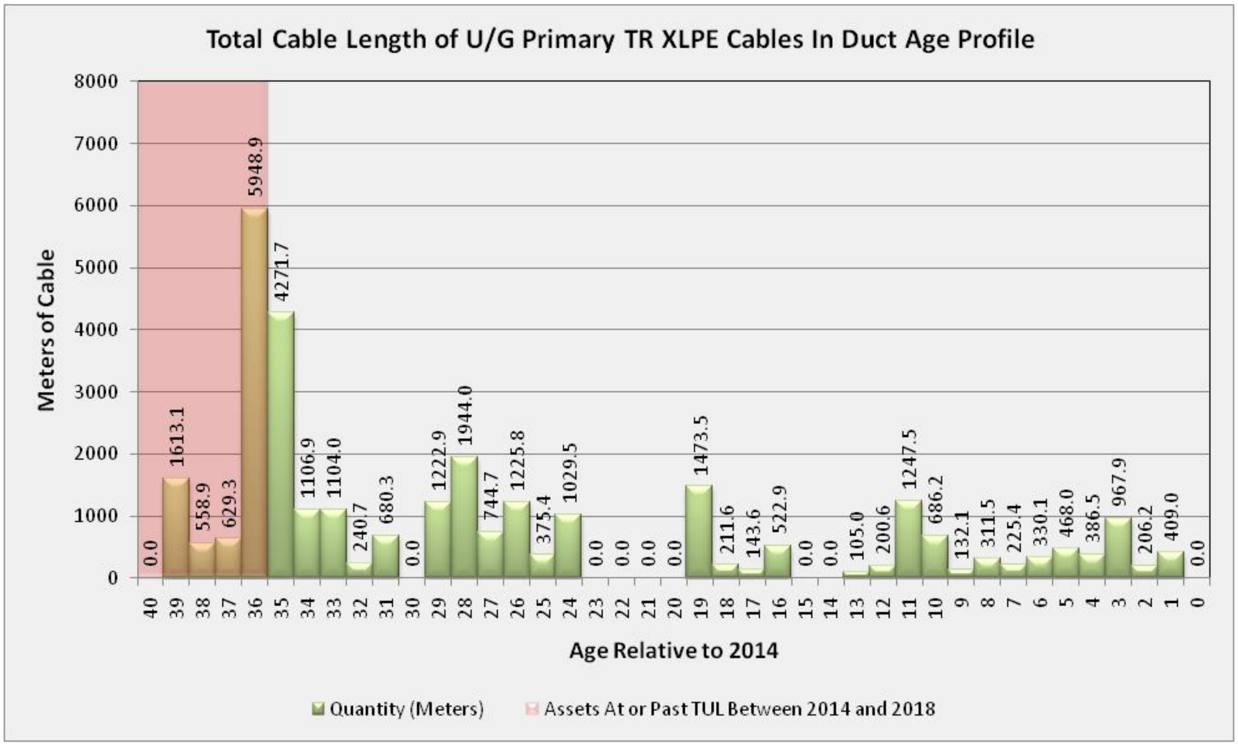


Single Phase U/G Primary TR XLPE Cables In Duct Age Profile
Meters of Cable
Age Relative to 2014
Quantity (Meters)
Assets At or Past TUL Between 2014 and 2018



Two Phase U/G Primary TR XLPE Cables In Duct Age Profile
Meters of Cable
Age Relative to 2014
Quantity (Meters)
Assets At or Past TUL Between 2014 and 2018


Three Phase U/G Primary TR XLPE Cables In Duct Age Profile
Meters of Cable
Age Relative to 2014
Quantity (Meters)
Assets At or Past TUL Between 2014 and 2018


Total Cable Length of U/G Primary TR XLPE Cables In Duct Age Profile
Meters of Cable
Age Relative to 2014
Quantity (Meters)
Assets At or Past TUL Between 2014 and 2018

5.3.2.2.f.iv.2 Primary TR XLPE Cables in Duct Adjusted End-of-Life Projections

FFPC has divided its underground cables into Single Phase, Two Phase and Three Phase Circuit groupings, as well as by Total Conductor Length for planning considerations. FFPC performs inspections and condition assessments on the portions of TR XLPE cables that are exposed above ground and are accessible via cable vaults, or pad-mounted transformer enclosures. The inspection and condition assessments are part of FFPC's maintenance inspection program which is conducted annually. The inspections and condition assessments are currently limited to identifying problems with cable terminations, which are a known common point of failure. The inspection process has identified close to a dozen sets of cable terminations over the last two years, which were close to failure due to extensive degradation (burning from moisture and contamination).

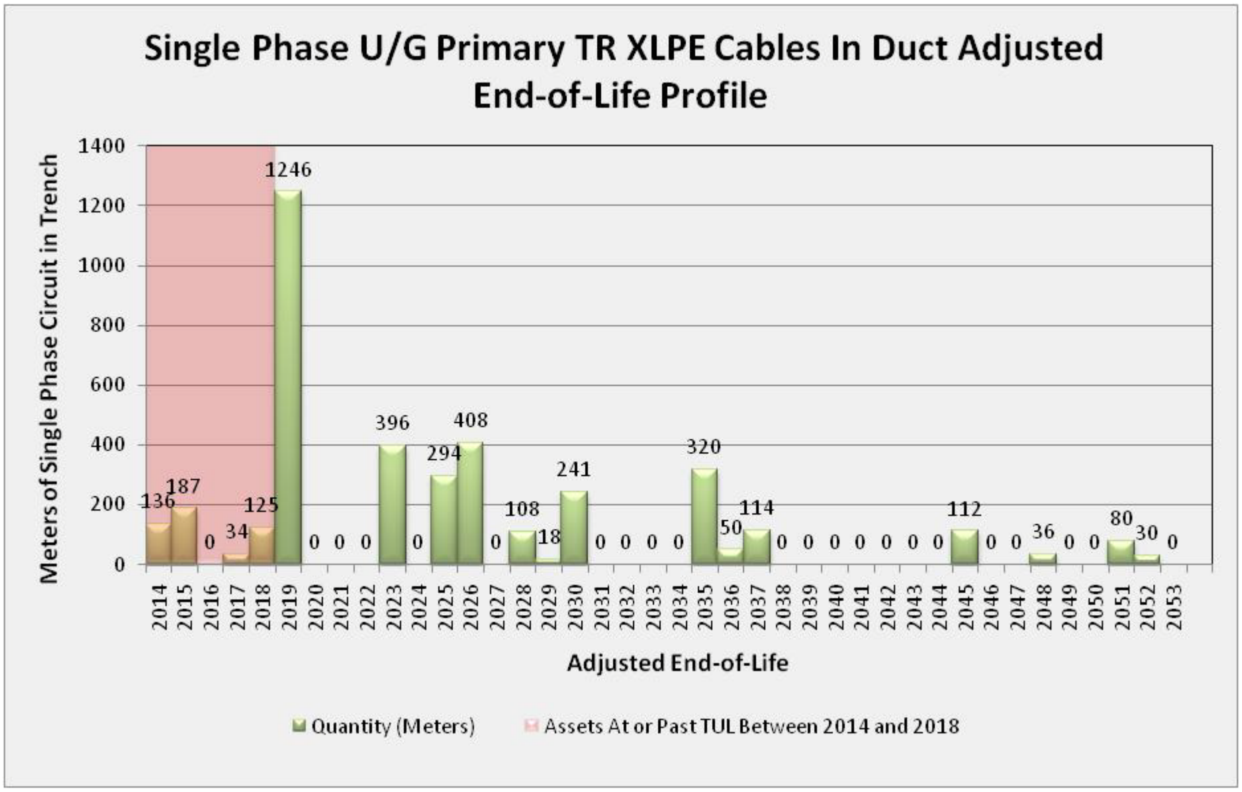
As the underground portions of cable runs are not conducive to visual inspection, FFPC is currently evaluating several service providers who perform analytical condition testing (determine cable insulation degradation profile,) as well as who offer cable rejuvenation services. A common rejuvenation technique is silicone injection. As per FFPC's asset management process, adjusted end-of-life values are assigned to cables according to the results of inspections and condition tests. FFPC's adjusted end-of-life projections will be updated once the analytical testing has been completed. A large portion of FFPC's underground cables are approaching their UL of 40 years throughout the 2014 to 2018 planning period, and as such will demand either rejuvenation or replacement. The following table and graph illustrate the adjusted end-of-life profile for FFPC's TR XLPE Cables in Duct.

Single Phase U/G Primary TR XLPE Cables In Duct Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity (Meters)**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	**2014**	**136**	**$ 6,240.39**	**98.396**
2	**2015**	**187**	**$ 8,609.27**	**98.396**
3	**2016**	**0**	**$ -**	**98.396**
4	**2017**	**34**	**$ 1,576.28**	**98.396**
5	**2018**	**125**	**$ 5,740.67**	**98.396**
6	2019	1246	$ 57,271.25	98.396
7	2020	0	$ -	98.396
8	2021	0	$ -	98.396
9	2022	0	$ -	98.396
10	2023	396	$ 18,214.88	98.396
11	2024	0	$ -	98.396
12	2025	294	$ 13,518.59	98.396
13	2026	408	$ 18,743.90	98.396
14	2027	0	$ -	98.396
15	2028	108	$ 4,972.52	98.396
16	2029	18	$ 813.45	98.396
17	2030	241	$ 11,088.37	98.396
18	2031	0	$ -	98.396
19	2032	0	$ -	98.396
20	2033	0	$ -	98.396
21	2034	0	$ -	98.396
22	2035	320	$ 14,705.66	98.396
23	2036	50	$ 2,298.00	98.396
24	2037	114	$ 5,221.49	98.396
25	2038	0	$ -	98.396
26	2039	0	$ -	98.396
27	2040	0	$ -	98.396
28	2041	0	$ -	98.396
29	2042	0	$ -	98.396
30	2043	0	$ -	98.396
31	2044	0	$ -	98.396
32	2045	112	$ 5,153.26	98.396
33	2046	0	$ -	98.396
34	2047	0	$ -	98.396
35	2048	36	$ 1,648.25	98.396
36	2049	0	$ -	98.396
37	2050	0	$ -	98.396
38	2051	80	$ 3,676.80	98.396
39	2052	30	$ 1,397.43	98.396
40	2053	0	$ -	98.396
Totals		**3935.8**	**$ 180,890.45**	**3935.8**

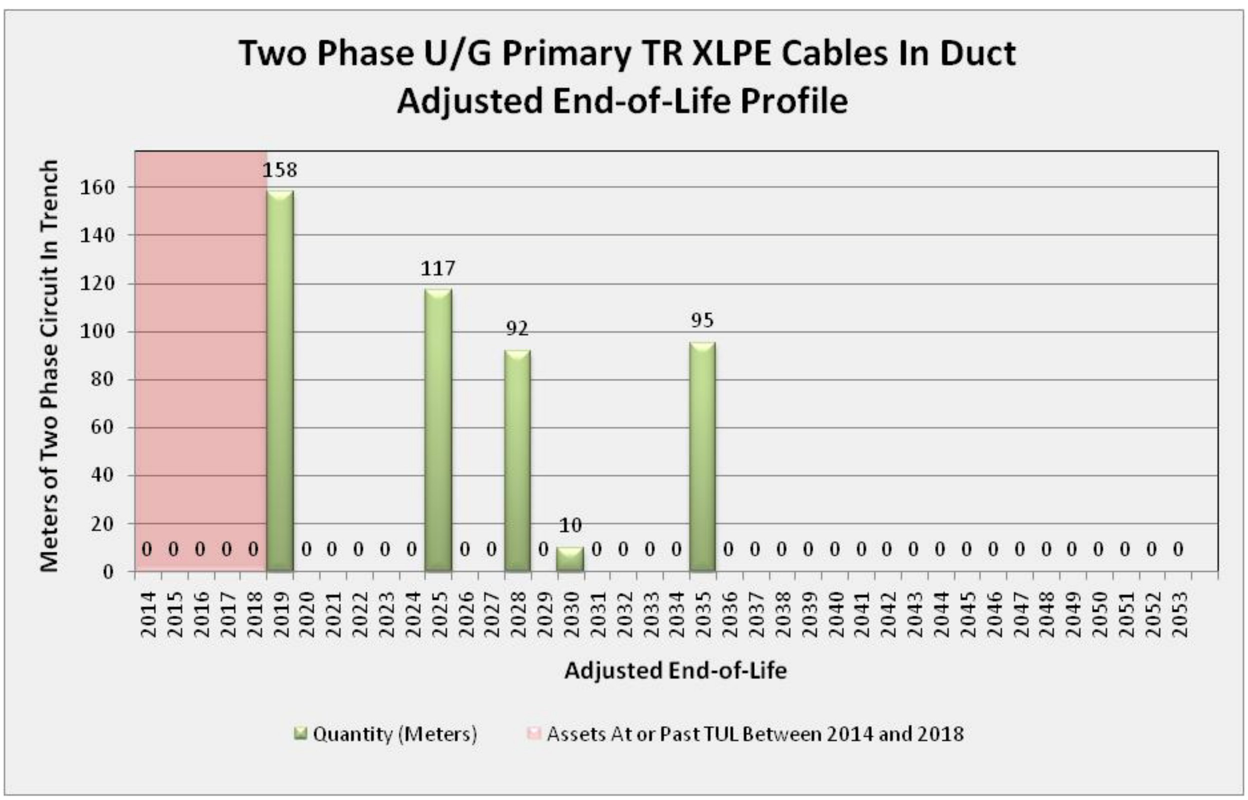
Two Phase U/G Primary TR XLPE Cables In Duct Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity (Meters)**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	**2014**	**0**	**$ -**	**11.800**
2	**2015**	**0**	**$ -**	**11.800**
3	**2016**	**0**	**$ -**	**11.800**
4	**2017**	**0**	**$ -**	**11.800**
5	**2018**	**0**	**$ -**	**11.800**
6	2019	158	$ 12,707.94	11.800
7	2020	0	$ -	11.800
8	2021	0	$ -	11.800
9	2022	0	$ -	11.800
10	2023	0	$ -	11.800
11	2024	0	$ -	11.800
12	2025	117	$ 9,410.31	11.800
13	2026	0	$ -	11.800
14	2027	0	$ -	11.800
15	2028	92	$ 7,399.56	11.800
16	2029	0	$ -	11.800
17	2030	10	$ 804.30	11.800
18	2031	0	$ -	11.800
19	2032	0	$ -	11.800
20	2033	0	$ -	11.800
21	2034	0	$ -	11.800
22	2035	95	$ 7,640.85	11.800
23	2036	0	$ -	11.800
24	2037	0	$ -	11.800
25	2038	0	$ -	11.800
26	2039	0	$ -	11.800
27	2040	0	$ -	11.800
28	2041	0	$ -	11.800
29	2042	0	$ -	11.800
30	2043	0	$ -	11.800
31	2044	0	$ -	11.800
32	2045	0	$ -	11.800
33	2046	0	$ -	11.800
34	2047	0	$ -	11.800
35	2048	0	$ -	11.800
36	2049	0	$ -	11.800
37	2050	0	$ -	11.800
38	2051	0	$ -	11.800
39	2052	0	$ -	11.800
40	2053	0	$ -	11.800
Totals		**472.0**	**$ 37,962.96**	**472.0**

Three Phase U/G Primary TR XLPE Cables In Duct Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity (Meters)**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	**2014**	**87**	**$ 10,010.17**	**155.1**
2	**2015**	**352**	**$ 40,444.80**	**155.1**
3	**2016**	**57**	**$ 6,573.05**	**155.1**
4	**2017**	**29**	**$ 3,338.68**	**155.1**
5	**2018**	**1841**	**$ 211,486.36**	**155.1**
6	2019	683	$ 78,501.15	155.1
7	2020	249	$ 28,606.84	155.1
8	2021	298	$ 34,239.04	155.1
9	2022	40	$ 4,624.42	155.1
10	2023	37	$ 4,284.99	155.1
11	2024	0	$ -	155.1
12	2025	118	$ 13,587.29	155.1
13	2026	382	$ 43,899.04	155.1
14	2027	108	$ 12,437.64	155.1
15	2028	158	$ 18,140.77	155.1
16	2029	53	$ 6,040.81	155.1
17	2030	74	$ 8,512.57	155.1
18	2031	0	$ -	155.1
19	2032	0	$ -	155.1
20	2033	0	$ -	155.1
21	2034	0	$ -	155.1
22	2035	255	$ 29,242.58	155.1
23	2036	31	$ 3,506.88	155.1
24	2037	0	$ -	155.1
25	2038	134	$ 15,431.84	155.1
26	2039	0	$ -	155.1
27	2040	0	$ -	155.1
28	2041	15	$ 1,723.50	155.1
29	2042	27	$ 3,086.54	155.1
30	2043	336	$ 38,588.26	155.1
31	2044	149	$ 17,088.07	155.1
32	2045	0	$ -	155.1
33	2046	64	$ 7,335.22	155.1
34	2047	35	$ 4,037.17	155.1
35	2048	51	$ 5,908.16	155.1
36	2049	96	$ 11,030.40	155.1
37	2050	111	$ 12,734.24	155.1
38	2051	226	$ 25,965.36	155.1
39	2052	32	$ 3,667.05	155.1
40	2053	76	$ 8,768.84	155.1
Totals		**6204.0**	**$ 712,841.75**	**6204.0**

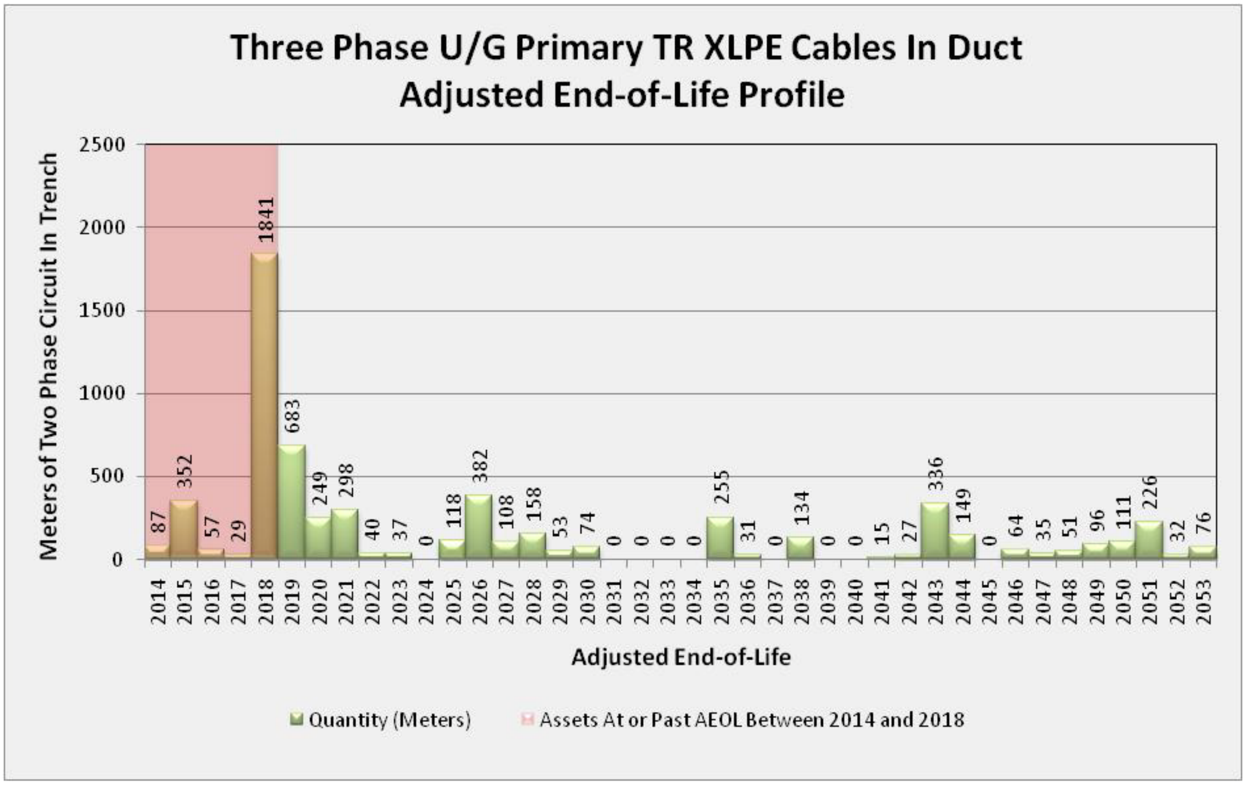
Total Cable Length UG Primary TR XLPE Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	Adjusted End-of-Life Year	Quantity (Meters)	Replacement Cost	Ideal Evenly Distributed Annual Replacement Rate
1	2014	497	$ 16,250.56	768.1
2	2015	1323	$ 49,054.07	768.1
3	2016	352	$ 6,573.05	768.1
4	2017	281	$ 4,914.97	768.1
5	2018	6297	$ 217,227.03	768.1
6	2019	4272	$ 148,480.34	768.1
7	2020	1107	$ 28,606.84	768.1
8	2021	1104	$ 34,239.04	768.1
9	2022	241	$ 4,624.42	768.1
10	2023	680	$ 22,499.88	768.1
11	2024	0	$ -	768.1
12	2025	1223	$ 36,516.19	768.1
13	2026	1944	$ 62,642.94	768.1
14	2027	745	$ 12,437.64	768.1
15	2028	1226	$ 30,512.86	768.1
16	2029	375	$ 6,854.26	768.1
17	2030	904	$ 20,405.24	768.1
18	2031	0	$ -	768.1
19	2032	0	$ -	768.1
20	2033	0	$ -	768.1
21	2034	0	$ -	768.1
22	2035	1473	$ 51,589.09	768.1
23	2036	212	$ 5,804.88	768.1
24	2037	144	$ 5,221.49	768.1
25	2038	523	$ 15,431.84	768.1
26	2039	0	$ -	768.1
27	2040	0	$ -	768.1
28	2041	105	$ 1,723.50	768.1
29	2042	201	$ 3,086.54	768.1
30	2043	1248	$ 38,588.26	768.1
31	2044	686	$ 17,088.07	768.1
32	2045	132	$ 5,153.26	768.1
33	2046	312	$ 7,335.22	768.1
34	2047	225	$ 4,037.17	768.1
35	2048	330	$ 7,556.41	768.1
36	2049	468	$ 11,030.40	768.1
37	2050	512	$ 12,734.24	768.1
38	2051	968	$ 29,642.16	768.1
39	2052	206	$ 5,064.48	768.1
40	2053	409	$ 8,768.84	768.1
Total		30724.0	$ 931,695.17	30724.0



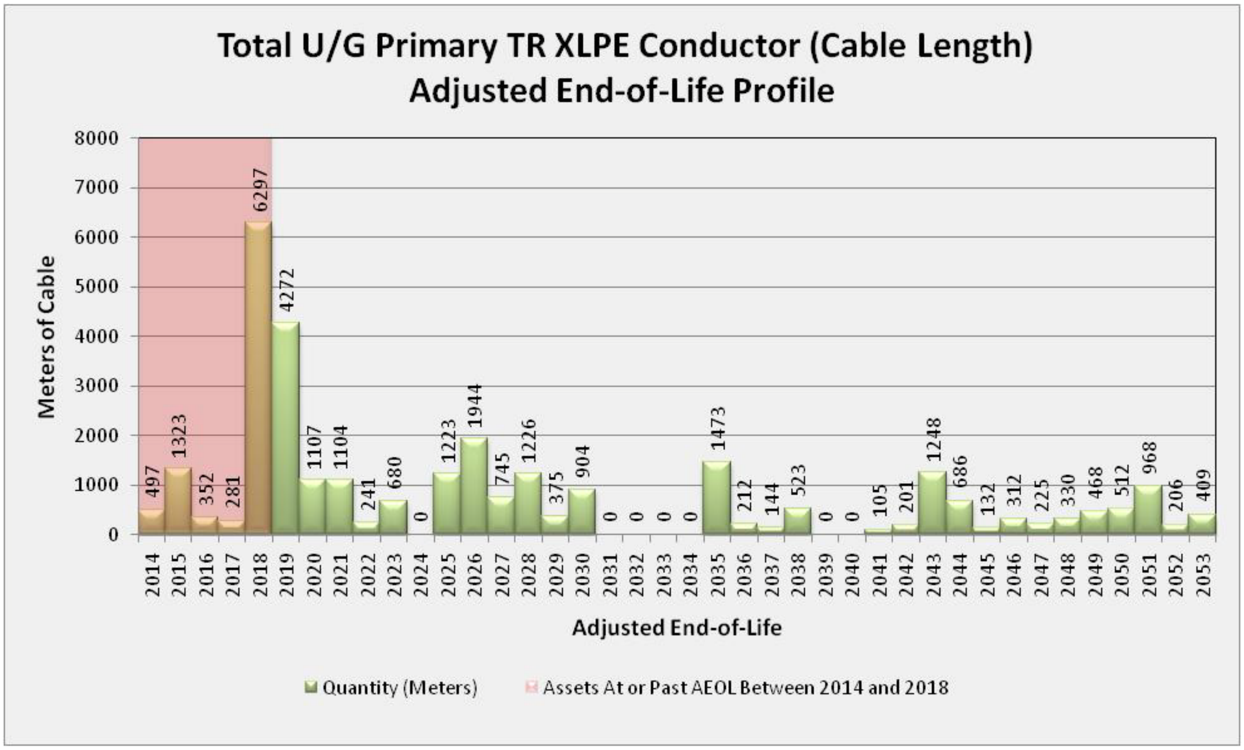
Single Phase U/G Primary TR XLPE Cables In Duct Adjusted End-of-Life Profile
Meters of Single Phase Circuit in Trench
Adjusted End-of-Life
Quantity (Meters)
Assets At or Past TUL Between 2014 and 2018



Two Phase U/G Primary TR XLPE Cables In Duct Adjusted End-of-Life Profile
Meters of Two Phase Circuit In Trench
Adjusted End-of-Life
Quantity (Meters)
Assets At or Past TUL Between 2014 and 2018



Three Phase U/G Primary TR XLPE Cables In Duct
Adjusted End-of-Life Profile
Meters of Two Phase Circuit In Trench
Adjusted End-of-Life
Quantity (Meters)
Assets At or Past AEOL Between 2014 and 2018



Total U/G Primary TR XLPE Conductor (Cable Length)
Adjusted End-of-Life Profile
Meters of Cable
Adjusted End-of-Life
Quantity (Meters)
Assets At or Past AEOL Between 2014 and 2018

5.3.2.2.f.iv.3 Lifecycle Analysis Summary & Budget Allocation

Total Cable Length of U/G Primary TR XLPE Cables In Duct Profile			
30724	Quantity (Meters)	412	10 Year Historic Replacement/Installation Rate (Units/Year)
40	UL	8750	Quantity Reaching Adjusted End of Life Over Forecast Period
27.1	Average Age of Population	$294,020	Total Capital Replacement Cost over Forecast Period
768.10	Ideal Equalized Annual Replacement Rate (Meters/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
67.7%	% UL Consumed	1750.06	Average Replacements Per Year
80.2%	2019 % UL Consumed with no Reinvestment	$58,804	Average Annual Cost Per Year
		$23,292	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$80,537	2014 - 2018 Total Allocated Capital Replacement Amount
		$100,000	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 30.7 km of Primary TR XLPE Cables in Duct, are not evenly distributed over one lifecycle period beginning in 2014. The population has a high positive skew, and as such, approximately 74% (22.7 km) will require replacement over the first half of the lifecycle period (over the next 20 years). FFPC adopted a UL of 40 years, and based on the average age of 27.1 years for the population, 67.7% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 80.2% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced or installed an average of 0.4 km of primary TR XLPE cables in duct per year, which is significantly lower than the ideal average annual replacement rate of 0.8 km per year. Over the 2014 to 2018 forecast period, an estimated 8.7 km of cables will reach or surpass their AEOL, requiring replacement or refurbishment. The total estimated capital replacement cost is $294,020. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $23,292 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has allocated a total of $52,537 towards the replacement of 1.9 km of short cable runs and a total of $128,000 towards the refurbishment of 6.8 km of long cable runs. The average annual replacement rate is projected to be 0.38 km per year, with an average annual replacement cost of $10,507. The average annual refurbishment rate is projected to be 1.36 km per year, with an average annual refurbishment cost of $25,600 per year. FFPC has allocated a total of $180,537 towards capital replacements and refurbishments over the 2014 to 2018 planning period, which equates to average annual reinvestments of $36,107. This is approximately 55% higher than the ideal average annual reinvestment need, due to the large quantify of projected cable failures, as illustrated by the large positive skew on the age profile.

5.3.2.2.f.iv.4 Impact of Primary TR XLPE Cables in Duct on DS Plan

The planned reinvestment into Primary TR XLPE Cables in Duct has a significant impact on FFPC's DS Plan. The combined total capital replacement and refurbishment cost of $180,537 for the cables represents 5.1% of the total planned capital expenditures over the 2014 to 2018 planning horizon.

5.3.2.2.f.v. Secondary Cables Direct Buried

FFPC has not yet mapped or recorded the dimension of individual underground secondary cable runs. The mapping and collection of this dimensional data will be completed over the next several years, as part of FFPC's GIS expansion effort. FFPC estimates that approximately 5% of its customer base utilizes underground services, and that the average service length is 20 meters. As such, FFPC estimates that it has approximately 3.8 km of direct buried secondary cables (at the time FFPC estimated having 3830 customers). Direct buried secondary cables are mostly found in newer subdivisions throughout the community.

5.3.2.2.f.v.1 Secondary Cables Direct Buried Age Profile Relative to TUL

FFPC performs inspections and condition assessments on the portions of direct buried secondary cables that are exposed above ground and are accessible via cable vaults or pad-mounted transformer enclosures. The inspection and condition assessments are part of FFPC's maintenance inspection program, which is conducted annually. FFPC has adopted a TUL of 35 years for direct buried secondary cables, as per the "Kinectrics Report". The age profile of individual secondary cables direct buried is not known at this time. The overall useful remaining life of this asset class is estimated to be 28%.

5.3.2.2.f.v.2 Secondary Cables Direct Buried Adjusted End-of-Life Projections

Adjusted End-of-Life projections are unavailable at this time.

5.3.2.2.f.v.3 Lifecycle Analysis Summary & Budget Allocation

To date, FFPC does not have complete age profile data set available for secondary cables direct buried. FFPC will rely on inspection findings for identifying cables that are near the end of their useful service life. The total average annual reinvestment need for this asset class, as established by the asset management process, is $1,953. The annual reinvestment need is based on the total cost to replace the asset class divided by the period established by the UL that FFPC adopted ($68,366 / 35 years). FFPC has allocated a total of $10,000 for capital cable replacements over the planning horizon, which equates to a total annual reinvestment of $2,000. FFPC's strategy is to complete gathering age profile, dimension and condition data, and once it has been obtained to revise reinvestment needs accordingly.

5.3.2.2.f.v.4 Impact of Secondary Cables Direct Buried on DS Plan

The overall impact of this asset class on FFPC's DS Plan is very small. FFPC has allocated a total of $10,000 towards direct buried cable replacements over the planning horizon, which represents approximately 0.28% of all planned capital expenditures. FFPC plans on intensifying replacements over the 2019 to 2023 planning horizon, at which time individual cable runs will be better understood.

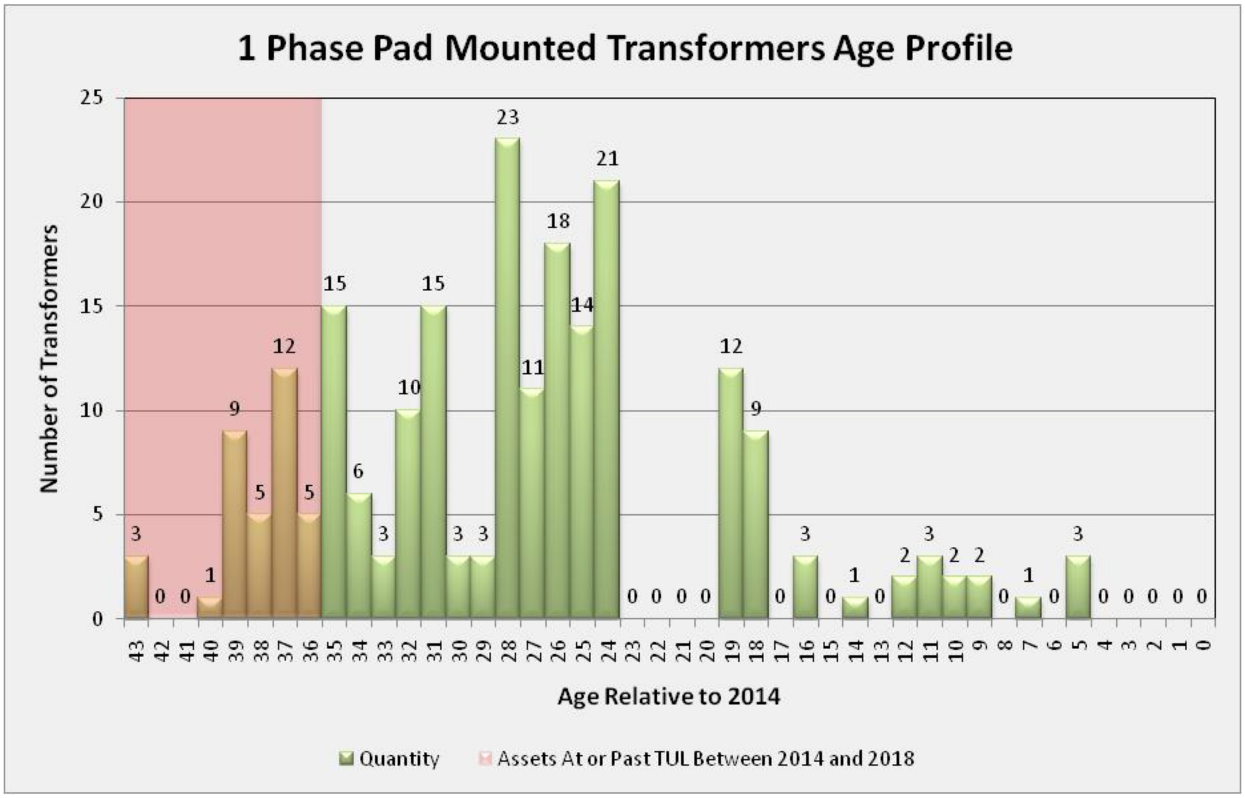
5.3.2.2.f.vi. Pad-Mounted Transformers

Pad-mounted transformers represent a significant portion of FFPC's overall asset base with respect to replacement cost. As previously mentioned, FFPC performed a distribution system wide voltage conversion and rebuild, over a relatively small window of time. As such, a significant portion of FFPC's pad-mounted transformers are of the same vintage. FFPC will experience somewhat of a "tidal wave" affect in the near future as these assets approach their UL of 40 years. FFPC has divided its pad-mounted transformer fleet into Three Phase and Single Phase classes. FFPC currently owns and operates 215 single phase and 38 three phase pad-mounted transformers.

5.3.2.2.f.vi.1 Single Phase Pad-Mounted Transformers Age Profile Relative to TUL

The following table and graph represent the age profile of FFPC's single phase pad-mounted transformers with respect to a TUL of 40 years.

Single Phase Pad-Mounted Transformers Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 40 Year TUL)**	**Quantity**
1971	**43**	**2011**	**3**
1972	**42**	**2012**	**0**
1973	**41**	**2013**	**0**
1974	**40**	**2014**	**1**
1975	**39**	**2015**	**9**
1976	**38**	**2016**	**5**
1977	**37**	**2017**	**12**
1978	**36**	**2018**	**5**
1979	35	2019	15
1980	34	2020	6
1981	33	2021	3
1982	32	2022	10
1983	31	2023	15
1984	30	2024	3
1985	29	2025	3
1986	28	2026	23
1987	27	2027	11
1988	26	2028	18
1989	25	2029	14
1990	24	2030	21
1991	23	2031	0
1992	22	2032	0
1993	21	2033	0
1994	20	2034	0
1995	19	2035	12
1996	18	2036	9
1997	17	2037	0
1998	16	2038	3
1999	15	2039	0
2000	14	2040	1
2001	13	2041	0
2002	12	2042	2
2003	11	2043	3
2004	10	2044	2
2005	9	2045	2
2006	8	2046	0
2007	7	2047	1
2008	6	2048	0
2009	5	2049	3
2010	4	2050	0
2011	3	2051	0
2012	2	2052	0
2013	1	2053	0
2014	0	2054	0
Total			**215**

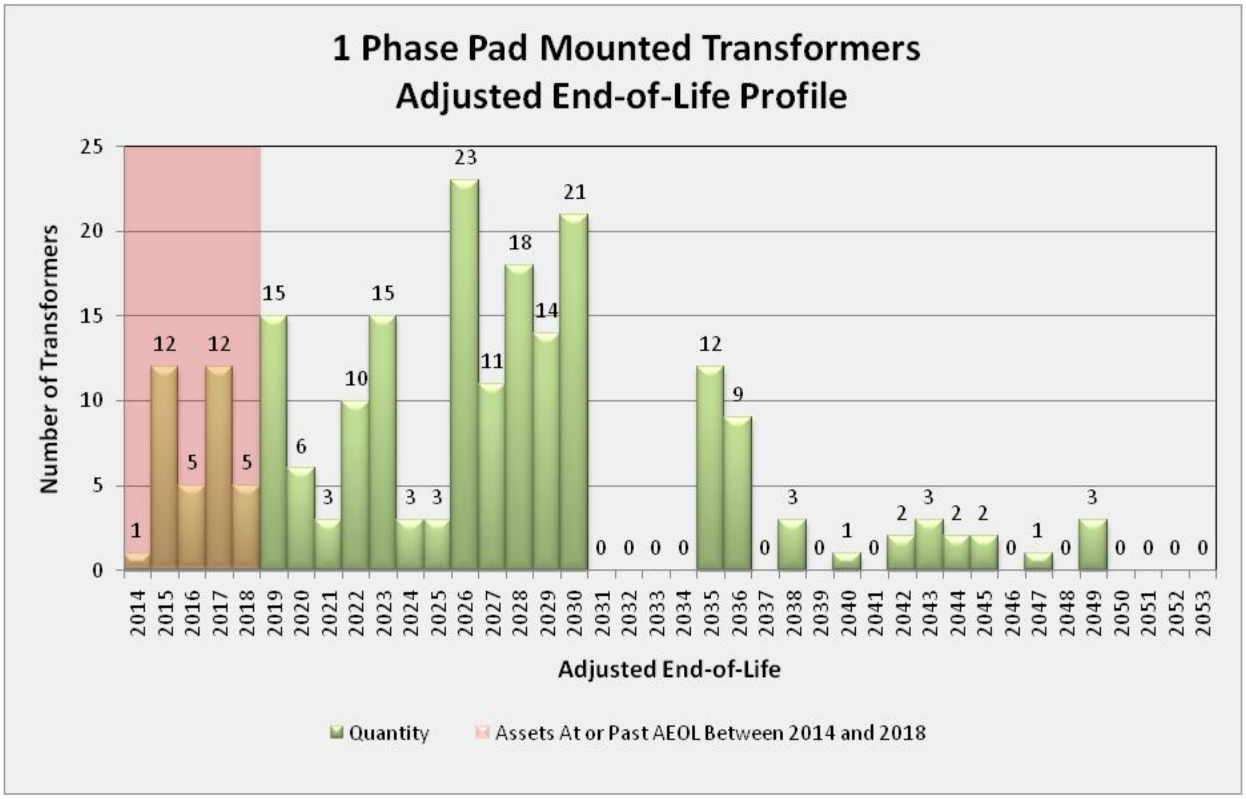


5.3.2.2.f.vi.2 Single Phase Pad-Mounted Transformers Adjusted End-of-Life Projections

FFPC performs detailed inspections of pad-mounted transformers on an annual basis. The results of the inspections are used to assess the overall health of transformers with respect to age. Physical defects such as oil leaks or cracked bushing indicate that a transformer is very near to the end of its useful service life, having a high probability of failure. FFPC has assigned adjusted end-of-life dates to individual transformers using FFPC's asset management process. It is important to note that the adjusted end-of-life values are of higher importance as assets approach their TUL, as opposed to during their earlier years.

FFPC is also currently working on recording the relationship of transformers to customers, which will allow for analysis of electrical loading from smart meter data. Smart meter data will essentially give FFPC insight into individual transformer utilization (loading). Electrical loading is a large contributor to transformer degradation, and as such, being able to quantify it will greatly enhance FFPC's ability of accurately predicting transformer failures. The following table and graph illustrate the adjusted end-of-life profile for FFPC's Single Phase Pad-Mounted Transformer fleet, based on the most recent inspection results.

Single Phase Pad-Mounted Transformers Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	**2014**	**1**	**$ 11,036.02**	**5.375**
2	**2015**	**12**	**$ 135,682.24**	**5.375**
3	**2016**	**5**	**$ 49,680.10**	**5.375**
4	**2017**	**12**	**$ 123,932.24**	**5.375**
5	**2018**	**5**	**$ 48,430.10**	**5.375**
6	2019	15	$ 146,679.28	5.375
7	2020	6	$ 63,216.12	5.375
8	2021	3	$ 31,608.06	5.375
9	2022	10	$ 102,110.20	5.375
10	2023	15	$ 155,040.30	5.375
11	2024	3	$ 30,108.06	5.375
12	2025	3	$ 31,108.06	5.375
13	2026	23	$ 235,828.46	5.375
14	2027	11	$ 109,896.22	5.375
15	2028	18	$ 181,426.32	5.375
16	2029	14	$ 141,504.28	5.375
17	2030	21	$ 208,756.42	5.375
18	2031	0	$ -	5.375
19	2032	0	$ -	5.375
20	2033	0	$ -	5.375
21	2034	0	$ -	5.375
22	2035	12	$ 116,571.22	5.375
23	2036	9	$ 106,824.18	5.375
24	2037	0	$ -	5.375
25	2038	3	$ 52,608.06	5.375
26	2039	0	$ -	5.375
27	2040	1	$ 5,175.00	5.375
28	2041	0	$ -	5.375
29	2042	2	$ 20,072.04	5.375
30	2043	3	$ 34,608.06	5.375
31	2044	2	$ 22,072.04	5.375
32	2045	2	$ 19,711.02	5.375
33	2046	0	$ -	5.375
34	2047	1	$ 5,175.00	5.375
35	2048	0	$ -	5.375
36	2049	3	$ 30,108.06	5.375
37	2050	0	$ -	5.375
38	2051	0	$ -	5.375
39	2052	0	$ -	5.375
40	2053	0	$ -	5.375
Totals		**215**	**$ 2,218,967.16**	**215**



5.3.2.2.f.vi.3 Lifecycle Analysis Summary & Budget Allocation

Single Phase Pad-Mounted Transformers Profile

215	Quantity	0.8	10 Year Historic Replacement/Installation Rate (Units/Year)
40	UL	35	Quantity Reaching Adjusted End of Life Over Forecast Period
27.7	Average Age of Population	$368,761	Total Capital Replacement Cost over Forecast Period
5.38	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
69.3%	% UL Consumed	7.00	Average Replacements Per Year
81.8%	2019 % UL Consumed with no Reinvestment	$73,752	Average Annual Cost Per Year
		$55,474	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$368,761	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 215 single phase pad-mounted transformers is not evenly distributed over one lifecycle period beginning in 2014. The population has high positive skew, and as such, approximately 82% (177 transformers) will require replacement over the first half of the lifecycle period (over the next 20 years). FFPC adopted a UL of 40 years, and based on the average age of 27.7 years for the population, 69.3% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 81.8% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced an average of 0.8 single phase pad-mounted transformers per year, which is significantly lower than the ideal average annual replacement rate of 5.38 transformers per year. Over the 2014 to 2018 forecast period, an estimated 35 transformers will reach their AEOL, requiring replacement. The total estimated capital replacement cost is $368,761, which has been allocated. No capital refurbishments have been allocated as transformers are not conducive to distributor refurbishing. The average annual replacement rate is projected to be 7 transformers per year, and the average total annual reinvestment is $73,752 per year. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $55,474 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has allocated a total of $368,761 towards capital replacements and no capital for refurbishments over the 2014 to 2018 planning period. This is approximately 33% higher than the ideal average annual reinvestment need, due to the large number of projected failures based on the large positive skew of the transformer age profile.

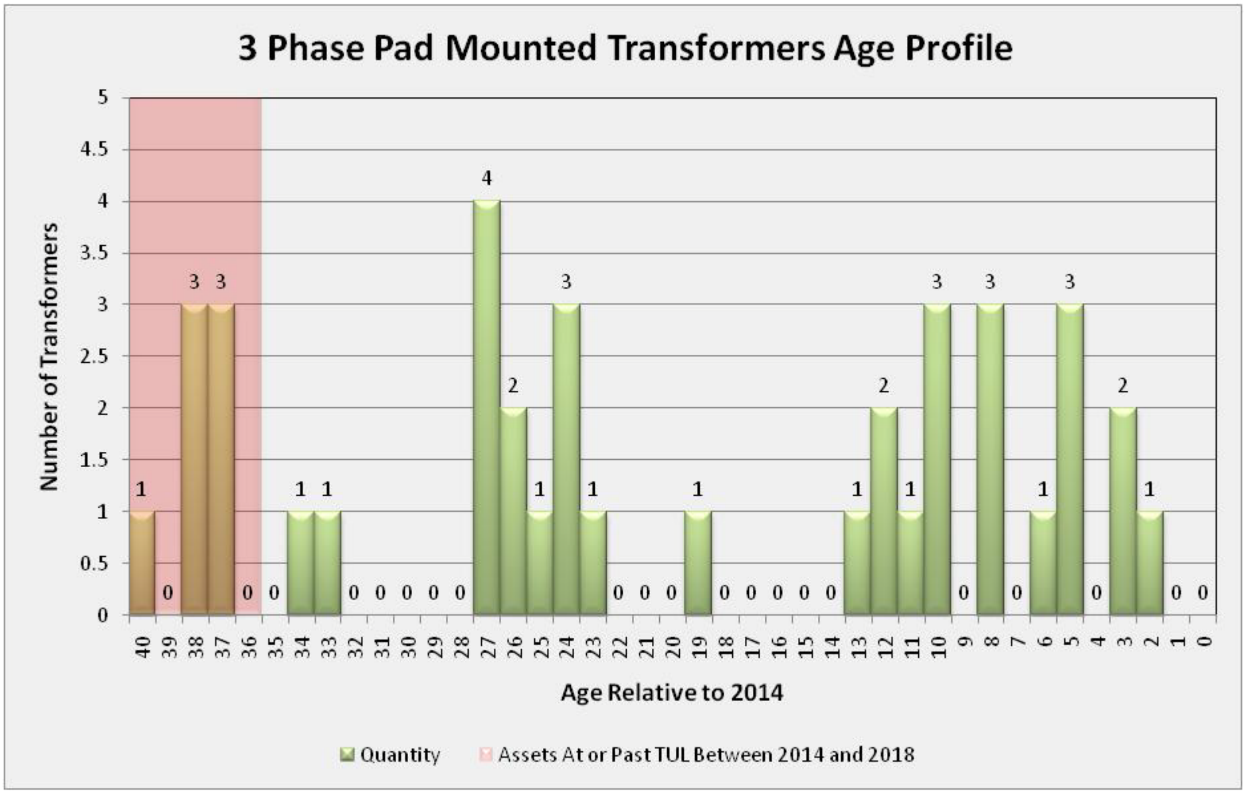
5.3.2.2.f.vi.4 Impact of Single Phase Pad-Mounted Transformers on DS Plan

The planned reinvestment into single phase pad-mounted transformers has a significant impact on FFPC's DS Plan. The total capital replacement cost of $368,761 for the transformers represents 10.5% of the total planned capital expenditures over the 2014 to 2018 planning horizon.

5.3.2.2.f.vi.5 *Three Phase Pad-Mounted Transformers Age Profile Relative to TUL*

The following table and graph represent the age profile of FFPC's single phase pad-mounted transformers with respect to a TUL of 40 years.

Three Phase Pad-Mounted Transformers Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 40 Year TUL)**	**Quantity**
1974	**40**	**2014**	**1**
1975	**39**	**2015**	**0**
1976	**38**	**2016**	**3**
1977	**37**	**2017**	**3**
1978	**36**	**2018**	**0**
1979	35	2019	0
1980	34	2020	1
1981	33	2021	1
1982	32	2022	0
1983	31	2023	0
1984	30	2024	0
1985	29	2025	0
1986	28	2026	0
1987	27	2027	4
1988	26	2028	2
1989	25	2029	1
1990	24	2030	3
1991	23	2031	1
1992	22	2032	0
1993	21	2033	0
1994	20	2034	0
1995	19	2035	1
1996	18	2036	0
1997	17	2037	0
1998	16	2038	0
1999	15	2039	0
2000	14	2040	0
2001	13	2041	1
2002	12	2042	2
2003	11	2043	1
2004	10	2044	3
2005	9	2045	0
2006	8	2046	3
2007	7	2047	0
2008	6	2048	1
2009	5	2049	3
2010	4	2050	0
2011	3	2051	2
2012	2	2052	1
2013	1	2053	0
2014	0	2054	0
Total			**38**

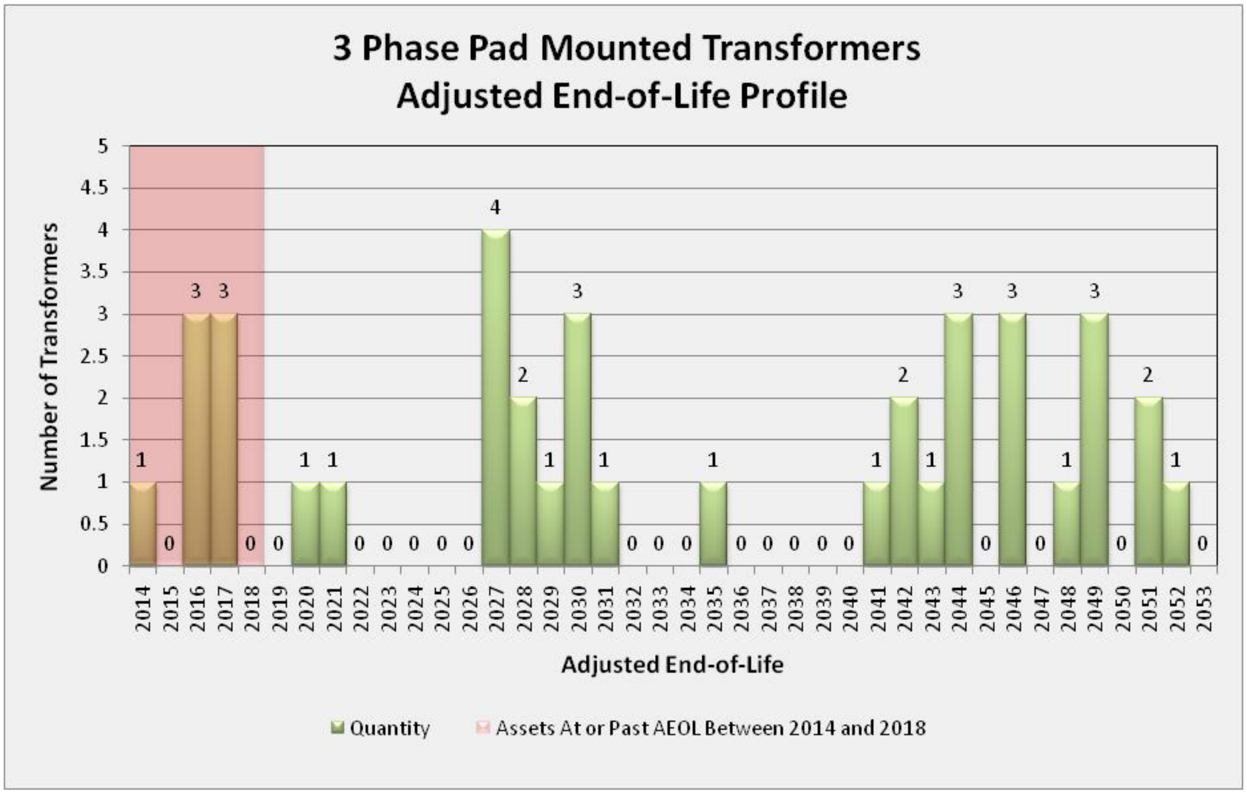


5.3.2.2.f.vi.6 Three Phase Pad-Mounted Transformers Adjusted End-of-Life Projections

FFPC performs detailed inspections of pad-mounted transformers on an annual basis. The results of the inspections are used to assess the overall health of transformers with respect to age. Physical defects, such as oil leaks or cracked bushings, indicate that a transformer is very near to the end of its useful life having a high probability of failure. FFPC has assigned adjusted end-of-life dates to individual transformers using FFPC's asset management process. It is important to note that the adjusted end-of-life values are of higher importance as assets approach their TUL, as opposed to during their earlier years.

FFPC is also currently working on recording the relationship of transformers to customers, which will allow for analysis of electrical loading from smart meter data. Smart meter data will essentially give FFPC insight into individual transformer utilization (loading). Electrical loading is a large contributor of transformer degradation, and as such, being able to quantify it will greatly enhance FFPC's ability of predicting transformer failures. The following table and graph illustrate the adjusted end-of-life profile for FFPC's Three Phase Pad-Mounted Transformer fleet, based on the most recent inspection results.

Three Phase Pad-Mounted Transformers Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	**2014**	**1**	**$ 25,106.29**	**0.950**
2	**2015**	**0**	**$ -**	**0.950**
3	**2016**	**3**	**$ 66,318.87**	**0.950**
4	**2017**	**3**	**$ 55,737.58**	**0.950**
5	**2018**	**0**	**$ -**	**0.950**
6	2019	0	$ -	0.950
7	2020	1	$ 20,106.29	0.950
8	2021	1	$ 20,106.29	0.950
9	2022	0	$ -	0.950
10	2023	0	$ -	0.950
11	2024	0	$ -	0.950
12	2025	0	$ -	0.950
13	2026	0	$ -	0.950
14	2027	4	$ 76,425.16	0.950
15	2028	2	$ 38,212.58	0.950
16	2029	1	$ 20,106.29	0.950
17	2030	3	$ 63,318.87	0.950
18	2031	1	$ 25,106.29	0.950
19	2032	0	$ -	0.950
20	2033	0	$ -	0.950
21	2034	0	$ -	0.950
22	2035	1	$ 25,106.29	0.950
23	2036	0	$ -	0.950
24	2037	0	$ -	0.950
25	2038	0	$ -	0.950
26	2039	0	$ -	0.950
27	2040	0	$ -	0.950
28	2041	1	$ 23,106.29	0.950
29	2042	2	$ 45,212.58	0.950
30	2043	1	$ 25,106.29	0.950
31	2044	3	$ 68,612.58	0.950
32	2045	0	$ -	0.950
33	2046	3	$ 61,112.58	0.950
34	2047	0	$ -	0.950
35	2048	1	$ 23,106.29	0.950
36	2049	3	$ 63,812.58	0.950
37	2050	0	$ -	0.950
38	2051	2	$ 46,212.58	0.950
39	2052	1	$ 16,100.00	0.950
40	2053	0	$ -	0.950
Totals		**38**	**$ 808,032.57**	**38**



5.3.2.2.f.vi.7 *Lifecycle Analysis Summary & Budget Allocation*

Three Phase Pad-Mounted Transformers Profile			
38	Quantity	1.3	10 Year Historic Replacement/Installation Rate (Units/Year)
40	UL	7	Quantity Reaching Adjusted End of Life Over Forecast Period
20.1	Average Age of Population	$147,163	Total Capital Replacement Cost over Forecast Period
0.95	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
50.1%	% UL Consumed	1.40	Average Replacements Per Year
62.6%	2019 % UL Consumed with no Reinvestment	$29,433	Average Annual Cost Per Year
		$20,201	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$147,163	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 38 three phase pad-mounted transformers is sporadic; however, fairly evenly weighted over one lifecycle period beginning in 2014. Approximately 55% (21 transformers) will require replacement over the first half of the lifecycle period (over the next 20 years).

FFPC adopted a UL of 40 years, and based on the average age of 20.1 years for the population, 50.1% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 62.6% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced or installed an average of 1.3 three phase pad-mounted transformers per year, which is slightly higher than the ideal average annual replacement rate of 0.95 transformers per year. Over the 2014 to 2018 forecast period, an estimated 7 transformers will reach their AEOL, requiring replacement. The total estimated capital replacement cost is $147,163, which has been allocated. No capital refurbishments have been allocated as transformers are not conducive to refurbishing. The average annual replacement rate is projected to be 1.4 transformers per year, and the average total annual reinvestment is $29,433 per year. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $20,201 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has allocated a total of $147,163 towards capital replacements and no capital for refurbishments over the 2014 to 2018 planning period. This is approximately 46% higher than the ideal average annual reinvestment need, due to the sporadic distribution of projected failures.

5.3.2.2.f.vi.8 Impact of Three Phase Pad-Mounted Transformers on DS Plan

The planned reinvestment into three phase pad-mounted transformers has a material impact on FFPC's DS Plan. The total capital replacement cost of $147,163 for the transformers represents 4.2% of the total planned capital expenditures over the 2014 to 2018 planning horizon.

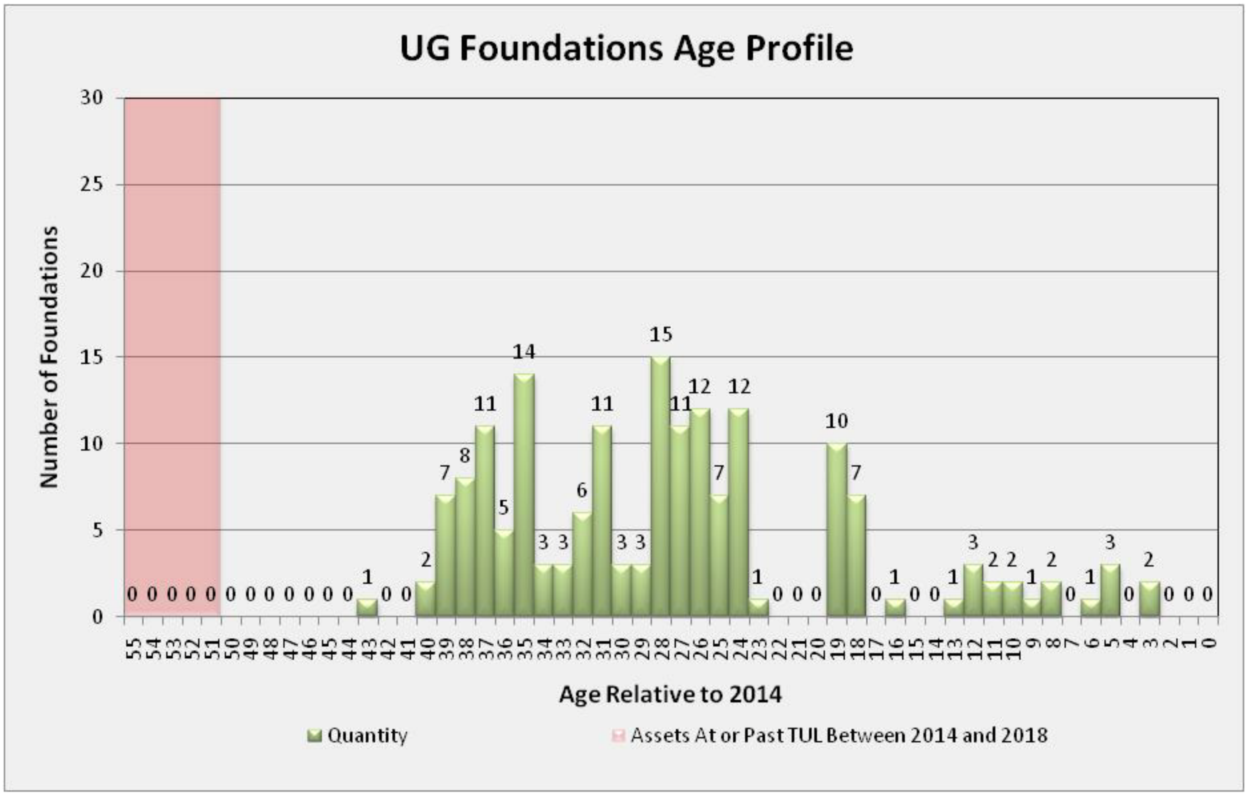
5.3.2.2.f.vii. Underground Foundations

FFPC has 170 underground foundations installed to support its pad-mounted transformer fleet. The foundations are essentially buried pre-casted cement vaults. FFPC has several legacy three phase pad-mount transformer settings, which utilize three individual pole mounted transformers arranged as a three phase bank. The transformers are mounted on an underground foundation, as well as they are covered by metal enclosures for protection. These settings will be replaced with modern day three phase pad-mounted transformers upon them reaching the end of their useful service life. FFPC has adopted the UL value of 80 years, compared to the 55 year TUL as per the "Kinectrics Report". FFPC's strategy is to sustain underground foundations such they will last 80 years, which would correspond to two full transformer lifecycles. FFPC does not expect to incur any significant expenses in this category over the 2014 to 2018 planning period, due to the relatively young age of the installations. FFPC will monitor the appropriateness of its adopted 80 years UL through its inspection program.

5.3.2.2.f.vii.1 Underground Foundations Age Profile Relative to TUL

The following table and graph represent the age of FFPC's Underground Foundations with respect to a TUL of 55 years.

UG Foundations Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	Age	End-of-Life (Based on 55 Year TUL)	Quantity
1959	55	2014	0
1960	54	2015	0
1961	53	2016	0
1962	52	2017	0
1963	51	2018	0
1964	50	2019	0
1965	49	2020	0
1966	48	2021	0
1967	47	2022	0
1968	46	2023	0
1969	45	2024	0
1970	44	2025	0
1971	43	2026	1
1972	42	2027	0
1973	41	2028	0
1974	40	2029	2
1975	39	2030	7
1976	38	2031	8
1977	37	2032	11
1978	36	2033	5
1979	35	2034	14
1980	34	2035	3
1981	33	2036	3
1982	32	2037	6
1983	31	2038	11
1984	30	2039	3
1985	29	2040	3
1986	28	2041	15
1987	27	2042	11
1988	26	2043	12
1989	25	2044	7
1990	24	2045	12
1991	23	2046	1
1992	22	2047	0
1993	21	2048	0
1994	20	2049	0
1995	19	2050	10
1996	18	2051	7
1997	17	2052	0
1998	16	2053	1
1999	15	2054	0
2000	14	2055	0
2001	13	2056	1
2002	12	2057	3
2003	11	2058	2
2004	10	2059	2
2005	9	2060	1
2006	8	2061	2
2007	7	2062	0
2008	6	2063	1
2009	5	2064	3
2010	4	2065	0
2011	3	2066	2
2012	2	2067	0
2013	1	2068	0
2014	0	2069	0
Total			170



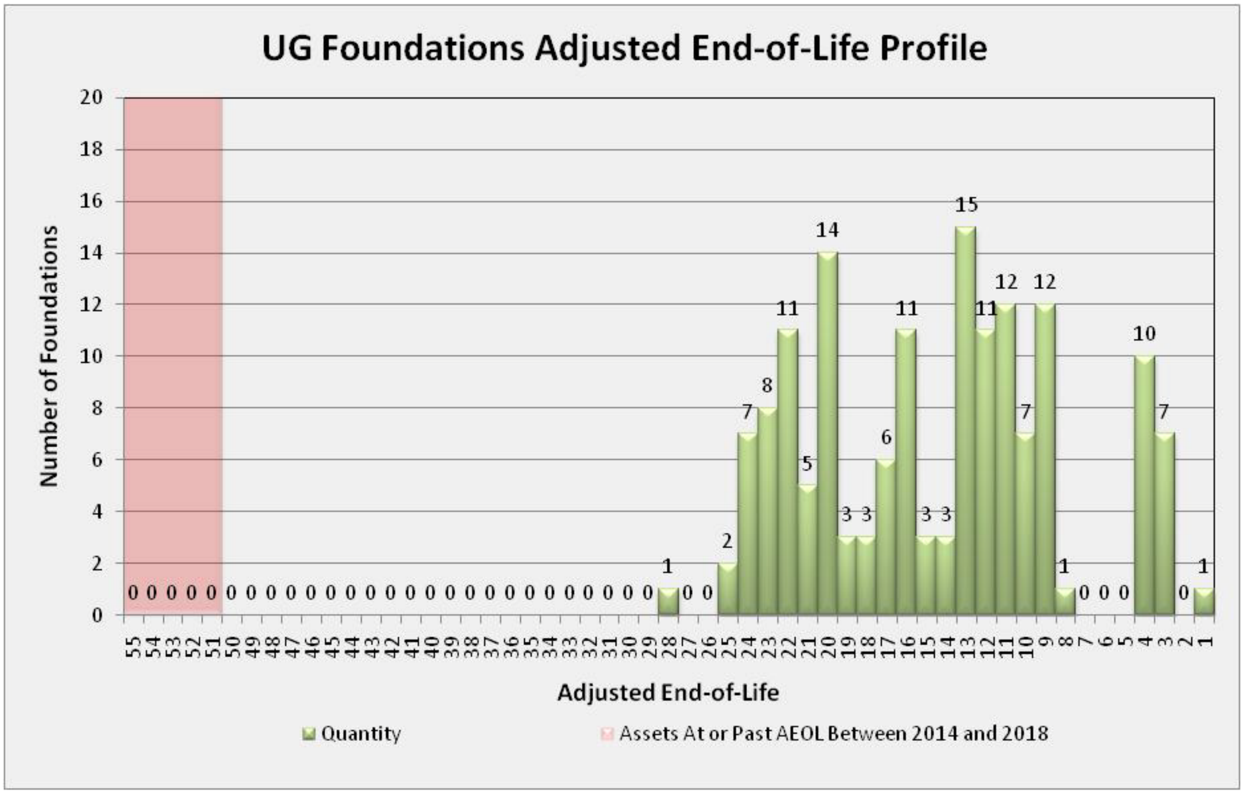
5.3.2.2.f.vii.2 Underground Foundations Adjusted End-of-Life Projections

FFPC inspects all underground foundations annually as part of its pad-mounted transformer inspection cycle. Overall, the foundations are found to be in good condition relative to their age. FFPC's strategy is to align two transformer lifecycles with one underground foundation lifecycle. In other words, FFPC is planning on replacing underground foundations under an 80 year lifecycle. FFPC will place more emphasis on inspecting underground foundations as they approach their TUL of 55 years, as per the "Kinectrics Report". FFPC does not plan on incurring any significant expenses in this category during the 2014 to 2018 period, given the relatively young age of population. The following table and graph illustrate the Adjusted End-of-Life Projections.

Underground Foundations Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)

Lifecycle Year	Adjusted End-of-Life Year	Quantity	Replacement Cost	Ideal Evenly Distributed Annual Replacement Rate
1	2014	0	$ -	2.1
2	2015	0	$ -	2.1
3	2016	0	$ -	2.1
4	2017	0	$ -	2.1
5	2018	0	$ -	2.1
6	2019	0	$ -	2.1
7	2020	0	$ -	2.1
8	2021	0	$ -	2.1
9	2022	0	$ -	2.1
10	2023	0	$ -	2.1
11	2024	0	$ -	2.1

12	2025	0	$ -	2.1
13	2026	0	$ -	2.1
14	2027	0	$ -	2.1
15	2028	0	$ -	2.1
16	2029	0	$ -	2.1
17	2030	0	$ -	2.1
18	2031	0	$ -	2.1
19	2032	0	$ -	2.1
20	2033	0	$ -	2.1
21	2034	0	$ -	2.1
22	2035	0	$ -	2.1
23	2036	0	$ -	2.1
24	2037	0	$ -	2.1
25	2038	0	$ -	2.1
26	2039	0	$ -	2.1
27	2040	0	$ -	2.1
28	2041	1	$ 4,443.60	2.1
29	2042	0	$ -	2.1
30	2043	0	$ -	2.1
31	2044	2	$ 10,691.55	2.1
32	2045	7	$ 31,105.20	2.1
33	2046	8	$ 40,961.85	2.1
34	2047	11	$ 52,488.30	2.1
35	2048	5	$ 22,218.00	2.1
36	2049	14	$ 62,210.40	2.1
37	2050	3	$ 15,135.15	2.1
38	2051	3	$ 15,135.15	2.1
39	2052	6	$ 26,661.60	2.1
40	2053	11	$ 48,879.60	2.1
41	2054	3	$ 13,330.80	2.1
42	2055	3	$ 13,330.80	2.1
43	2056	15	$ 66,654.00	2.1
44	2057	11	$ 56,097.00	2.1
45	2058	12	$ 56,931.90	2.1
46	2059	7	$ 32,909.55	2.1
47	2060	12	$ 58,736.25	2.1
48	2061	1	$ 6,247.95	2.1
49	2062	0	$ -	2.1
50	2063	0	$ -	2.1
51	2064	0	$ -	2.1
52	2065	10	$ 46,240.35	2.1
53	2066	7	$ 31,105.20	2.1
54	2067	0	$ -	2.1
55	2068	1	$ 4,443.60	2.1
56	2069	0	$ -	2.1
57	2070	0	$ -	2.1
58	2071	1	$ 6,247.95	2.1
59	2072	3	$ 16,939.50	2.1
60	2073	2	$ 10,691.55	2.1
61	2074	2	$ 12,495.90	2.1
62	2075	1	$ 4,443.60	2.1
63	2076	2	$ 12,495.90	2.1
64	2077	0	$ -	2.1
65	2078	1	$ 6,247.95	2.1
66	2079	3	$ 16,939.50	2.1
67	2080	0	$ -	2.1
68	2081	2	$ 12,495.90	2.1
69	2082	0	$ -	2.1
70	2083	0	$ -	2.1
71	2084	0	$ -	2.1
72	2085	0	$ -	2.1
73	2086	0	$ -	2.1
74	2087	0	$ -	2.1
75	2088	0	$ -	2.1
76	2089	0	$ -	2.1
77	2090	0	$ -	2.1
78	2091	0	$ -	2.1
79	2092	0	$ -	2.1
80	2093	0	$ -	2.1
Totals		**170**	**$ 814,955.55**	**170**



5.3.2.2.f.vii.3 Lifecycle Analysis Summary & Budget Allocation

Underground Foundations Profile			
170	Quantity	1.1	10 Year Historic Replacement/Installation Rate (Units/Year)
80	UL (Adopted)	0	Quantity Reaching Adjusted End of Life Over Forecast Period
27.5	Average Age of Population	$0	Total Capital Replacement Cost over Forecast Period
3.09	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
34.4%	% UL Consumed	0.00	Average Replacements Per Year
40.6%	2019 % UL Consumed with no Reinvestment	$0	Average Annual Cost Per Year
		$10,187	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$0	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 170 Underground Foundations is not evenly distributed over one lifecycle period beginning in 2014. The population is negatively skewed, with essentially no assets requiring replacement over the next 27 years. It should be noted that this is largely due to FFPC adopting a UL of 80 years, to align the replacement with every second transformer replacement.

Approximately 42% (71 UG foundations) will require replacement over the first half of the lifecycle period (over the next 40 years); beginning in year 28. FFPC adopted a UL of 80 years, and based on the average age of 27.5 years for the population, 34.4% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 40.6% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced or installed an average of 2.2 foundations per year, which is closely aligned with the ideal average annual replacement rate of 2.13 foundations per year. Over the 2014 to 2018 forecast period, no underground foundations will reach their AEOL, requiring replacement. As such, FFPC has not allocated any capital towards this asset class. Recent inspection finding have not found any deficiencies, and as such, no capital refurbishment costs have been allocated. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $10,187 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. As this asset class is not projected to demand capital investment over the planning period, it will allow FFPC to shift expenditures towards asset classes that require intensified reinvestment, to smooth long term spending requirements.

5.3.2.2.f.vii.4 Impact of Underground Foundations on DS Plan

As no expenditures as allocated towards this asset class over the planning period, underground foundations will not have an impact on the DS Plan with respect to capital requirements; however, this will allow for intensified capital reinvestments into asset classes where it is required.

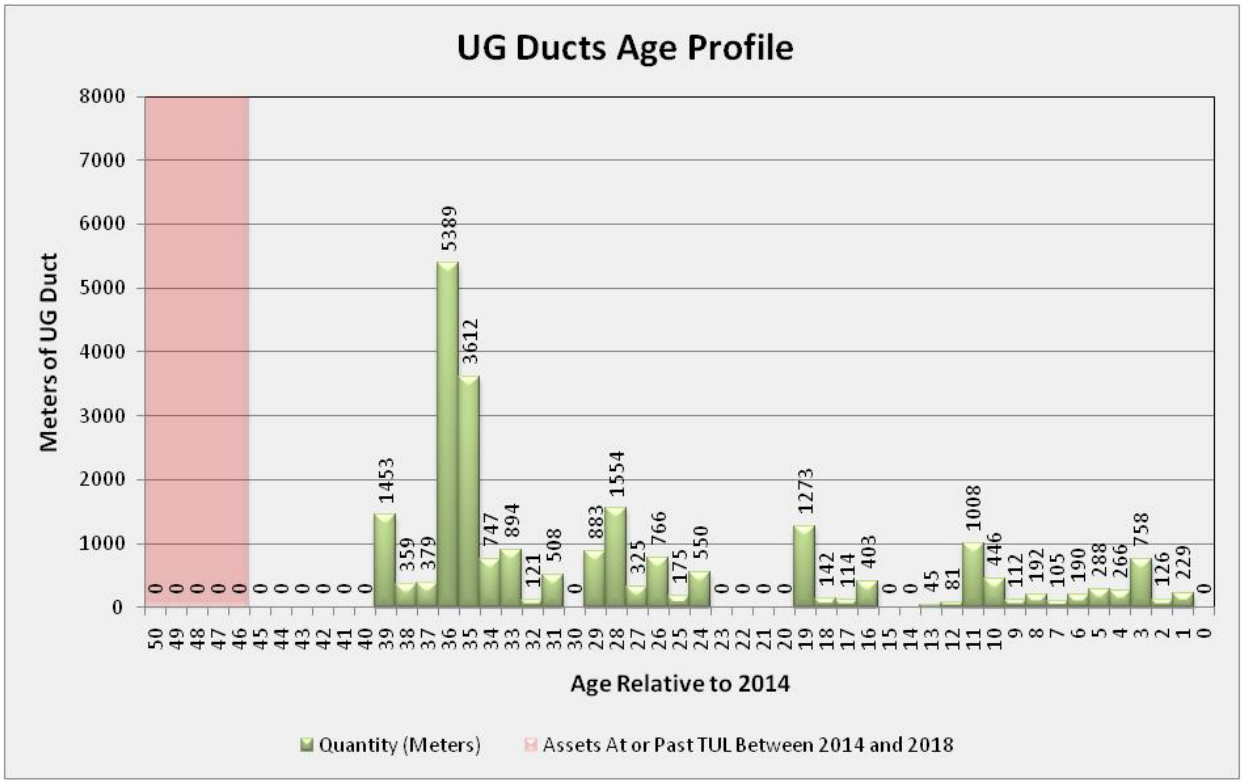
5.3.2.2.f.viii. Underground Ducts

FFPC's primary cables are all contained in ducts for added protection. FFPC does not plan on incurring any significant expense in this category over the period 2014 to 2018, given the relatively young age of FFPC's ducts. FFPC's strategy is to align the life two useful life cycles of Primary TR XLPE Cables in Duct with one lifecycle for Ducts. As such, FFPC would be replacing primary cables and ducts combined on an 80 year cycle.

5.3.2.2.f.viii.1 Underground Ducts Age Profile Relative to TUL

The following table and graph represents the age profile of FFPC's Ducts, with respect to a TUL of 50 years as per the "Kinectrics Report".

UG Ducts Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age (Years in Service)**	**End-of-Life (Based on 50 Year TUL)**	**Quantity (Meters)**
1964	50	2014	0
1965	49	2015	0
1966	48	2016	0
1967	47	2017	0
1968	46	2018	0
1969	45	2019	0
1970	44	2020	0
1971	43	2021	0
1972	42	2022	0
1973	41	2023	0
1974	40	2024	0
1975	39	2025	1453
1976	38	2026	359
1977	37	2027	379
1978	36	2028	5389
1979	35	2029	3612
1980	34	2030	747
1981	33	2031	894
1982	32	2032	121
1983	31	2033	508
1984	30	2034	0
1985	29	2035	883
1986	28	2036	1554
1987	27	2037	325
1988	26	2038	766
1989	25	2039	175
1990	24	2040	550
1991	23	2041	0
1992	22	2042	0
1993	21	2043	0
1994	20	2044	0
1995	19	2045	1273
1996	18	2046	142
1997	17	2047	114
1998	16	2048	403
1999	15	2049	0
2000	14	2050	0
2001	13	2051	45
2002	12	2052	81
2003	11	2053	1008
2004	10	2054	446
2005	9	2055	112
2006	8	2056	192
2007	7	2057	105
2008	6	2058	190
2009	5	2059	288
2010	4	2060	266
2011	3	2061	758
2012	2	2062	126
2013	1	2063	229
2014	0	2064	0
Total			**23,491.88**

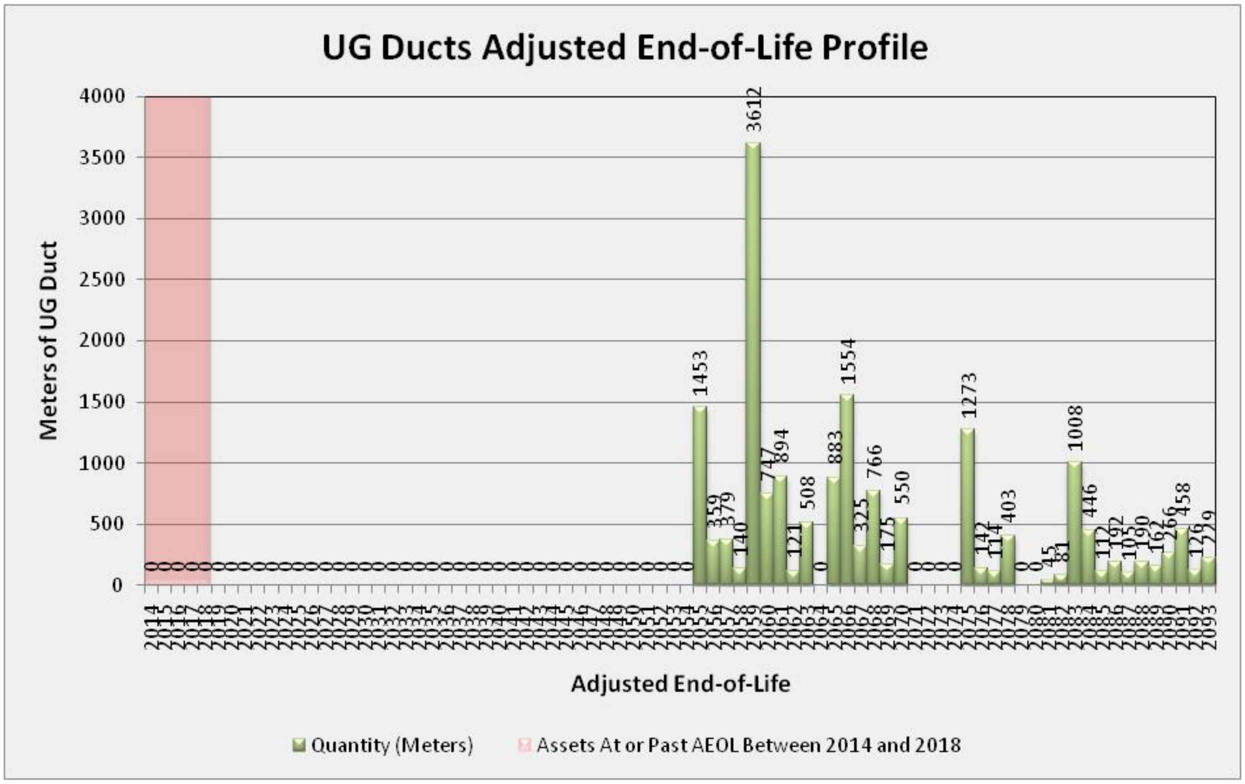


5.3.2.2.f.viii.2 Underground Ducts Adjusted End-of-Life Projections

FFPC currently does not have any means of inspecting underground ducts. FFPC's strategy is to replace ducts according to the lifecycle of primary conductors which they house. As such, FFPC is planning on replacing underground ducts according to two lifecycles of Primary TR XLPE Cables in Duct, as per the "Kinectrics Report", which would be on an 80 year lifecycle. FFPC has set its Adjusted Useful Life to correspond to an 80 year lifecycle, as per the following table and graph. As previously mentioned, FFPC does not plan on incurring any significant expense in this category given the relatively young age of the ducts.

UG Ducts Adjusted End-of-Life Profile Based on Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity (Meters)**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	2014	0	$ -	222.7
2	2015	0	$ -	222.7
3	2016	0	$ -	222.7
4	2017	0	$ -	222.7
5	2018	0	$ -	222.7
6	2019	0	$ -	222.7
7	2020	0	$ -	222.7
8	2021	0	$ -	222.7
9	2022	0	$ -	222.7
10	2023	0	$ -	222.7
11	2024	0	$ -	222.7
12	2025	0	$ -	222.7
13	2026	0	$ -	222.7
14	2027	0	$ -	222.7
15	2028	0	$ -	222.7
16	2029	0	$ -	222.7
17	2030	0	$ -	222.7
18	2031	0	$ -	222.7
19	2032	0	$ -	222.7
20	2033	0	$ -	222.7
21	2034	0	$ -	222.7
22	2035	0	$ -	222.7
23	2036	0	$ -	222.7
24	2037	0	$ -	222.7
25	2038	0	$ -	222.7
26	2039	0	$ -	222.7
27	2040	0	$ -	222.7
28	2041	0	$ -	222.7
29	2042	0	$ -	222.7
30	2043	0	$ -	222.7
31	2044	0	$ -	222.7
32	2045	0	$ -	222.7
33	2046	0	$ -	222.7
34	2047	0	$ -	222.7
35	2048	0	$ -	222.7
36	2049	0	$ -	222.7
37	2050	0	$ -	222.7
38	2051	0	$ -	222.7
39	2052	0	$ -	222.7
40	2053	0	$ -	222.7
41	2054	0	$ -	222.7
42	2055	1453	$ 30,066.89	222.7
43	2056	359	$ 4,970.40	222.7
44	2057	379	$ 7,865.58	222.7
45	2058	140	$ 1,108.42	222.7
46	2059	3612	$ 57,013.11	222.7
47	2060	747	$ 16,569.19	222.7
48	2061	894	$ 19,831.38	222.7
49	2062	121	$ 2,678.48	222.7
50	2063	508	$ 4,943.03	222.7
51	2064	0	$ -	222.7
52	2065	883	$ 12,515.23	222.7
53	2066	1554	$ 27,959.11	222.7
54	2067	325	$ 7,203.93	222.7
55	2068	766	$ 13,395.59	222.7
56	2069	175	$ 3,608.77	222.7
57	2070	550	$ 8,133.78	222.7
58	2071	0	$ -	222.7
59	2072	0	$ -	222.7

60	2073	0	$ -	222.7
61	2074	0	$ -	222.7
62	2075	1273	$ 21,213.19	222.7
63	2076	142	$ 2,341.70	222.7
64	2077	114	$ 705.51	222.7
65	2078	403	$ 8,938.18	222.7
66	2079	0	$ -	222.7
67	2080	0	$ -	222.7
68	2081	45	$ 998.26	222.7
69	2082	81	$ 1,787.74	222.7
70	2083	1008	$ 22,350.46	222.7
71	2084	446	$ 9,897.47	222.7
72	2085	112	$ 696.29	222.7
73	2086	192	$ 4,248.59	222.7
74	2087	105	$ 2,338.34	222.7
75	2088	190	$ 3,644.74	222.7
76	2089	162	$ 3,593.73	222.7
77	2090	266	$ 5,911.60	222.7
78	2091	458	$ 8,880.98	222.7
79	2092	126	$ 2,312.79	222.7
80	2093	229	$ 5,078.94	222.7
Totals		**17817**	**$ 322,801.40**	**17,816.8**



5.3.2.2.f.viii.3 Lifecycle Analysis Summary & Budget Allocation

Underground Ducts Profile			
23492	Quantity (Meters)	271	10 Year Historic Replacement/Installation Rate (Units/Year)
80	UL (Adopted)	0	Quantity Reaching Adjusted End of Life Over Forecast Period
27.9	Average Age of Population	$0	Total Capital Replacement Cost over Forecast Period
469.84	Ideal Equalized Annual Replacement Rate (Meters/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
34.9%	% UL Consumed	$0	Average Replacements Per Year
41.2%	2019 % UL Consumed with no Reinvestment	$0	Average Annual Cost Per Year
		$4,035	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$0	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 23.5 km of Underground Ducts is not evenly distributed over one lifecycle period beginning in 2014. The population is negatively skewed, with essentially no assets requiring replacement over the next 41 years. It should be noted that this is largely due to FFPC adopting a UL of 80 years, to align the replacement with every second primary conductor that they house. No ducts are projected to require replacement over the first half of the lifecycle period (over the next 40 years). FFPC adopted a UL of 80 years, and based on the average age of 27.9 years for the population, 34.9% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 41.2% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced or installed an average of 0.27 km of ducts per year, which is closely aligned with the ideal average annual replacement rate of 0.29 km of ducts per year. Over the 2014 to 2018 forecast period, no underground ducts are projected to reach their AEOL, requiring replacement. As such FFPC has not allocated any capital towards this asset class. Recent inspection finding have not found any deficiencies, and as such, no capital refurbishment costs have been allocated. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $4,035 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. As this asset is not projected to demand capital investment over the planning period, it will allow FFPC to shift expenditures towards asset classes that require intensified reinvestment, to smooth long term spending requirements.

5.3.2.2.f.viii.4 Impact on of Underground Ducts on DS Plan

As no expenditures as allocated towards this asset class over the planning period, underground foundations will not have an impact on the DS Plan with respect to cost requirements; however, this will allow for intensified capital reinvestments into asset classes where it is required.

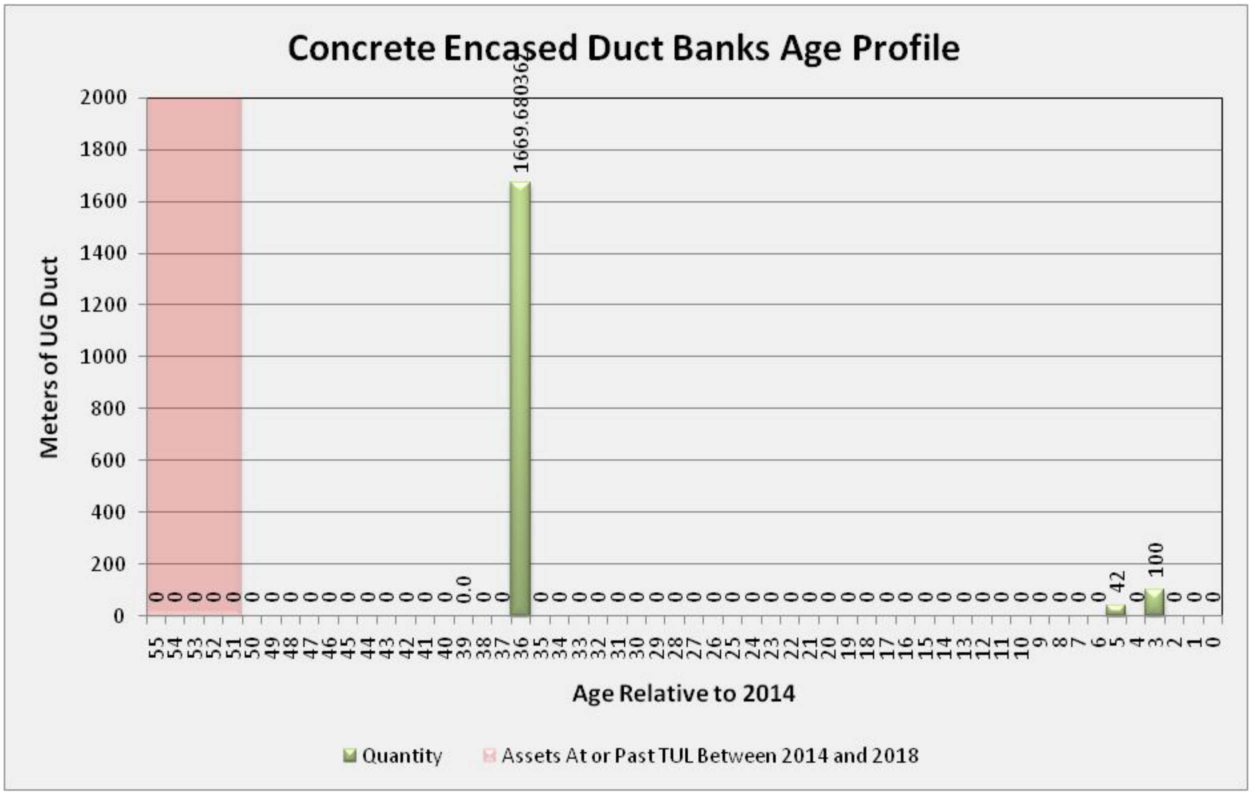
5.3.2.2.f.ix. Concrete Encased Duct Banks

Approximately one-third of all of FFPC underground ducts are cement encased. The cement encased ducts are mostly located around the transformer station Fort Frances MTS, where they guide three feeders to their respective breaker in the station. Due to the importance of these underground sections of primary conductor, the ducts are cement encased for their added protection. The following picture shows the original installation of cement encased ducts that connect three of FFPC's feeders to their respective transformer station breaker.

5.3.2.2.f.ix.1 Concrete Encased Duct Banks Age Profile Relative to TUL

FFPC has adopted a UL of 80 years for Concrete Encased Duct Banks, which compares to a 55 year TUL as per the "Kinectrics Report". FFPC plans on extending the life of the duct banks according to the replacement schedule of the cables that they house. As such, FFPC plans on replacing the ducts every second time that the 40 year lifecycle primary cables are replaced, which is every 80 years. The following graph and table illustrate the TUL of FFPC's Concrete Encased Ducts Banks as per the 55 year TUL established in the "Kinectrics Report".

Concrete Encased Duct Banks Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 55 Year TUL)**	**Quantity**
1959	55	2014	0
1960	54	2015	0
1961	53	2016	0
1962	52	2017	0
1963	51	2018	0
1964	50	2019	0
1965	49	2020	0
1966	48	2021	0
1967	47	2022	0
1968	46	2023	0
1969	45	2024	0
1970	44	2025	0
1971	43	2026	0
1972	42	2027	0
1973	41	2028	0
1974	40	2029	0
1975	39	2030	0.0
1976	38	2031	0
1977	37	2032	0
1978	36	2033	1,669.7
1979	35	2034	0
1980	34	2035	0
1981	33	2036	0
1982	32	2037	0
1983	31	2038	0
1984	30	2039	0
1985	29	2040	0
1986	28	2041	0
1987	27	2042	0
1988	26	2043	0
1989	25	2044	0
1990	24	2045	0
1991	23	2046	0
1992	22	2047	0
1993	21	2048	0
1994	20	2049	0
1995	19	2050	0
1996	18	2051	0
1997	17	2052	0
1998	16	2053	0
1999	15	2054	0
2000	14	2055	0
2001	13	2056	0
2002	12	2057	0
2003	11	2058	0
2004	10	2059	0
2005	9	2060	0
2006	8	2061	0
2007	7	2062	0
2008	6	2063	0
2009	5	2064	42
2010	4	2065	0
2011	3	2066	100
2012	2	2067	0
2013	1	2068	0
2014	0	2069	0
Total			**1,811.7**

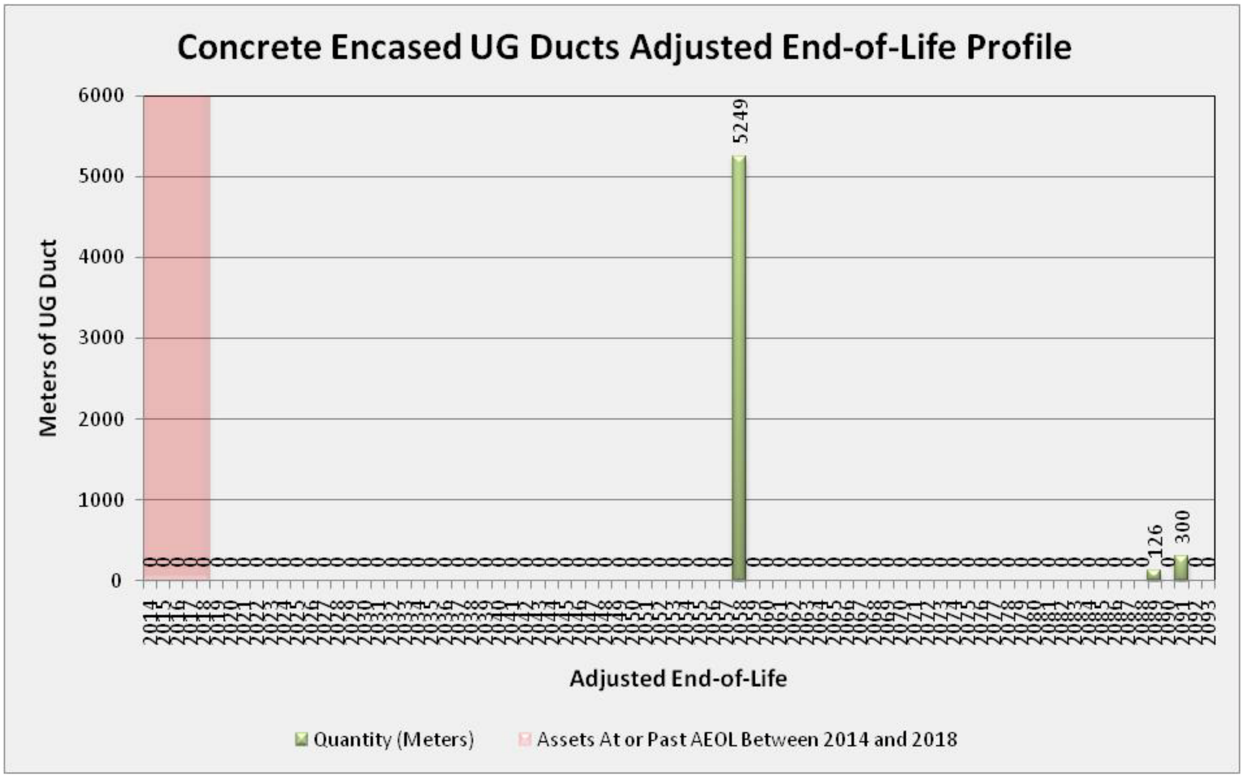


5.3.2.2.f.ix.2 Concrete Encased Duct Banks Adjusted End-of-Life Projections

FFPC currently does not have any practical means of inspecting the duct banks. FFPC's strategy is to replace ducts according to the lifecycle of primary conductor which they house. As such, FFPC is planning on replacing the concrete encased ducts according to two lifecycles of Primary TR XLPE Cables in Duct as per the "Kinectrics Report", which would be based on an 80 year lifecycle. FFPC has set its Adjusted Useful Life to correspond to an 80 year lifecycle, as illustrated the following table and graph. It is very likely that most of these ducts will become obsolete upon the retirement of the transformer station Fort Frances MTS around 2034. In summation, FFPC does not plan on incurring any significant expense in this category during the period 2014 to 2018.

Concrete Encased UG Ducts Adjusted End-of-Life Profile Based on Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity (Meters)**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	2014	0	$ -	70.9
2	2015	0	$ -	70.9
3	2016	0	$ -	70.9
4	2017	0	$ -	70.9
5	2018	0	$ -	70.9
6	2019	0	$ -	70.9
7	2020	0	$ -	70.9
8	2021	0	$ -	70.9
9	2022	0	$ -	70.9
10	2023	0	$ -	70.9
11	2024	0	$ -	70.9
12	2025	0	$ -	70.9
13	2026	0	$ -	70.9
14	2027	0	$ -	70.9
15	2028	0	$ -	70.9
16	2029	0	$ -	70.9
17	2030	0	$ -	70.9
18	2031	0	$ -	70.9
19	2032	0	$ -	70.9
20	2033	0	$ -	70.9
21	2034	0	$ -	70.9
22	2035	0	$ -	70.9
23	2036	0	$ -	70.9
24	2037	0	$ -	70.9
25	2038	0	$ -	70.9
26	2039	0	$ -	70.9
27	2040	0	$ -	70.9
28	2041	0	$ -	70.9
29	2042	0	$ -	70.9
30	2043	0	$ -	70.9
31	2044	0	$ -	70.9
32	2045	0	$ -	70.9
33	2046	0	$ -	70.9
34	2047	0	$ -	70.9
35	2048	0	$ -	70.9
36	2049	0	$ -	70.9
37	2050	0	$ -	70.9
38	2051	0	$ -	70.9
39	2052	0	$ -	70.9
40	2053	0	$ -	70.9
41	2054	0	$ -	70.9
42	2055	0	$ -	70.9
43	2056	0	$ -	70.9
44	2057	0	$ -	70.9
45	2058	5,249	$ 659,476.40	70.9
46	2059	0	$ -	70.9
47	2060	0	$ -	70.9
48	2061	0	$ -	70.9
49	2062	0	$ -	70.9
50	2063	0	$ -	70.9
51	2064	0	$ -	70.9
52	2065	0	$ -	70.9
53	2066	0	$ -	70.9
54	2067	0	$ -	70.9
55	2068	0	$ -	70.9
56	2069	0	$ -	70.9
57	2070	0	$ -	70.9
58	2071	0	$ -	70.9
59	2072	0	$ -	70.9
60	2073	0	$ -	70.9
61	2074	0	$ -	70.9
62	2075	0	$ -	70.9
63	2076	0	$ -	70.9
64	2077	0	$ -	70.9
65	2078	0	$ -	70.9
66	2079	0	$ -	70.9
67	2080	0	$ -	70.9

68	2081	0	$ -	70.9
69	2082	0	$ -	70.9
70	2083	0	$ -	70.9
71	2084	0	$ -	70.9
72	2085	0	$ -	70.9
73	2086	0	$ -	70.9
74	2087	0	$ -	70.9
75	2088	0	$ -	70.9
76	2089	126	$ 15,830.33	70.9
77	2090	0	$ -	70.9
78	2091	300	$ 37,691.25	70.9
79	2092	0	$ -	70.9
80	2093	0	$ -	70.9
Totals		**5675**	**$ 712,997.97**	**5675.0**



5.3.2.2.f.ix.3 Lifecycle Analysis Summary & Budget Allocation

Concrete Encased Duct Banks Profile			
1812	Quantity (Meters)	14.2	10 Year Historic Replacement/Installation Rate (Units/Year)
80	UL (Adopted)	0	Quantity Reaching Adjusted End of Life Over Forecast Period
33.5	Average Age of Population	$0	Total Capital Replacement Cost over Forecast Period
32.94	Ideal Equalized Annual Replacement Rate (Meters/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
41.8%	% UL Consumed	0.00	Average Replacements Per Year
48.1%	2019 % UL Consumed with no Reinvestment	$0	Average Annual Cost Per Year
		$8,912	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$0	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 1.8 km of Underground Concrete Encased Duct Banks is not evenly distributed over one lifecycle period beginning in 2014. The population is negatively skewed, with essentially no assets requiring replacement over the next 43 years. It should be noted that this is largely due to FFPC adopting a UL of 80 years, to align the replacement with every second primary conductor that they house. No ducts are projected to require replacement over the first half of the lifecycle period (over the next 40 years). FFPC adopted a UL of 80 years, and based on the average age of 33.5 years for the population, 41.8% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 48.1% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced or installed an average of 0.014 km of concrete encased ducts per year, which is closely aligned with the ideal average annual replacement rate of 0.023 km per year. Over the 2014 to 2018 forecast period, no concrete encased ducts are projected to reach their AEOL, requiring replacement. As such FFPC has not allocated any capital towards this asset class. Recent inspections have not found any deficiencies, and as such, no capital refurbishment costs have been allocated. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $8,912 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. As this asset class is not projected to demand capital investment over the planning period, it will allow FFPC to shift expenditures towards asset classes that require intensified reinvestment, to smooth long term spending requirements.

5.3.2.2.f.ix.4 Impact of Concrete Encased Ducts on DS Plan

As no expenditures are allocated towards this asset class over the planning period, underground foundations will not have an impact on the DS Plan with respect to cost requirements; however, this will allow for intensified capital reinvestments into asset classes where it is required.

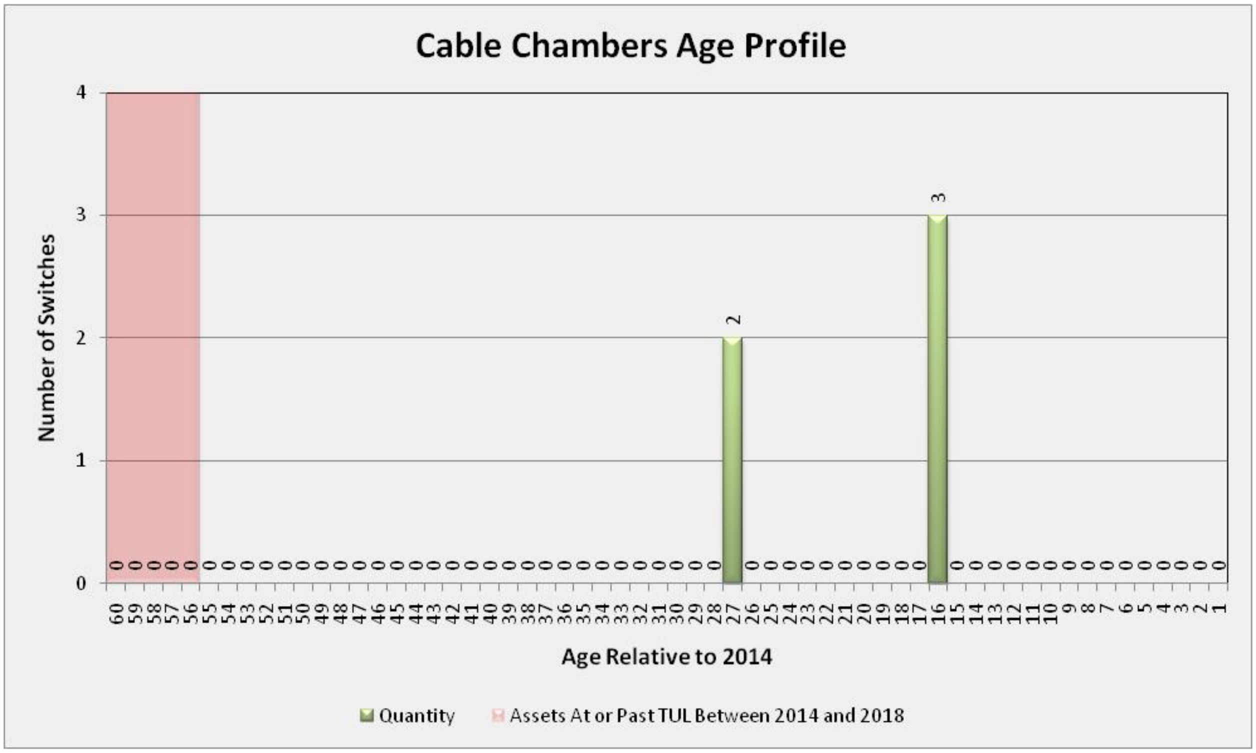
5.3.2.2.f.x. Cable Chambers

FFPC has several cable chambers located in several newer subdivisions, which are serviced by underground distribution plant. The cable chambers are essentially access points to underground conductor runs, such that terminations can be inspected, as well as any necessary cable switching can be performed there. FFPC's cable chambers are not near their end-of-life and as such FFPC does not plan on incurring any significant expenses in this category over the 2014 to 2018 planning period.

5.3.2.2.f.x.1 Cable Chambers Age Profile Relative to TUL

FFPC has adopted the TUL of 60 years for Cable Chambers, according to the "Kinectrics Report". The following table and graph illustrate the TUL of the Cable Chambers with respect to a 60 year TUL.

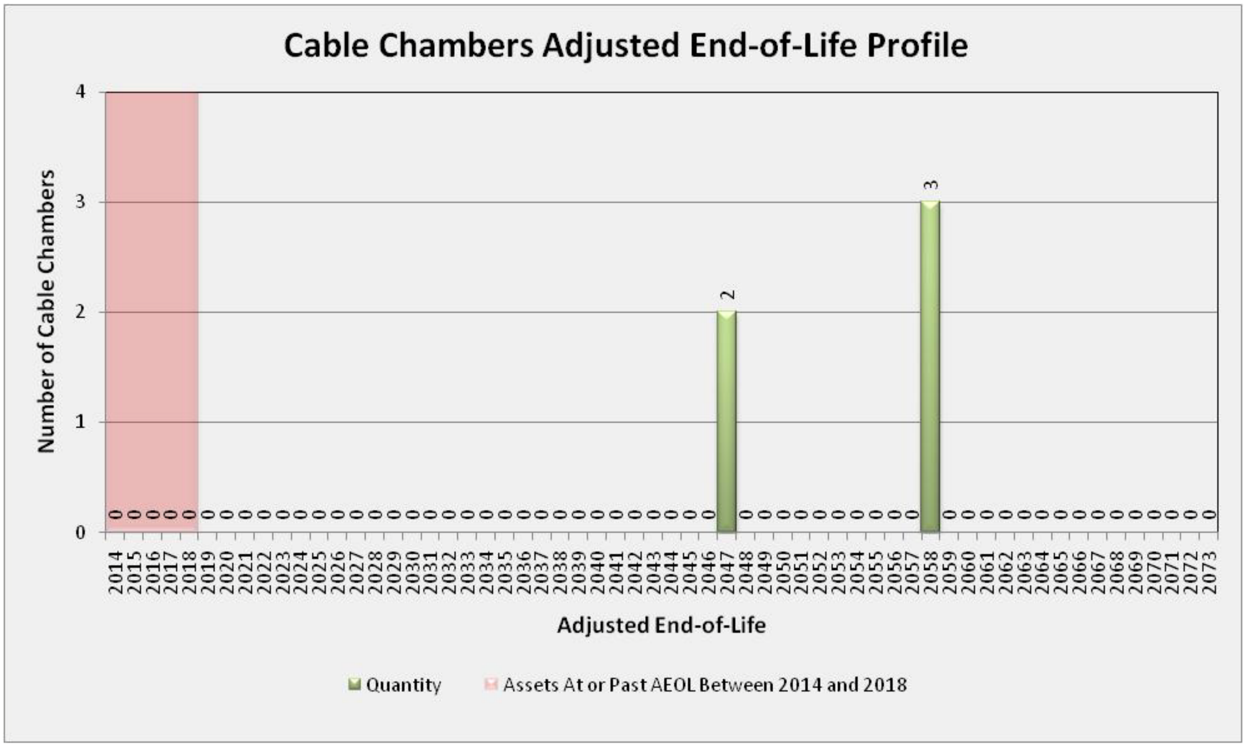
Cable Chambers Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	Age	End-of-Life (Based on 45 Year TUL)	Quantity
1954	**60**	**2014**	**0**
1955	**59**	**2015**	**0**
1956	**58**	**2016**	**0**
1957	**57**	**2017**	**0**
1958	**56**	**2018**	**0**
1959	55	2019	0
1960	54	2020	0
1961	53	2021	0
1962	52	2022	0
1963	51	2023	0
1964	50	2024	0
1965	49	2025	0
1966	48	2026	0
1967	47	2027	0
1968	46	2028	0
1969	45	2029	0
1970	44	2030	0
1971	43	2031	0
1972	42	2032	0
1973	41	2033	0
1974	40	2034	0
1975	39	2035	0
1976	38	2036	0
1977	37	2037	0
1978	36	2038	0
1979	35	2039	0
1980	34	2040	0
1981	33	2041	0
1982	32	2042	0
1983	31	2043	0
1984	30	2044	0
1985	29	2045	0
1986	28	2046	0
1987	27	2047	2
1988	26	2048	0
1989	25	2049	0
1990	24	2050	0
1991	23	2051	0
1992	22	2052	0
1993	21	2053	0
1994	20	2054	0
1995	19	2055	0
1996	18	2056	0
1997	17	2057	0
1998	16	2058	3
1999	15	2059	0
2000	14	2060	0
2001	13	2061	0
2002	12	2062	0
2003	11	2063	0
2004	10	2064	0
2005	9	2065	0
2006	8	2066	0
2007	7	2067	0
2008	6	2068	0
2009	5	2069	0
2010	4	2070	0
2011	3	2071	0
2012	2	2072	0
2013	1	2073	0
Total			**5**



5.3.2.2.f.x.2 Cable Chambers Adjusted End-of-Life Projections

FFPC performs annual inspections of its cable chambers, as well as of the cable terminations contained therein. To date all inspections have found the cable chambers to be in good condition relative to their age. The following table and graph illustrate the Adjusted End-of-Life projections for Cable Chambers, based on FFPC's asset management process. As previously mentioned, FFPC does not expect to incur any significant expenses in this category over the period 2014 to 2018.

Cable Chambers Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	**2014**	**0**	**$ -**	**0.1**
2	**2015**	**0**	**$ -**	**0.1**
3	**2016**	**0**	**$ -**	**0.1**
4	**2017**	**0**	**$ -**	**0.1**
5	**2018**	**0**	**$ -**	**0.1**
6	2019	0	$ -	0.1
7	2020	0	$ -	0.1
8	2021	0	$ -	0.1
9	2022	0	$ -	0.1
10	2023	0	$ -	0.1
11	2024	0	$ -	0.1
12	2025	0	$ -	0.1
13	2026	0	$ -	0.1
14	2027	0	$ -	0.1
15	2028	0	$ -	0.1
16	2029	0	$ -	0.1
17	2030	0	$ -	0.1
18	2031	0	$ -	0.1
19	2032	0	$ -	0.1
20	2033	0	$ -	0.1
21	2034	0	$ -	0.1
22	2035	0	$ -	0.1
23	2036	0	$ -	0.1
24	2037	0	$ -	0.1
25	2038	0	$ -	0.1
26	2039	0	$ -	0.1
27	2040	0	$ -	0.1
28	2041	0	$ -	0.1
29	2042	0	$ -	0.1
30	2043	0	$ -	0.1
31	2044	0	$ -	0.1
32	2045	0	$ -	0.1
33	2046	0	$ -	0.1
34	2047	2	$ 14,000	0.1
35	2048	0	$ -	0.1
36	2049	0	$ -	0.1
37	2050	0	$ -	0.1
38	2051	0	$ -	0.1
39	2052	0	$ -	0.1
40	2053	0	$ -	0.1
41	2054	0	$ -	0.1
42	2055	0	$ -	0.1
43	2056	0	$ -	0.1
44	2057	0	$ -	0.1
45	2058	3	$ 21,000	0.1
46	2059	0	$ -	0.1
47	2060	0	$ -	0.1
48	2061	0	$ -	0.1
49	2062	0	$ -	0.1
50	2063	0	$ -	0.1
51	2064	0	$ -	0.1
52	2065	0	$ -	0.1
53	2066	0	$ -	0.1
54	2067	0	$ -	0.1
55	2068	0	$ -	0.1
56	2069	0	$ -	0.1
57	2070	0	$ -	0.1
58	2071	0	$ -	0.1
59	2072	0	$ -	0.1
60	2073	0	$ -	0.1
Total		**5**	**$ 35,000**	**5**



5.3.2.2.f.x.3 Lifecycle Analysis Summary & Budget Allocation

	Cable Chambers Profile		
5	Quantity	0.0	10 Year Historic Replacement/Installation Rate (Units/Year)
60	UL	0	Quantity Reaching Adjusted End of Life Over Forecast Period
20.4	Average Age of Population	$0	Total Capital Replacement Cost over Forecast Period
0.08	Ideal Equalized Annual Replacement Rate (Units/Yr)		Total Capital Refurbishment Cost over Forecast Period
34.0%	% TU Consumed	0.00	Average Replacements Per Year
42.3%	2019 % UL Consumed with no Reinvestment	$0	Average Annual Cost Per Year
		$583	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$0	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of the 5 Cable Chambers is not evenly distributed over one lifecycle period beginning in 2014. The lifecycle period is sparsely populated given the relative small asset count. FFPC adopted a UL of 60 years, and based on the average age of 20.4 years for the population, 34% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 42.3% by 2019. FFPC's long term target is to maintain %UL consumed at

50%. Over the last ten years, FFPC did not replace or install any cable chambers. The ideal average annual replacement rate is 0.08 chambers per year. Over the 2014 to 2018 forecast period, no cable chambers are projected to reach their AEOL, requiring replacement. As such, FFPC has not allocated any capital towards this asset class. Recent inspection finding have not found any deficiencies, and as such, no capital refurbishment costs have been allocated. The average annual reinvestment need for this asset class, assuming an evenly distributed population, is $583 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life.

5.3.2.2.f.x.4 Impact of Cable Chambers on DS Plan

As no expenditures are allocated towards this asset class over the planning period, Cable Chambers will not have an impact on the DS Plan with respect to cost requirements.

5.3.2.2.g. Remote SCADA

FFPC's transformer station is currently not equipped with a remote Supervisory Control and Data Acquisition (SCADA) system. As such, FFPC does not currently own any assets in this category. FFPC is planning on deploying a SCADA system over the 2014 to 2018 planning period, as part the Renewable Enabling Improvements planned at Fort Frances MTS. Please refer Section 5.4.3 for details regarding FFPC's planned Renewable Enabling Improvements (REG Investments).

5.3.2.2.h. General Plant Assets

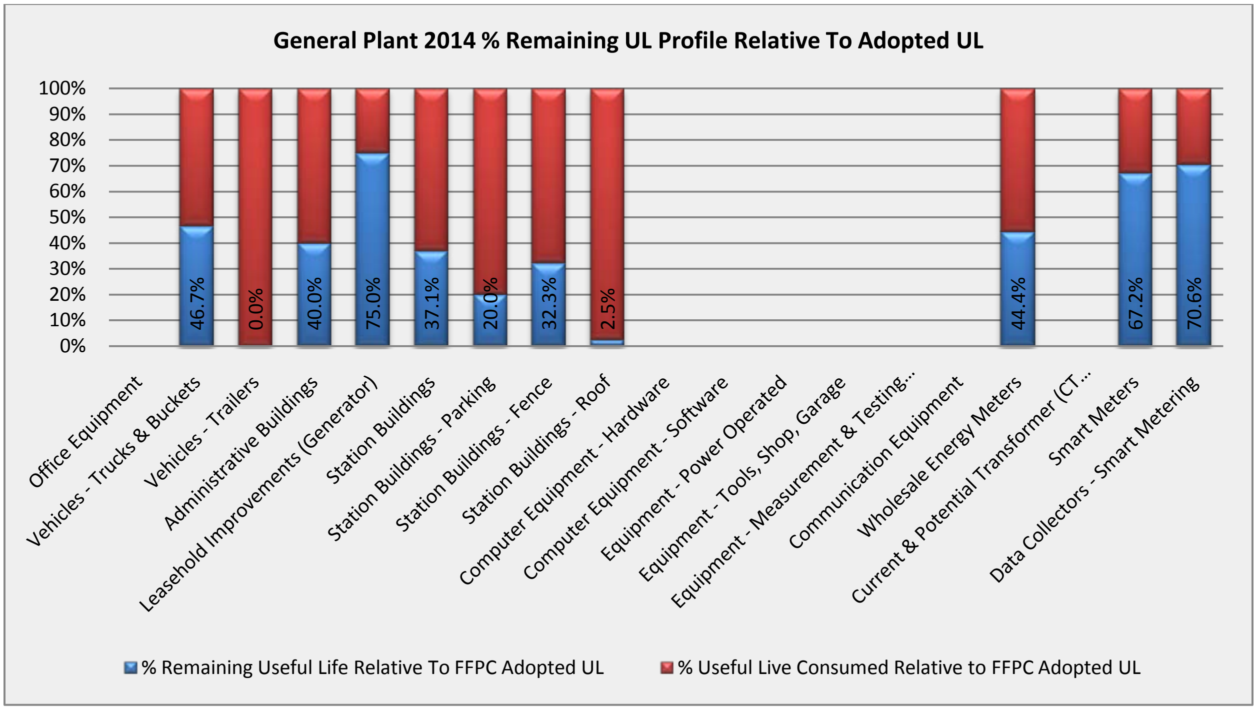
FFPC owns a significant amount of assets that are grouped under the parent group, "General Plant". FFPC does not own assets in all categories including Residential Energy Meters, Industrial/Commercial Energy Meters or in Repeaters - Smart Metering, and as such these categories have been omitted. The most significant assets are contained under the categories Vehicles, Administrative Buildings, Station Buildings and Smart Meters. FFPC has a relatively insignificant population of assets under the categories Office Equipment, Communications, Wholesale Energy Meters and Data Collectors - Smart Metering. FFPC is currently working on gathering detailed asset information for the Computer Equipment, Equipment, and Communication categories, such that age and condition profiles can be generated; however, at this time the information is not available. For asset classes where age and AEOL profiles are not known, FFPC based annual capital reinvestment needs on the total replacement value of the asset category, divided by the FFPC's adopted UL. For General Plant assets, the asset management process has only identified material capital reinvestment requirements for the asset group "Vehicles", over the 2014 to 2018 planning period. It is also worth noting that under the General Plant parent group, Vehicles and Smart Meters assets are by far the most expensive categories to sustain. On average, Vehicles and Smart Meters require approximately 8.6% and 7.0% respectively, of all annual lifecycle sustaining (replacement or refurbishment) capital investments.

5.3.2.2.h.i. General Plant Lifecycle Profile, Reinvestment Needs Boundaries & Reinvestment Summary

As per the Chapter 5 Filing Requirements guide, FFPC has relied on its newly developed Asset Management Process to collect, tabulate and assess information on physical assets, current and future system operating conditions, and FFPC's business and customer service goals and objectives to plan, prioritize and optimize expenditures on system-related modifications, renewal and operations and maintenance, and on general plant facilities, systems and apparatus.

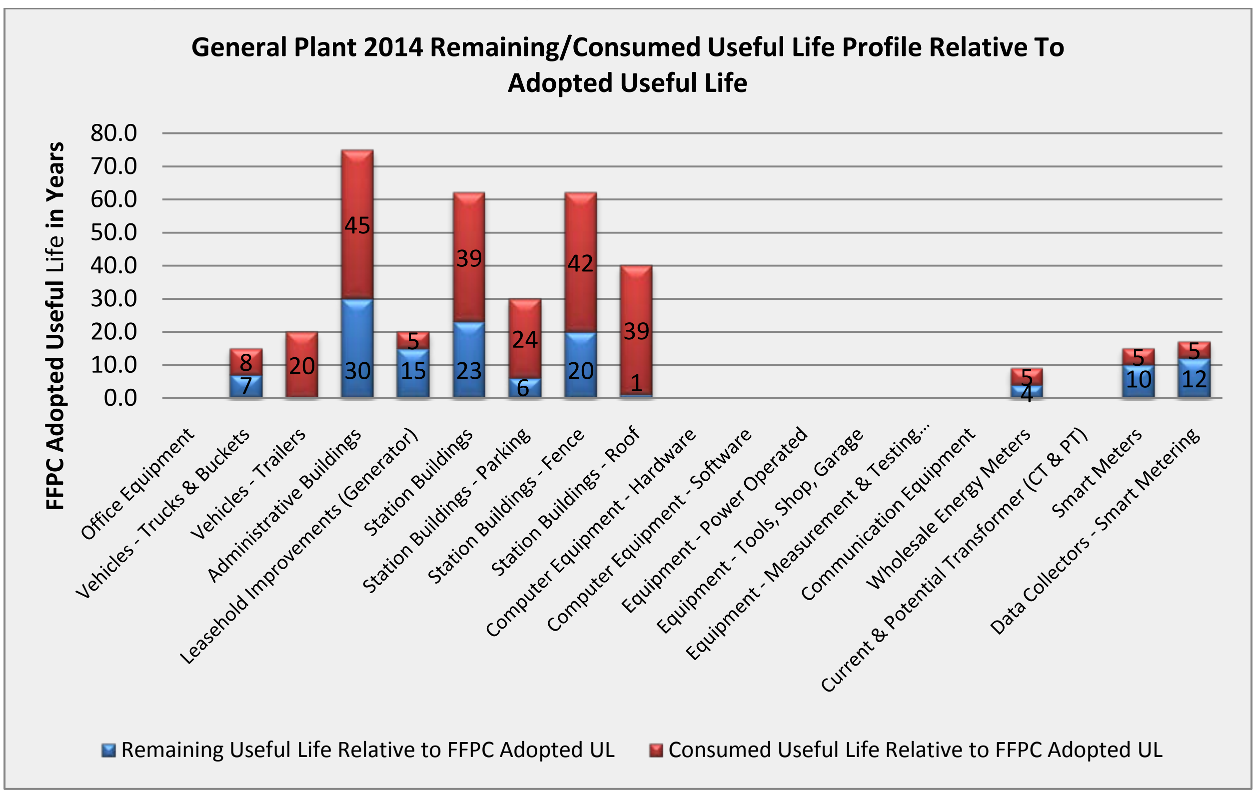
FFPC's asset management process has established a total asset replacement value of $24,379,821 for all existing assets managed, based on FFPC's replacement cost structure. Of this asset base, the replacement value of General Plant assets is estimated to be $2,969,374, which is approximately 26.1% of the total replacement value. Based on FFPC's adopted useful life values, the average annual reinvestment needed to keep pace with General Plant asset deterioration is $161,254. The overall % remaining useful life (relative to FFPC's adopted UL and replacement cost) is 48.3%. FFPC's long term objective is to maintain a 50% "Remaining UL" profile where possible, to smooth long term spending requirements. As such, FFPC has an optimal capital reinvestment budget allocation of $161,254 to sustain the lifecycle of General Plant assets. FFPC has allocated a total of $608,750 towards sustaining the lifecycle of General Plant, which equates to an average annual reinvestment of $121,750. The allocated capital is approximately 32% lower than the ideal average reinvestment need, to allow for more intensified expenditures towards more important asset classes. This will help to minimize the impact of the significant increase in overall capital expenditure requirements, as FFPC transitions out of its "maintenance mode" of operation, to a "capital rebuild mode" of operation.

The following graph illustrates the % UL Remaining profile of all General Plant asset categories, where age profiles are available as at the filing of this DS Plan.



Note: Age profiles are not yet available for the Equipment related categories.

The following graph illustrates the remaining and consumed years of all General Plant asset categories:



Note: Age profiles are not yet available for the Equipment related categories.

The following tables summarize planned capital expenditures over the 2014 to 2018 planning horizon, based on assets that were identified to be at the end of their useful service life, as per outputs of Step 4 of the asset management process. Capital expenditures driven by other investment drivers, such as the elimination of LTLT's, Customer Preference or Renewable Enabling Improvements, are not included in this summary. Of the total $3,522,205 in planned capital expenditures based on all investment drivers, $2,775,966 is driven by assets reaching the end of their useful service life (end of life of all assets managed including General Plant and over 50 kV Transformer Station assets). The table also illustrates the Useful Life and Reinvestment Need analysis for each asset category. Various reinvestment needs boundaries are illustrated representing various adoptions of useful service life philosophies, such as the "Kinectrics Report's" MIN UL, TUL, MAX UL, as well as FFPC's adopted UL.

FFPC Asset Summary, Useful Life Assessment, Investment Boundaries and Capital Budget Allocations

		Asset Details		FFPC Assets			Kinectrics Useful Life			Useful Life Assessment					Reinvestment Needs Assessment					Capital Budget Allocation		
Parent*	**#**	**Category| Component | Type**		**Count**	**Units**	**Average Age of Population (Years)**	**MIN UL**	**TUL**	**MAX UL**	**FFPC Adopted Useful Life (UL)**	**Remaining Useful Life Relative to Kinectrics TUL**	**% Remaining Useful Life Relative Kinectrics TUL**	**Remaining Useful Life Relative to FFPC Adopted UL**	**% Remaining Useful Life Relative To FFPC Adopted UL**	**Total Replacement Cost of Asset Group**	**Average Annual Reinvestment Need Based on Kinectrics Min UL**	**Average Annual Reinvestment Need Based on Kinectrics TUL**	**Average Annual Reinvestment Need Based on Kinectrics Max UL**	**Average Annual Reinvestment Need Based on FFPC Adopted UL**	**Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation**	**Average Annual Capital Allocation (2014 to 2018)**	**% of Total DS Plan Capital Expenditures**
General Plant	1	Office Equipment		Unknown	Each	Unknown	*5*	*10.0*	*15*	15.0	Unknown	Unknown	Unknown	Unknown	$ 60,000	$ 12,000	$ 6,000	$ 4,000	**$ 4,000**	$ 15,000	$ 3,000	0.4%
	2	Vehicles	Trucks & Buckets	7	Each	8.00	*5*	*10.0*	*15*	15.0	2.0	20.0%	7.0	46.7%	$ 801,000	$ 160,200	$ 80,100	$ 53,400	**$ 53,400**	$ 328,000	$ 65,600	9.3%
			Trailers	2	Each	26.00	*5*	*12.5*	*20*	20.0	0.0	0.0%	0.0	0.0%	$ 75,000	$ 15,000	$ 6,000	$ 3,750	**$ 3,750**	$ 75,000	$ 15,000	2.1%
			Vans	N/A			*5*	*7.5*	*10*													
	3	Administrative Buildings		1	Each	45.00	*50*	*62.5*	*75*	75.0	17.5	28.0%	30.0	40.0%	$ 550,000	$ 11,000	$ 8,800	$ 7,333	**$ 7,333**	$ 65,000	$ 13,000	1.8%
	4	Leasehold Improvements (Generator)		1	Each	5.00	*20*	*20.0*	*20*	20.0	15.0	75.0%	15.0	75.0%	$ 86,122	$ 4,306	$ 4,306	$ 4,306	**$ 4,306**	$ -	$ -	0.0%
	5	Station Buildings	Station Buildings	2	Each	39.0	*50*	*62.5*	*75*	62.0	23.5	37.6%	23.0	37.1%	$ 368,375	$ 7,368	$ 5,894	$ 4,912	**$ 5,942**	$ 31,000	$ 6,200	0.9%
			Parking	1	Each	24.00	*25*	*27.5*	*30*	30.0	3.5	12.7%	6.0	20.0%	$ 5,000	$ 200	$ 182	$ 167	**$ 167**			0.0%
			Fence	1	Each	42.00	*25*	*42.5*	*60*	62.0	0.5	1.2%	20.0	32.3%	$ 22,500	$ 900	$ 529	$ 375	**$ 363**			0.0%
			Roof	2	Each	39.00	*30*	*30.0*	*30*	40.0	0.0	0.0%	1.0	2.5%	$ 30,000	$ 1,000	$ 1,000	$ 1,000	**$ 750**			0.0%
	6	Computer Equipment	Hardware	Unknown	Each	Unknown	*3*	*4.0*	*5*	5.0	Unknown	Unknown	Unknown	Unknown	$ 32,000	$ 10,667	$ 8,000	$ 6,400	**$ 6,400**	$ 35,500	$ 7,100	1.0%
			Software	Unknown	Each	Unknown	*2*	*3.5*	*5*	5.0	Unknown	Unknown	Unknown	Unknown	$ 76,000	$ 38,000	$ 21,714	$ 15,200	**$ 15,200**	$ -	$ -	0.0%
	7	Equipment	Power Operated	Unknown	Each	Unknown	*5*	*7.5*	*10*	7.0	Unknown	Unknown	Unknown	Unknown	$ 7,000	$ 1,400	$ 933	$ 700	**$ 1,000**	$ 30,500	$ 6,100	0.9%
			Stores	N/A			*5*	*7.5*	*10*													
			Tools, Shop, Garage Equip.	Unknown	Each	Unknown	*5*	*7.5*	*10*	10.0	Unknown	Unknown	Unknown	Unknown	$ 10,000	$ 2,000	$ 1,333	$ 1,000	**$ 1,000**	$ -	$ -	0.0%
			Measurement & Testing Equip	Unknown	Each	Unknown	*5*	*7.5*	*10*	8.0	Unknown	Unknown	Unknown	Unknown	$ 65,000	$ 13,000	$ 8,667	$ 6,500	**$ 8,125**	$ -	$ -	0.0%
	8	Communication	Towers	N/A			*60*	*65.0*	*70*													
			Wireless	Unknown	Each	Unknown	*2*	*6.0*	*10*	10.0	Unknown	Unknown	Unknown	Unknown	$ 9,600	$ 4,800	$ 1,600	$ 960	**$ 960**	$ -	$ -	0.0%
	9	Residential Energy Meters		N/A			*25*	*30.0*	*35*													
	10	Industrial/Commercial Energy Meters		N/A			*25*	*30.0*	*35*													
	11	Wholesale Energy Meters		2	Each	5.00	*15*	*22.5*	*30*	9.0	17.5	77.8%	4.0	44.4%	$ 18,000	$ 1,200	$ 800	$ 600	**$ 2,000**	$ -	$ -	0.0%
	12	Current & Potential Transformer (CT & PT)		479	Each	Unknown	*35*	*42.5*	*50*	40.0	Unknown	Unknown	Unknown	Unknown	$ 85,262	$ 2,436	$ 2,006	$ 1,705	**$ 2,132**	$ 12,500	$ 2,500	0.4%
	13	Smart Meters		3966	Each	4.92	*5*	*10.0*	*15*	15.0	5.1	50.8%	10.1	67.2%	$ 650,543	$ 130,109	$ 65,054	$ 43,370	**$ 43,370**	$ 16,250	$ 3,250	0.5%
	14	Repeaters - Smart Metering		N/A			*10*	*12.5*	*15*													
	15	Data Collectors - Smart Metering		7	Each	5.00	*15*	*17.5*	*20*	17.0	12.5	71.4%	12.0	70.6%	$ 17,972	$ 1,198	$ 1,027	$ 899	**$ 1,057**	$ -	$ -	0.0%
Totals															$ 2,969,374	$ 416,783	$ 223,946	$ 156,576	**$ 161,254**	$ 608,750	$ 121,750	17.3%

The following table summarizes FFPC's budgeted capital reinvestments, for each General Plant asset category over the 2014 to 2018 planning period. The planned reinvestments are all driven by the outputs of Step 4 of the asset management process, and as such they are allocated towards sustaining the lifecycle of existing assets. As previously mentioned, General Plant expenditures have been curtailed to minimize the impact of the increase in overall capital expenditure requirements, due to FFPC transitioning out of its maintenance mode to a capital rebuild mode.

		Asset Details		Capital Budget Allocation		
Parent*	**#**	**Category| Component | Type**		**Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation**	**Average Annual Capital Allocation (2014 to 2018)**	**% of Total DS Plan Capital Expenditures**
General Plant	1	Office Equipment		$ 15,000	$ 3,000	0.4%
	2	Vehicles	Trucks & Buckets	$ 328,000	$ 65,600	9.3%
			Trailers	$ 75,000	$ 15,000	2.1%
			Vans			
	3	Administrative Buildings		$ 65,000	$ 13,000	1.8%
	4	Leasehold Improvements (Generator)		$ -	$ -	0.0%
	5	Station Buildings	Station Buildings	$ 31,000	$ 6,200	0.9%
			Parking	$ -	$ -	0.0%
			Fence	$ -	$ -	0.0%
			Roof	$ -	$ -	0.0%
	6	Computer Equipment	Hardware	$ 35,500	$ 7,100	1.0%
			Software	$ -	$ -	0.0%
	7	Equipment	Power Operated	$ 30,500	$ 6,100	0.9%
			Stores			
			Tools, Shop, Garage Equip.	$ -	$ -	0.0%
			Measurement & Testing Equip	$ -	$ -	0.0%
	8	Communication	Towers			
			Wireless	$ -	$ -	0.0%
	9	Residential Energy Meters				
	10	Industrial/Commercial Energy Meters				
	11	Wholesale Energy Meters		$ -	$ -	0.0%
	12	Current & Potential Transformer (CT & PT)		$ 12,500	$ 2,500	0.4%
	13	Smart Meters		$ 16,250	$ 3,250	0.5%
	14	Repeaters - Smart Metering				
	15	Data Collectors - Smart Metering		$ -	$ -	0.0%
Totals				$ 608,750	$ 121,750	17.3%

5.3.2.2.h.ii. Office Equipment

FFPC owns various types of office equipment which are required to transact business. Assets owned include items such as a media centre (photocopier), fax machine, labeler and shredder. FFPC plans on incurring costs in this category during the period 2014 to 2018; however, they are far below the materiality threshold, and as such they have not been detailed. The single largest planned expense under this category is the replacement of a media centre in 2017.

5.3.2.2.h.iii. Vehicles

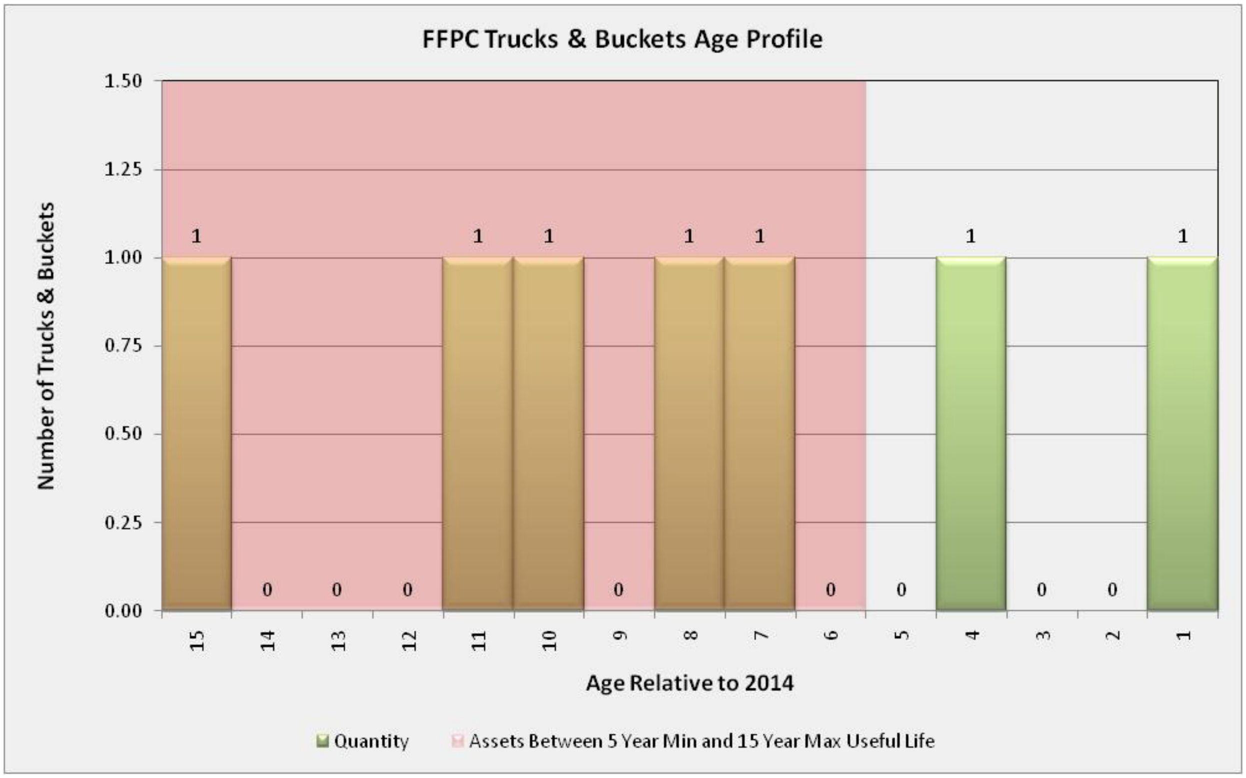
FFPC owns and operates a fleet of seven trucks and two trailers that support all maintenance, operations and capital activities. FFPC relies on one Digger Derrick Truck, one Double Bucket Truck, one Single Bucket Truck, one Dump Truck (1 Ton truck) and two half-ton trucks to manage its electrical distribution system and customer base. FFPC also owns one Chipper Trailer and one Cable Reel Trailer.

It is very important to FFPC's overall operation that all vehicles remain in good working condition, as FFPC does not have redundant units to rely upon. As such, FFPC recently invested in a shop expansion that allows for all major fleet vehicles to be parked indoors. The expansion has greatly enhanced the reliability of FFPC's fleet vehicles, especially during the cold winter months. Hydraulic systems are kept warm and responsive, when called upon for duty.

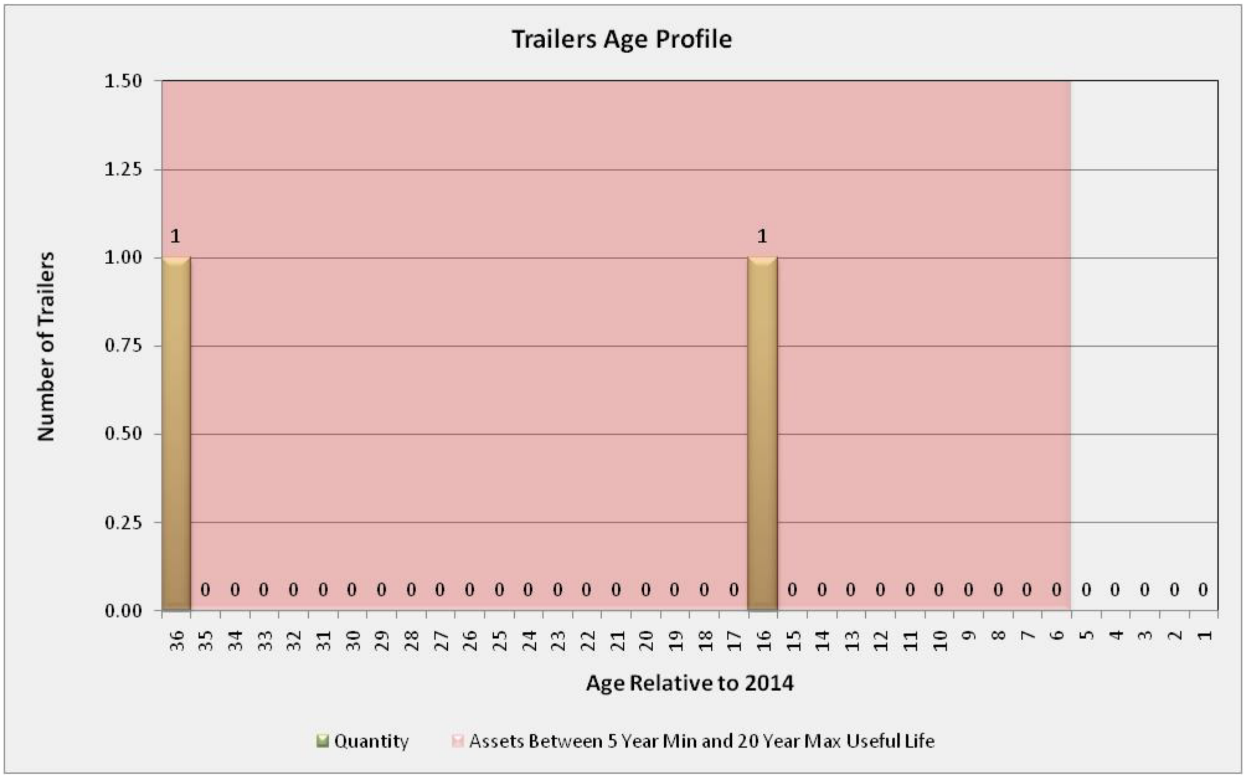
5.3.2.2.h.iii.1 Vehicles Age Profile Relative to Useful Life Period

FFPC has adopted the Maximum Useful Life of 15 years for its Trucks & Buckets, and the Maximum Useful Life of 20 years for its trailers, as per the "Kinectrics Report". As previously mentioned, the Vehicles category is the only category under General Plant requiring material capital reinvestment over the period 2014 to 2018, based on the outputs of the asset management process. The following tables and graphs represent the age profile of FFPC's Trucks & Buckets and Trailers respectively, with respect to their Useful Life relative to the adopted MAX UL established in the Kinectrics Report.

Trucks & Buckets Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 15 Year Max UL)**	**Quantity**
1999	15	2014	1
2000	14	2015	0
2001	13	2016	0
2002	12	2017	0
2003	11	2018	1
2004	10	2019	1
2005	9	2020	0
2006	8	2021	1
2007	7	2022	1
2008	6	2023	0
2009	5	2024	0
2010	4	2025	1
2011	3	2026	0
2012	2	2027	0
2013	1	2028	1
Total			**7**



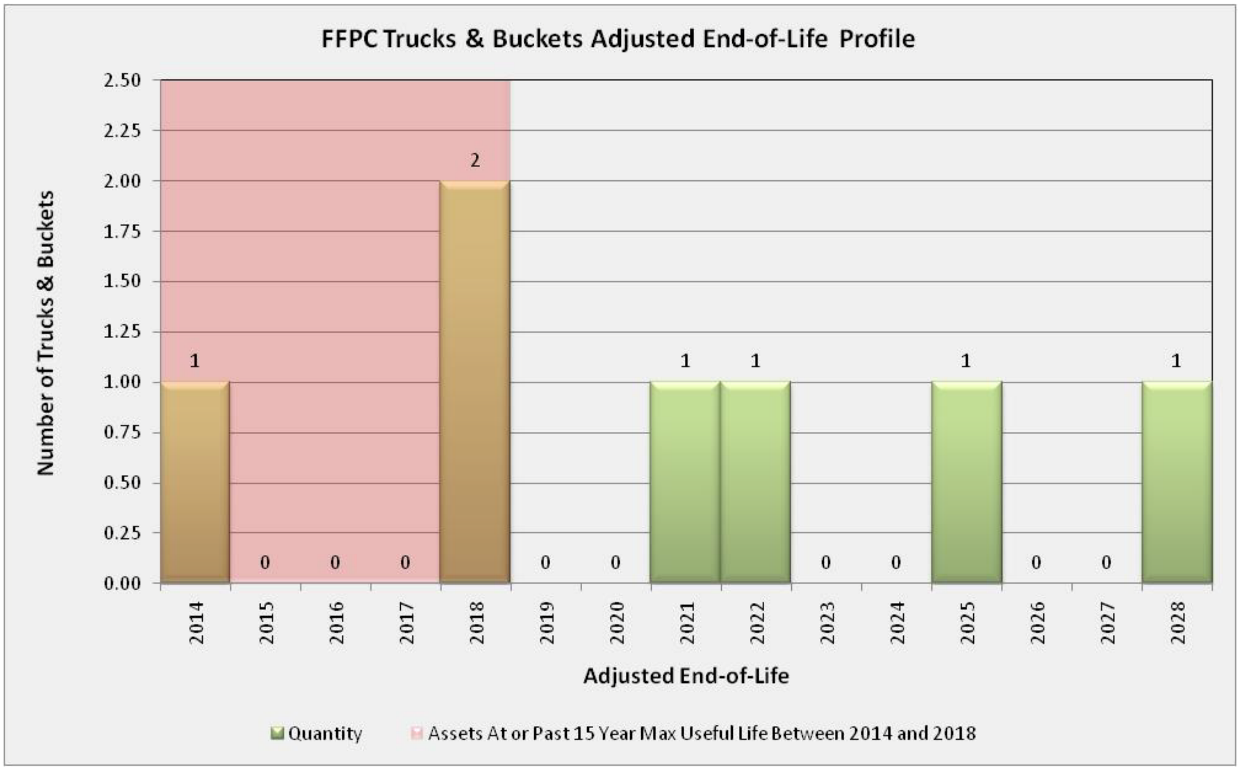
Trailers Age Profile (Relative to 2014 - Based on July 2013 Data)			
In Service Year	**Age**	**End-of-Life (Based on 20 Year Max UL)**	**Quantity**
1978	36	1998	1
1979	35	1999	0
1980	34	2000	0
1981	33	2001	0
1982	32	2002	0
1983	31	2003	0
1984	30	2004	0
1985	29	2005	0
1986	28	2006	0
1987	27	2007	0
1988	26	2008	0
1989	25	2009	0
1990	24	2010	0
1991	23	2011	0
1992	22	2012	0
1993	21	2013	0
1994	20	2014	0
1995	19	2015	0
1996	18	2016	0
1997	17	2017	0
1998	16	2018	1
1999	15	2019	0
2000	14	2020	0
2001	13	2021	0
2002	12	2022	0
2003	11	2023	0
2004	10	2024	0
2005	9	2025	0
2006	8	2026	0
2007	7	2027	0
2008	6	2028	0
2009	5	2029	0
2010	4	2030	0
2011	3	2031	0
2012	2	2032	0
2013	1	2033	0
Total			2



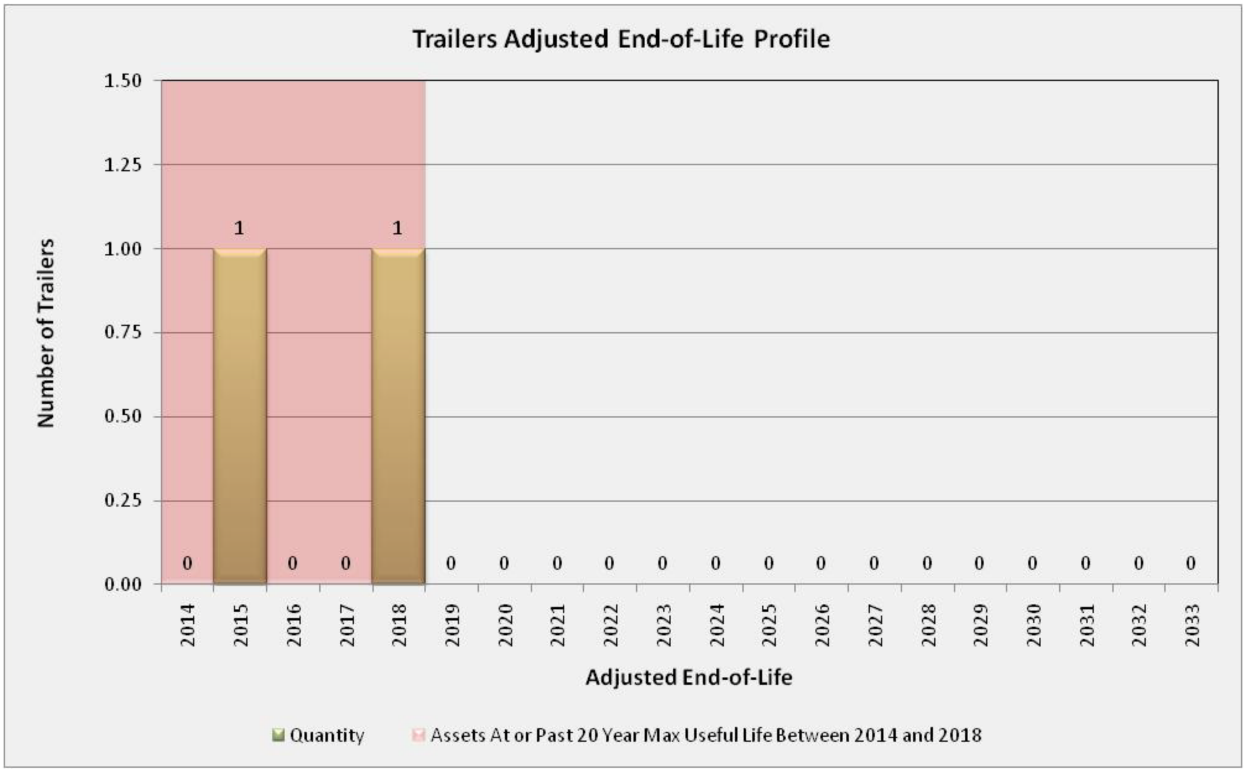
5.3.2.2.h.iii.2 Vehicles Adjusted End-of-Life Profile Relative to Adjusted End-of-Life Projections

FFPC performs routine inspections on all of its fleet vehicles, as well as any necessary maintenance is performed annually, during the mechanical, dielectric, and emissions inspection and testing processes. As previously discussed, FFPC's core fleet vehicles are all parked indoors and out of the elements when not in use. As such, the fleet vehicles are expected to remain reliable, and safe for use up to their recommended maximum useful life. FFPC has assigned Adjusted End-of-Life values corresponding to the Maximum Useful Life values contained in the "Kinectrics Report". As such, Trucks & Buckets are expected to have a useful life of 15 years, and trailers are expected to have a useful life of 20 years. The following tables and graphs illustrate FFPC's anticipated replacement schedule according to Adjusted End-of-Life Projections, based on FFPC's asset management process. Note that large fleet vehicles, such as double bucket trucks, have a typically delivery time of one year. As such, they are planned and budgeted for one year in advance to ensure that they are received in a timely manner.

Truck & Buckets Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	**2014**	**1**	**$ 38,000**	**0.5**
2	**2015**	**0**	**$ -**	**0.5**
3	**2016**	**0**	**$ -**	**0.5**
4	**2017**	**0**	**$ -**	**0.5**
5	**2018**	**2**	**$ 290,000**	**0.5**
6	2019	0	$ -	0.5
7	2020	0	$ -	0.5
8	2021	1	$ 42,000	0.5
9	2022	1	$ 65,000	0.5
10	2023	0	$ -	0.5
11	2024	0	$ -	0.5
12	2025	1	$ 246,000	0.5
13	2026	0	$ -	0.5
14	2027	0	$ -	0.5
15	2028	1	$ 120,000	0.5
Totals		**7**	**$ 801,000.00**	**7**



Trailers Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	**Adjusted End-of-Life Year**	**Quantity**	**Replacement Cost**	**Ideal Evenly Distributed Annual Replacement Rate**
1	**2014**	**0**		**0.1**
2	**2015**	**1**	**$ 50,000**	**0.1**
3	**2016**	**0**		**0.1**
4	**2017**	**0**		**0.1**
5	**2018**	**1**	**$ 25,000**	**0.1**
6	2019	0		0.1
7	2020	0		0.1
8	2021	0		0.1
9	2022	0		0.1
10	2023	0		0.1
11	2024	0		0.1
12	2025	0		0.1
13	2026	0		0.1
14	2027	0		0.1
15	2028	0		0.1
16	2029	0		0.1
17	2030	0		0.1
18	2031	0		0.1
19	2032	0		0.1
20	2033	0		0.1
Totals		**2**	**$ 75,000.00**	**2**



5.3.2.2.h.iii.3 Lifecycle Analysis Summary & Budget Allocation

Trucks & Buckets Profile			
7	Quantity	0.4	10 Year Historic Replacement/Installation Rate (Units/Year)
15	UL (Adopted)	3	Quantity Reaching Adjusted End of Life Over Forecast Period
8.0	Average Age of Population	$328,000	Total Capital Replacement Cost over Forecast Period
0.47	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
53.3%	% UL Consumed	0.60	Average Replacements Per Year
86.7%	2019 % UL Consumed with no Reinvestment	$65,600	Average Annual Cost Per Year
		$53,400	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$328,000	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 7 Trucks & Buckets is not evenly distributed over one lifecycle period beginning in 2014. The population by nature is not densely populated, given the relatively low asset count over the lifecycle period. Therefore replacement needs are sporadic and not very uniform by nature. As such, expenditure needs are somewhat sporadic. FFPC adopted a UL of 15 years, and based on the average age of 8 years for the population, 53.3% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 86.7% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC replaced an average of 0.4 vehicles per year, which is slightly lower than the ideal average annual replacement rate of 0.47 trucks & buckets per year. Over the 2014 to 2018 forecast period, three vehicles will reach or surpass their UL of 15 years; however, a total of four will reach or surpass their AEOL. The total estimated capital replacement cost is $328,000 and no capital refurbishments are projected to be required. The average annual replacement rate is 0.6 vehicles per year, and the average total annual reinvestment cost is $65,600 per year. The average annual reinvestment need for this asset class, assuming a dense and evenly distributed population is $53,400 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has allocated $328,000 toward capital replacements and has not allocated any capital for refurbishments. This is slightly higher than the ideal average annual reinvestment need; however, it is aligned with FFPC's objective of keeping pace with the rate of deterioration.

Trailers Profile			
2	Quantity	0.0	10 Year Historic Replacement/Installation Rate (Units/Year)
20	UL (Adopted)	2	Quantity Reaching Adjusted End of Life Over Forecast Period
26.0	Average Age of Population	$75,000	Total Capital Replacement Cost over Forecast Period
0.10	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
130.0%	% UL Consumed	0.40	Average Replacements Per Year
155.0%	2019 % UL Consumed with no Reinvestment	$15,000	Average Annual Cost Per Year
		$3,750	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$75,000	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

The age distribution of the population of 2 trailers is not evenly distributed over one lifecycle period beginning in 2014. The population is not densely populated given the low asset count over the lifecycle. Therefore replacement needs are sporadic and not very uniform by nature. As such, expenditure needs may vary from year to year. FFPC adopted a UL of 15 years, and based on the average age of 26 years for the population, 130% UL has been consumed. If FFPC was not to reinvest into this asset class, the percentage of UL consumed increases to 155% by 2019. FFPC's long term target is to maintain %UL consumed at 50%. Over the last ten years, FFPC did not replace or acquire any trailers. The ideal average annual replacement rate of trailers is 0.1 per year. Over the 2014 to 2018 forecast period, one trailer will reach and the other has long surpassed its UL of 20 years. The total estimated capital replacement cost is $75,000 and no capital refurbishments have been identified (trailer must be outright replaced). The average annual replacement rate is 0.4 trailers per year, and the average total annual reinvestment cost is $15,000 per year. The average annual reinvestment need for this asset class, assuming a dense and evenly distributed population, is $3,750 per year, based on the replacement cost of one lifecycle (cost to replace entire asset class) divided by FFPC's adopted useful life. FFPC has allocated $75,000 toward capital replacements and has not allocated any capital towards refurbishment. This is slightly higher than the ideal average annual reinvestment need; however, it is aligned with FFPC's objective of keeping pace with the rate of deterioration.

5.3.2.2.h.iii.4 Impact of Trucks & Buckets and Trailers on DS Plan

The planned reinvestment into vehicles has a material impact on FFPC's DS Plan. The total capital replacement cost of $328,000 for the Trucks & Buckets represents 9.3% of the total planned capital expenditures over the 2014 to 2018 planning horizon. The total replacement cost of $75,000 for trailers represents 2.1% of the total planned capital expenditures over the planning horizon

5.3.2.2.h.iv. Administrative Buildings

FFPC owns an Operations Centre located on 939 Wright Avenue in Fort Frances, Ontario. The centre is used to house fleet vehicles, various inventory items such as poles, transformers, gravel, as well as it is the work centre for the line crew and General Superintendent. The centre was originally constructed in 1969 and an addition was added in 2009. The addition allowed for all core fleet vehicles to be parked inside to minimize their deterioration, as well as to ensure they are fit for duty during the cold winter months. FFPC does not plan on incurring any significant expense in this category during the period 2014 to 2018, and as such detailed componentized life projections are not included.

5.3.2.2.h.v. Leasehold Improvements

In 2009 FFPC purchased and installed a backup generator for its main office located on 320 Portage Avenue in Fort Frances Ontario. The generator allows FFPC to function during power outages and was a much needed emergency preparedness improvement. Prior to this improvement, core functionality including building heat was not operable during power outages. FFPC is a member of the Community Emergency Control Group, who’s head quarters are now also located at 320 Portage Avenue. FFPC does not have any expenditures planned for this category during the period 2014 to 2018.

5.3.2.2.h.vi. Station Buildings

Transformer station Fort Frances MTS has two “Station Buildings”. The first building “T1 Control Building”, houses the metal clad switchgear for feeders that are normally fed from Transformer T1. The building is a 1972 metal prefab building. The second building is a block brick building that was constructed in 1978 to house Transformer T2 metal clad switchgear, as well as all other station services such as DC Battery Systems, tie-breaker controls, station independent breaker controls, as well as a civil work area. Both station buildings are inspected monthly as part of FFPC maintenance inspection program. The buildings are found to be in good health relative to their age. All supporting components such as the parking area, access gates, roofs and fencing are currently all in good health and are not expected to require any material investments over the 2014 to 2018 planning period. FFPC is planning for one material investment in 2015. Transformer T1 and T2 are located in close proximity of one another, and as such a massive failure of one could result in damage to the other. FFPC’s insurance carrier has recommended that a fire/blast barrier be installed in between the two transformers, such that any airborne debris or flames are contained in the event of a massive failure.

5.3.2.2.h.vii. Computer Equipment

FFPC currently owns ten computer stations that are located in either the main office or operations centre. FFPC has adopted the maximum useful life of 5 years for these stations. All stations are setup with base software such as Virus Protection, and core office programs such as Microsoft Office. Some stations are then loaded with additional functionality such as GIS or access to Customer Service Software depending on the user. FFPC also owns various other computing hardware such as printers, network hubs and docking stations. FFPC also owns several higher value business software solutions such as its GIS system. FFPC plans to keep its fleet of computing hardware and software up to date over the 2014 to 2018, and as such has annual planned investments; however the combined total of all investments in this category are far below the materiality threshold.

5.3.2.2.h.viii. Equipment

FFPC owns and relies on various general equipment in order to conduct its business. Power operated tools range from chainsaws, lawnmowers and weed-eaters to drill presses, hammer drills and saws-alls. While hand tools range from trade specific line tools to general tools such as hammers, shovels, screw-drivers or sockets. FFPC plans to keep its fleet of equipment in good condition and to replace items as they fail. As such, FFPC plans on incurring annual expenses in this category during the period 2014 to 2018; however, the combined total of all expenses in this category are far below the materiality threshold.

5.3.2.2.h.ix. Communication

FFPC utilizes a meridian telephone system, cellular phones, two-way radios, as well as data lines and communication packages (long distance telephone calls, fax lines, internet data packages etc) to conduct its business. FFPC plans on incurring annual expenses in this category to keep equipment current and in good health. During the period 2014 to 2018 FFPC does not have any material investments planned in this category, and as such only immaterial annual costs are planned.

5.3.2.2.h.x. Wholesale Metering

FFPC's transformer station Fort Frances MTS contains two wholesale metering points, one on each of the secondary side of the two station power transformers. Both metering seals expired in 2009 and as such the units were replaced in 2009. FFPC does not foresee the need to replace or upgrade any of its wholesale metering assets during the period 2014 to 2018. As such, FFPC does not have any expenditures planned in this category over the planning period.

5.3.2.2.h.xi. Smart Meters

As per the provincial smart meter mandate, FFPC replaced its entire meter population with smart meters during the years 2009 to 2011. To the best of FFPC's knowledge, the useful life of the smart meters is governed by Measurement Canada, as it has the authority to govern meter seal periods. All of FFPC's smart meters purchased have a 10 year seal. The "Kinectrics Report" established a useful life range of 5 to 15 years. For the purpose of this application FFPC has assigned an Adjusted End-of-Life value of 15 to its smart meter population. This is aligned with FFPC's depreciation. If however, operating smart meters beyond their 10 year seal period is a Measurement Canada violation, FFPC will be forced to replace its entire smart meter population according to a 10 year lifecycle, as opposed to a

15 year cycle. The reduced life expectancy would increase FFPC's average annual replacement cost for Smart Meters from $43,370 to $65,064, which would be equivalent to approximately half of FFPC's capital pole replacement program.

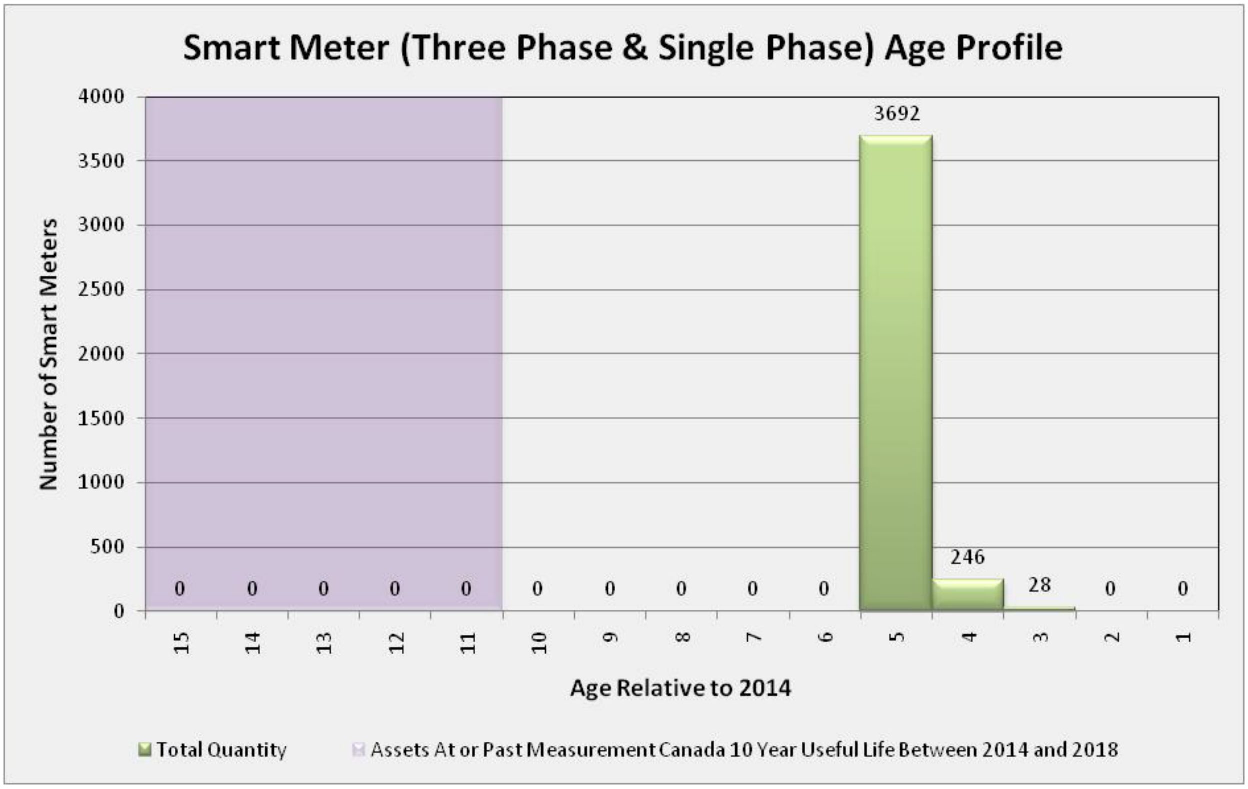
FFPC seeks OEB guidance with respect to lifecycle planning for smart meters, specifically whether meters will be legally allowed to remain in operation from years 10 through 15 with respect to their seal expiry as governed by Measurement Canada. FFPC notes that this determination will have a significant impact on FFPC's work planning, amortization cost and budget considerations.

It is worth noting that a 10 year seal expiration date would correspond to FFPC's 2019 planning year and beyond.

5.3.2.2.h.xi.1 Smart Meter Age Profile Relative to Maximum Useful Life

The following table and graph illustrate FFPC's smart meter age profile relative to the 15 year maximum useful life established in the "Kinectrics Report". It is again important to note that the best of FFPC's knowledge meter seals expire after 10 years as per current Measurement Canada requirements.

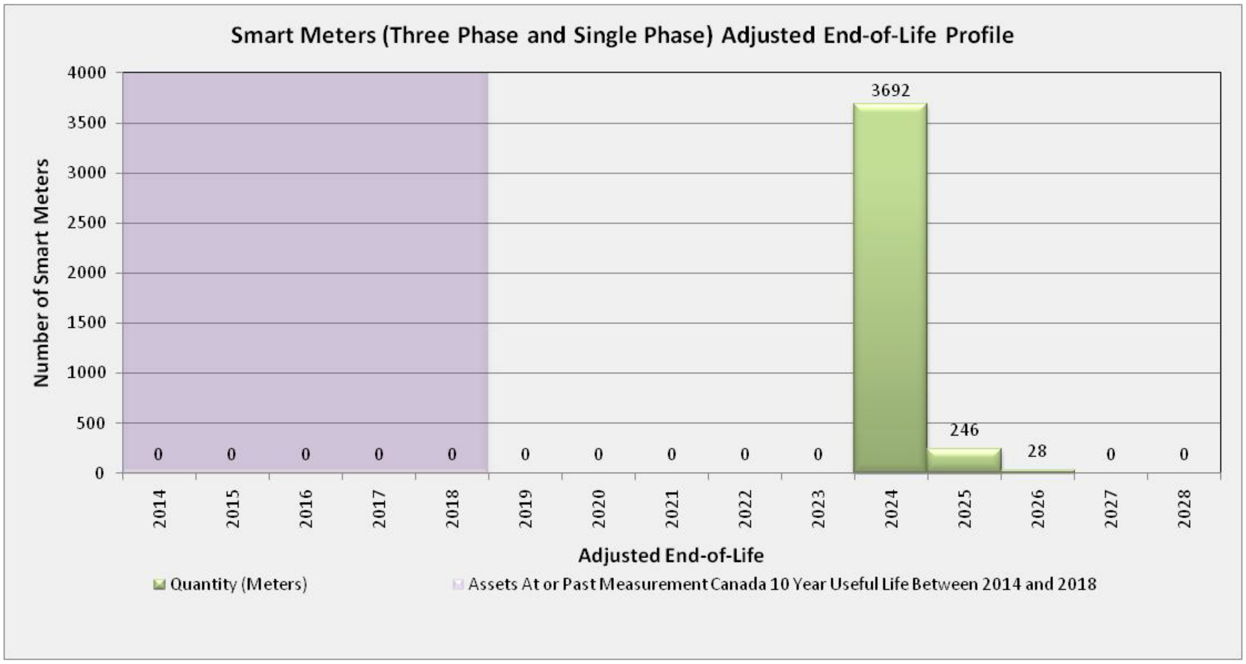
Smart Meter Age Profile (Relative to 2014 - Based on July 2013 Data)					
In Service Year	**Age**	**End-of-Life (Based on 15 Year Max UL)**	**Single Phase**	**Three Phase**	**Total Quantity**
1999	15	2014	0.0	0.0	0
2000	14	2015	0.0	0.0	0
2001	13	2016	0.0	0.0	0
2002	12	2017	0.0	0.0	0
2003	11	2018	0.0	0.0	0
2004	10	2019	0.0	0.0	0
2005	9	2020	0.0	0.0	0
2006	8	2021	0.0	0.0	0
2007	7	2022	0.0	0.0	0
2008	6	2023	0.0	0.0	0
2009	5	2024	3616.0	76.0	3692
2010	4	2025	44.0	202.0	246
2011	3	2026	20.0	8.0	28
2012	2	2027	0.0	0.0	0
2013	1	2028	0.0	0.0	0
Totals			**3680**	**286**	**3966**



5.3.2.2.h.xi.2 Smart Meter Adjusted End-of-Life Projections

FFPC has adopted a Maximum Useful Life of 15 years for its smart meter population, as per the "Kinectrics Report". FFPC has aligned it Adjusted End-of-Life dates accordingly. It is again important to note that Measurement Canada seal periods expire after 10 years, and if FFPC had to comply with this requirement all of FFPC's meters would have an Adjusted End-of-Life of 10 years. The following table and graph illustrate FFPC's Adjusted End-of-Life Projections according to FFPC's asset management plan.

Smart Meters Adjusted End-of-Life Profile Based of Asset Management Process (Relative to 2014 - Based on July 2013 Data)				
Lifecycle Year	Adjusted End-of-Life Year	Quantity (Meters)	Replacement Cost	Ideal Evenly Distributed Annual Replacement Rate
1	**2014**	**0**	**$ -**	**264.4**
2	**2015**	**0**	**$ -**	**264.4**
3	**2016**	**0**	**$ -**	**264.4**
4	**2017**	**0**	**$ -**	**264.4**
5	**2018**	**0**	**$ -**	**264.4**
6	2019	0	$ -	264.4
7	2020	0	$ -	264.4
8	2021	0	$ -	264.4
9	2022	0	$ -	264.4
10	2023	0	$ -	264.4
11	2024	3692	$ 605,599	264.4
12	2025	246	$ 40,351	264.4
13	2026	28	$ 4,593	264.4
14	2027	0	$ -	264.4
15	2028	0	$ -	264.4
Totals		**3966**	**$ 650,542.98**	**3966**



5.3.2.2.h.xii. Data Collectors - Smart Meters

FFPC's Elster Energy Axis Smart Metering System, utilizes Data Collectors to backhaul smart meter data back to its central server called the Master Application Server (MAS). FFPC requires the use of six active and one spare Data Collector, to administer its smart meter network throughout its entire licensed distribution service territory. FFPC has adopted the Maximum Useful Life of 20 years for these units, as per the "Kinectrics Report". FFPC performs routine inspections of the units, and services them upon notification of error codes, which imply improper operation. FFPC does not plan on incurring any material expenses in this category during the 2014 to 2018 period.

5.3.3 Asset lifecycle optimization policies and practices

Over the 2014 to 2018 planning horizon, approximately two-thirds of all planned capital investments are driven by "system renewal", specifically due to assets reaching their end-of-useful service life. FFPC's asset management process is designed to project the end of service lives for individual assets and to quantify the corresponding impact/risk associated with failure. FFPC's methodology generates end-of-life dates for individual assets (due to high probability of failure), taking into consideration the age, and condition of assets as quantified by inspection and condition testing results. FFPC is working towards formally developing individual health index algorithms for all major asset categories, which will be formally assigned to each individual asset owned. The health indexes will essentially generate the order in which assets are expected to fail. As such, informed decision can be made to prioritize asset replacements based on other variables such as impact of failure.

FFPC performs detailed inspections, as well as condition tests, on all major asset categories where practical. Refer to Appendix 4 "Maintenance Inspection Program" for details. The results of inspections and condition tests are used to quantify the amount of asset deterioration. As such, the degree of asset deterioration is a key input to projecting equipment longevity as well as the expected date of failure. The date on which an asset is predicted to fail is termed as an asset's "Adjusted End-of-Life" (AEOL) date, as per FFPC's asset management process. By default AEOL's are aligned with TUL values according to the "Kinectrics Report". Favourable inspection and condition testing results will extend an asset's AEOL date beyond the TUL and alternately unfavourable inspection and condition testing results will shorten an asset's AEOL with respect to its TUL. It is important to note that adjusted end-of-life projections are more meaningful as assets approach their TUL, as opposed during their early years of service. The TUL stage of an assets lifecycle is the critical time at which investment decisions must be made. The decision could be to do nothing, replace, refurbish, decommission or develop the asset.

FFPC's Adjusted End-of-Life profiles essentially govern lifecycle related investments. FFPC's long term goal is to normalize unevenly distributed asset populations, thereby smoothing future expenditure requirements, while at the same time replacing assets proactively just before reaching their point of failure. FFPC's "just in time" proactive asset replacement strategy allows for replacements to be conducted in a coordinated and planned manner, as opposed to under emergency repair circumstances. Emergency repair circumstances often add significant unnecessary expense such as overtime rates of pay or minimum crew callout durations, as well as they often require the use of more expensive equipment such as vacuum trucks to complete the job safely.

FFPC has also aligned the life cycles of various asset classes such that multiple asset classes can be changed at the same time. For example, FFPC has e adopted a useful of 80 year for Underground Foundations, as opposed to the 55 year TUL suggested in the "Kinectrics Report". The 80 year life cycle will enable FFPC to replace the foundation every second time that the transformer which is mounted onto it is replaced, as FFPC has adopted a 40 year useful life for transformers as per the 40 TUL in the "Kinectrics Report". Similarly FFPC has adopted a useful life (UL) of 80 years for all underground ducts, including cement encased ducts.

Furthermore, FFPC has adopted several Maximum Useful Life values as per the "Kinectrics Report" for various asset classes, as the longer service life better reflects FFPC operating conditions and environment. For example, FFPC has adopted the Maximum Useful Life of 20 years for Trucks and Buckets. This is due to FFPC expanding its Operations Centre to house fleet vehicles indoors, to minimize the amount of deteriorate due to unnecessary exposure the extreme weather. The probability of equipment failure is thereby also greatly reduced).

5.3.3.1 Potential Asset Refurbishment Summary

FFPC evaluates the feasibility of refurbishing assets on an asset specific basis depending on circumstances. Only a portion of FFPC's asset base is conducive to being refurbished or partially refurbished. Some asset classes; however, must be outright replaced in their entirety. The following table summarizes whether or not particular asset groups are conducive to refurbishment in FFPC's experience. A detailed explanation of the rationale follows the table.

<table>
<tr><th colspan="5">Asset Refurbishment Summary Table</th></tr>
<tr><th colspan="2">Asst Category</th><th colspan="2">Asset Details</th><th>Refurbishment Considered?</th></tr>
<tr><th>Parent*</th><th>#</th><th colspan="2">Category| Component | Type</th><th>Yes / No</th></tr>
<tr><td rowspan="7">OH</td><td rowspan="3">1</td><td rowspan="3">Fully Dressed Wood Poles</td><td>Overall</td><td>Yes</td></tr>
<tr><td>Cross Arm - Wood</td><td>N/A</td></tr>
<tr><td>Cross Arm - Steel</td><td>N/A</td></tr>
<tr><td>4</td><td colspan="2">OH Line Switch</td><td>Yes</td></tr>
<tr><td rowspan="2">8</td><td rowspan="2">OH Conductors</td><td>Primary Conductor</td><td>No</td></tr>
<tr><td>Secondary Conductor</td><td>No</td></tr>
<tr><td>9</td><td colspan="2">OH Transformers</td><td>No</td></tr>
<tr><td rowspan="15">TS & MS</td><td rowspan="3">12</td><td rowspan="3">Power Transformers</td><td>Overall</td><td>Yes</td></tr>
<tr><td>Bushing</td><td>Yes</td></tr>
<tr><td>Tap Changer</td><td>Yes</td></tr>
<tr><td>13</td><td colspan="2">Station Service Transformer</td><td>No</td></tr>
<tr><td rowspan="3">15</td><td rowspan="3">Station DC System</td><td>Overall</td><td>Yes</td></tr>
<tr><td>Battery Bank</td><td>Yes</td></tr>
<tr><td>Charger</td><td>Yes</td></tr>
<tr><td rowspan="2">16</td><td>Station Metal Clad Switchgear</td><td>Overall</td><td>Yes</td></tr>
<tr><td></td><td>Removable Breaker</td><td>Yes</td></tr>
<tr><td>17</td><td colspan="2">Station Independent Breakers</td><td>Yes</td></tr>
<tr><td>18</td><td colspan="2">Station Switch</td><td>Yes</td></tr>
<tr><td>19</td><td colspan="2">Electromechanical Relays</td><td>No</td></tr>
<tr><td>21</td><td colspan="2">Digital & Numeric Relays</td><td>No</td></tr>
<tr><td>22</td><td colspan="2">Rigid Busbars</td><td>No</td></tr>
<tr><td>23</td><td colspan="2">Steel Structure</td><td>Yes</td></tr>
<tr><td rowspan="8">UG</td><td>29</td><td colspan="2">Primary TR XLPE Cables in Duct</td><td>Yes</td></tr>
<tr><td>31</td><td colspan="2">Secondary Cables Direct Buried</td><td>No</td></tr>
<tr><td rowspan="2">34</td><td rowspan="2">Pad-Mounted Transformers</td><td>Single Phase</td><td>No</td></tr>
<tr><td>Three Phase</td><td>No</td></tr>
<tr><td>36</td><td colspan="2">UG Foundation</td><td>No</td></tr>
<tr><td>40</td><td colspan="2">Ducts</td><td>No</td></tr>
<tr><td>41</td><td colspan="2">Concrete Encased Duct Banks</td><td>No</td></tr>
<tr><td>42</td><td colspan="2">Cable Chambers</td><td>No</td></tr>
<tr><td rowspan="10">General Plant</td><td>1</td><td colspan="2">Office Equipment</td><td>Yes</td></tr>
<tr><td rowspan="3">2</td><td rowspan="3">Vehicles</td><td>Trucks & Buckets (7 Units)</td><td>Yes</td></tr>
<tr><td>Trailers (2 Units)</td><td>Yes</td></tr>
<tr><td>Vans</td><td>N/A</td></tr>
<tr><td>3</td><td colspan="2">Administrative Buildings</td><td>Yes</td></tr>
<tr><td rowspan="4">5</td><td rowspan="4">Station Buildings</td><td>Station Buildings (2 Buildings)</td><td>Yes</td></tr>
<tr><td>Parking</td><td>Yes</td></tr>
<tr><td>Fence</td><td>Yes</td></tr>
<tr><td>Roof</td><td>Yes</td></tr>
<tr><td>6</td><td>Computer Equipment</td><td>Hardware</td><td>Yes</td></tr>
</table>

			Software	No
	7	Equipment	Power Operated	No
			Stores	No
			Tools, Shop, Garage Equip.	Yes
			Measurement & Testing Equip	No
	8	Communication	Towers	N/A
			Wireless	No
	11	Wholesale Energy Meters		No
	12	Current & Potential Transformer (CT & PT)		No
	13	Smart Meters		No
	15	Data Collectors - Smart Metering		Yes

5.3.3.2 Prioritization of Individual Asset Replacements or Refurbishments

FFPC uses the following priority tree to determine the importance of individual assets, for the purpose of ranking the importance of necessary individual asset replacements or refurbishments.

1. Asset failure poses imminent shock or safety hazard to the general public or to employees
2. Asset failure impacts entire distribution system
3. Asset failure impacts one or more feeders
4. Asset failure impacts large section of feeder
5. Asset failure impacts essential services
6. Asset failure impacts critical customers
7. Asset failure impacts multiple residential units or businesses
8. Asset failure impacts single residential unit or business
9. Asset failure does not impact customers

5.3.3.3 Overhead Distribution Assets Optimization Policies and Practices

5.3.3.3.a. Fully Dressed Wood Poles

FFPC replaces wood poles individually as per the findings of FFPC's overhead plant inspection and condition testing process, which is an integral part of FFPC's asset management process. As such, FFPC continually focuses on replacing the worst poles, as opposed to replacing sections of feeders where some poles would still be relatively good health. As part of the replacement process, FFPC inspects all components to see if any are fit for reuse. As FFPC has experienced considerable premature failures of wood poles due to flaws in the manufacturers treatment process, FFPC has been able to avoid unnecessary expense through the reuse of "like new" components. The most common components fit for reuse are the metal standoff brackets which are expected to last more than two full lifecycles of the wood poles to which they are affixed. It is important to note; however, that in order for any minor component to be deemed fit for reuse, it must be inspected thoroughly to ensure that no defects exist. Furthermore, any major component must also be condition tested to verify that it is fit for reuse.

5.3.3.3.b. Overhead Line Switches

FFPC currently utilizes three types of overhead line switches that are grouped into this category. FFPC has manual gang operated sectionalizing switches, inline paralleling switches, as well as inline fused switches, all of which are three phase switch settings. FFPC performs routine inspections of all overhead switches according to its overhead plant inspection process. The most common indentified deficiency is insulator degradation. FFPC believes that it is worthwhile to extend the life of switches with minor refurbishments such as insulator replacements, as they are easy to do, as well as inexpensive.

5.3.3.3.c. Overhead Conductors

FFPC is not aware of any practical way in which overhead primary or secondary conductors can be refurbished. For jacketed cables, silicon injection technology allows for refurbishment; however, the practical application would be for underground primary cables. FFPC performs routine inspections of all of its overhead conductors according to its maintenance inspection problem. Any small deficiencies such as excess sag or poor terminations are repaired under FFPC's maintenance problem.

5.3.3.3.d. Overhead Transformers

FFPC does not refurbish overhead transformers and generally speaking transformers do not require maintenance. Historically transformers were run to failure, or alternately, were replaced in poorly accessible areas (back lot construction) at the same time that the wood poles to which they were mounted to were replaced. FFPC's new asset management approach is to transition to a just-in-time replacement approach, such that replacements are conducted under planned and coordinated circumstances, as opposed to under emergency repair circumstances. Factors that influence transformer replacements include the relative health of the transformer as determined by FFPC's asset management process, as well as the impact of failure. The pole mounted transformer population is not evenly distributed and as such, FFPC will face the foot of a "tidal wave" beginning in the 2014 to 2018 planning period. This further necessitates that FFPC ramp up its replacement program, beginning with replacements that are found to have the lowest health and highest impact of failure. FFPC's asset management process is utilized to prioritize the order in which individual transformers require replacing.

5.3.3.4 Transformer Station Lifecycle Optimization Policies and Practices

FFPC plans on sustaining its transformer station Fort Frances MTS such that it will achieve, or possibly surpass, its maximum useful life as dictated by core station components. As per the "Kinectrics Report", the majority of major station components such as Power Transformers, Metal Clad Switchgear and Station Switches, all have a maximum useful service life of 60 years. Accordingly, FFPC has set an end of service life target date of 2034 for Fort Frances MTS. The availability of replacement parts has become a known issue for some components, as the types of assets are no longer commonly used in the industry.

FFPC has retained the services of Siemens Canada to perform annual maintenance inspections and asset condition testing of all major station components. All major components have been assigned to a three year maintenance schedule and asset condition assessments are performed annually, due to the criticality of the station.

The following maintenance, testing and inspection schedule has been applied as per the recommendation of Siemens Canada:

Year 1 Inspection, Maintenance & Condition Analysis:

- OCB testing
- Relay testing
- Battery banks testing
- Yearly oil sampling (all assets containing oil - T1, T2 & OCB's)

Year 2 Inspection, Maintenance & Condition Analysis:

- Transformer T1 and associated equipment (tap changer, arrestors), T1 15 kV Breakers
- Battery banks testing
- Yearly oil sampling (all assets containing oil- T1, T2 & OCB's)

Year 3 Inspection, Maintenance & Condition Analysis:

- Transformer T2 and associated equipment (tap changer, arrestor), T2 15 kV Breakers
- Battery banks testing
- Yearly oil sampling (all - T1, T2 & OCB's)

The following schedule will be applied for the period 2014 to 2018

Year	Asset Management Schedule
2014	Year 1 Schedule
2015	Year 2 Schedule
2016	Year 3 Schedule
2017	Year 1 Schedule
2018	Year 2 Schedule

5.3.3.4.a. Power Transformers

Power transformers by nature require ongoing maintenance and are conducive to being partially refurbished. Over the last few years, FFPC has replaced and repaired components that have a shorter lifecycle relative to the transformer core. For example, FFPC has replaced all lighting arrestors, and has performed an overhaul of the automatic tap changers. FFPC has also reconditioned the oil and performed major maintenance repairs such as replacing the cooling fin gaskets. As previously mentioned, FFPC's strategy is to continue with necessary ongoing maintenance activities, as well as necessary refurbishments of smaller components, such that the power transformers will achieve their maximum suggested service life of 60 years. Over the 2014 to 2018 planning horizon, FFPC will pay special attention to monitoring the condition of the bushings as they are still original, however conditions testing has not shown signs of deterioration. Overall, the 2013 maintenance inspection and condition testing program did not find any items of immediate concern.

5.3.3.4.b. Station Service Transformer

The station service transformer is not conducive to being refurbished, and as such will be monitored for signs of fatigue. When the transformer is deemed to be close to failure, it will be replaced. FFPC expects to achieve a useful service life of 45 years.

5.3.3.4.c. Station DC System

The Station DC Systems require ongoing maintenance, as well as ongoing refurbishments in order for them to reach their maximum useful service life. FFPC performs annual battery cell testing to determine which cells no longer hold an acceptable charge and replaces them as required. This approach ensures that the system as a whole operates at acceptable performance levels. In the event of a premature charger failure, it is worth while repairing or replacing the charger and not necessarily replacing the battery banks.

5.3.3.4.d. Metal Clad Switchgear

FFPC's metal clad switch gear is inspected and condition tested on a three year rotation according to FFPC's maintenance inspection program. The switchgear is original to the station, and one lineup is actually older than the station as it was purchased slightly used. FFPC's strategy is to sustain the life of switchgear until the transformer station as a whole reaches the end of its useful service life. The switchgear is currently found to be in good health with respect to age, not requiring any significant sustainment investments at this time. As such, FFPC's inspection and condition testing program will be relied upon to drive future maintenance and sustainment activities.

5.3.3.4.e. Station Independent Breaker

Fort Frances MTS's station independent breaker has been identified as a major station component that is not expected to be sustainable until the station as a whole is planned to be decommissioned in 2034. The main reason for this is due to the fact that the unit was purchased used and as such was manufactured in 1947. The unit has surpassed its maximum useful life of 65 years and cannot be refurbished as parts have become obsolete. The most recent inspections and condition tests have found the unit to be in good working condition, with no immediate signs of failure. The purpose of the unit is to protect the entire station from sustaining damage in the event of a fault. FFPC has therefore determined to closely monitor the health of the unit until its planned replacement in 2018.

5.3.3.4.f. Station Switches

The station switches are also original to the station, and as such are of early 1970's vintage. The life expectancy of these switches aligns with the life expectancy of other core station components, and as such, FFPC's strategy is to refurbish the switches as required until their anticipated decommissioning along with the station as a whole in 2034. The switches are expected to reach their maximum useful service life of 60 years. The most common refurbishment of these switches is insulator replacements. FFPC's 2013 annual inspection and condition testing did not identify any defects, and as such the switches are found to be in overall good health.

5.3.3.4.g. Electromechanical Relays and Digital & Numeric Relays

Electromechanical relays have been become obsolete with the availability of low cost microprocessor based digital relays. Modern day relays offer considerably more functionality and require less maintenance compared to older single function electromechanical relays. FFPC's strategy is therefore not to refurbish electromechanical relays but rather replace them with modern day technology in the event of failure.

5.3.3.4.h. Rigid Busbars

FFPC expects that the service life of the rigid busbars in the transformer station will easily outlast the useful service life of the station as a whole. FFPC is not aware of any practical sustainment activities for rigid busbars. The units are inspected according to FFPC's maintenance inspection program, and any necessary maintenance work, such as contact cleaning, is performed at the time of inspection.

5.3.3.4.i. Steel Structure

FFPC expects that the useful service life of the steel structure will outlast the useful service of the station as a whole. The steel structure generally does not require any maintenance or sustainment activities. Fort Frances also has not had issues with acidic rain causing excessive deterioration. The structure is inspected annually for defects but to date none have been identified. FFPC's strategy is to sustain the steel structure of Fort Frances MTS until the retirement of the station as a whole in 2034.

5.3.3.5 Underground Plant Lifecycle Optimization Policies and Practices

5.3.3.5.a. Primary TR XLPE Cables is Duct

FFPC's underground primary conductor is used to connect feeders to the transformer station, in newer subdivisions in place of overhead lines as well as to connect the distribution system to pad-mounted transformers. The age distribution of FFPC's underground cables is not evenly distributed and as such large portions of assets are approaching their end of service life during relatively narrow timeframes. It is not feasible or practical for FFPC to replace all cable runs as they reach their ideal end of their service life. As such, FFPC has staggered the planned cable replacements over a longer timeframe.

As underground cables cannot be inspected, FFPC plans on starting a cable condition testing program in 2015. The purpose of the program will be to determine the degree of cable jacket deterioration, from which replacement or sustainment activities will be identified and prioritized. FFPC plans on smoothing out the age profile of cable runs through the utilization of cable sustainment investments.

Approximately 6 km of critical underground cables are reaching the end of their service life over the 2014 to 2018 planning horizon. These cables essentially supply three feeders from the transformer station, and as such are crucial to the reliability of the distribution system, as approximately 50% of FFPC customers depend on them. FFPC has therefore placed the highest priority on addressing these cables. FFPC must also be mindful that cable replacements or rejuvenation cannot practically be performed during the winter months. It is worth noting that approximately 30% of all TR XLPE cables will reach the end of their service life between the period 2014 and 2018.

5.3.3.5.b. Secondary Cables Direct Buried

FFPC does not plan on rejuvenating secondary cables but rather to replace them according to FFPC's asset management plan. FFPC plans on replacing the cables using a "just in time" proactive approach, such that the replacements can be conducted under planned and coordinated circumstances as opposed to under emergency circumstances. Unplanned failures during the winter months require that temporary overhead services be installed, as well as that the underground service be replaced the following spring. Winter failures add considerable unnecessary expense and should be avoided.

5.3.3.5.c. Pad-Mounted Transformers

FFPC does not refurbish pad-mounted transformers and generally speaking, transformers require little maintenance. FFPC's asset management approach is to perform just-in-time replacements, such that replacements are conducted under planned and coordinated circumstances as opposed to under emergency repair circumstances. Factors that influence transformer replacements include their relative health index as determined by FFPC's asset management process, as well as, the impact of failure. The pad-mounted transformer population for single phase transformers is not evenly distributed, and as such FFPC faces somewhat of a "tidal wave" affect, beginning in 2015. This necessitates that FFPC ramp up its replacement program, beginning with replacements that are found to have the lowest health and highest impact of failure. FFPC's asset management process is utilized to prioritize the order in which individual transformers require replacing.

FFPC is currently working on mapping out transformer to smart meter relationships such that transformer load profiles can be established. FFPC intends to use the loading data to refine Adjusted End-of-Life values, as there is a direct correlation between transformer loading and transformer longevity. The data will essentially give insight into how hard transformers are working and it will also allow for optimum transformer sizing as the units are replaced. It is also important to note that FFPC has experienced long manufacturing delays with transformers, as much as 42 weeks. This underscores the importance of proactively indentifying transformers that are close to failure such that suitable volumes of replacements can be sourced ahead of time. FFPC's fleet of spare transformers is currently not sized for increased transformer failure rates and as such it is important to proactively acquire transformers over the 2014 to 2018 planning period.

5.3.3.5.d. UG Foundations

Underground foundations generally do not require any maintenance and their refurbishment is not very practical. FFPC's strategy is to try to align two lifecycles of pad-mounted transformers for every one lifecycle of the underground foundation. As such, FFPC expects to replace underground foundations on an 80 year cycle. All of FFPC's underground foundations are relatively new, and as such FFPC does not foresee any underground foundations requiring replacement in the near future. The underground foundations are also inspected annually as part of FFPC's maintenance inspection program, and any identified deficiencies are addressed accordingly. In recent history, inspections have only identified one deficiency related to a transformer base tilting. The soil conditions were found to be unstable and the base has since been straightened.

5.3.3.5.e. Ducts

Ducts generally do not require any maintenance and their refurbishment is not practical. Given that ducts are buried, they are also not conducive to maintenance inspections. FFPC's strategy is to align one lifecycle of ducts with two lifecycles of cable replacements. As such, FFPC expects to replace ducts on an 80 year lifecycle. This will save unnecessary excavation, landscaping, labour and material costs.

5.3.3.5.f. Concrete Encased Ducts

Concrete encased ducts generally do not require any maintenance and their refurbishment is not practical. Given that concrete encased ducts are buried, they are also not conducive to maintenance inspections. FFPC's strategy is to align one lifecycle of concrete encased ducts with a minimum of two lifecycles of cable replacements. As such, FFPC expects to replace ducts on a minimum 80 year lifecycle. This will save unnecessary excavation, landscaping, labour and material costs.

5.3.3.5.g. Cable Chambers

Cable chambers require very little maintenance and their refurbishment is not practical. FFPC performs minor maintenance such as cleaning or exterior painting of the chambers. The chambers are also inspected annually as part of FFPC's underground plant inspections program. Inspections typically focus on ensuring no animal intrusions have occurred and that the cable terminations they house are in good condition.

5.4 Capital Expenditure Plan

FFPC has developed this DS Plan with a focus of delivering value for money and to achieve the four performance outcomes established in the OEB's renewed regulatory framework for electricity (Customer Focus, Operational Effectiveness, Public Policy Responsiveness and Financial Performance). The DS Plan was constructed using a data driven "bottom up" approach, utilizing FFPC's newly developed asset management and capital planning process. FFPC's GIS system has been an invaluable tool, enabling improved asset oversight, identifying individual assets that are approaching the end of their useful service life due to their high risk of failure.

The following investment drivers have had a material impact on the DS Plan for 2014 to 2018 planning period: Mandated Service Obligations; Asset Failure and Risk of Failure; Asset End-of-Life High Performance Risk; Customer Preference; Reliability Objectives; Safety Objectives; necessary Non-System Physical Plant; Business Operational Efficiency and Performance Improvements; and System Capital / Maintenance Support.

5.4.1 Summary

5.4.1.1 Capability to Connect New Load or Generation Customers

FFPC's distribution system currently does not extend to existing customers in three areas along the outskirts of the municipal boundaries that define FFPC's licensed electrical distribution service territory. The customers in these pockets are currently physically connected to and serviced by Hydro One Network's Inc.'s distribution network. FFPC plans to extend its feeders along these three locations, to eliminate Long Term Load Transfer arrangements with HONI. All six of FFPC's distribution feeders have considerable capacity for the addition of load, as well as generation. FFPC's over 50 kV transformer station which services FFPC's licensed service territory, also has considerable capacity for the addition of new customer load and renewable generation. As such, FFPC welcomes the opportunity for increased customer load, as well as renewable generation.

FFPC's distribution feeders are currently operating at 30% of their maximum capacity, relative to their ampacity limitations (conductor sizes). FFPC's transformer station "Fort Frances MTS", is currently operating up to approximately 72% of its capacity during peak demand periods, relative to power transformer sizing in redundant operating mode. For detailed utilization data refer to sections 5.3.2.2.e.ii "Overhead Distribution System Capacity & Utilization", 5.3.2.2.d.ii "Transformer Station Capacity & Utilization", and 5.3.2.2.f.ii "Underground Distribution System Capacity & Utilization".

FFPC is well positioned to accommodate customer growth, as well as renewable generation. The distribution system code requires all LTLT arrangements to be eliminated by June 30th, 2014, and as such FFPC has allocated $371,739 for distribution system expansions to eliminate the LTLT arrangements as per the requirements of the DSC. The nature of one of the three expansion locations will involve crossing a CN Railroad right-of-way, which will unlock electrical utility access to approximately 15.4% of

FFPC's licensed distribution service territory that is currently not developed. All three expansions combined will unlock access to approximately 25.4% FFPC's service territory that is currently not developed. All three expansions align well with future municipal expansion territories. As previously mentioned, the system expansions will also eliminate a long standing issue with the distribution of the 1905 Historic Power Credit to LTLT customers.

5.4.1.2 Total Annual Capital Expenditure Summary by Investment Category

The following table summarizes all of FFPC's planned capital expenditures over the 2014 to 2018 forecast period. The table is based on the example provided in the Chapter 5 filing Guide under section 5.4; however historic period is removed and investment category totals for the planning period have been added.

Investment Category	2014	2015	2016	2017	2018	2014 - 2018 Total
	Planned Expenditures ($'000)	Planned Expenditures ($'000)	Planned Expenditures ($'000)	Planned Expenditures ($'000)	Planned Expenditures ($'000)	Planned Expenditures ($'000)
System Access	421.7	40.0	20.0	45.0	12.0	538.7
System Renewal	253.6	418.9	504.3	531.0	360.7	2068.5
System Service	48.5	142.0	60.0	58.0	15.0	323.5
General Plant	96.5	75.5	76.0	33.0	310.5	591.5
Total	820.3	676.4	660.3	667.0	698.2	3522.2
System O&M	24.3	13.0	7.1	7.8	2.5	54.7

As per the Section 5.4.4 filing requirements, the following summary table in accordance to "Table 2-Capital Expenditure Summary", and summarizes FFPC's capital expenditures by investment category for the period 2006 through 2018. The original table can be found under the "Exhibit 2 Appendices" worksheet, under Tab "App.2-AB_Capital_Expenditures". "Explanatory notes on variances are not provided as this is FFPC's first DS Plan under the new filing requirements, and as such "Planned to Actual" balances are not yet available.

CATEGORY	Historical Period (previous plan[1] & actual)														
	2006			2007			2008			2009			2010		
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var
	$ '000		%	$ '000		%	$ '000		%	$ '000		%	$ '000		%
System Access		-	--		-	--		-	--		-	--		-	--
System Renewal		191	--		130	--		154	--		153	--		166	--
System Service		43	--		43	--		16	--		6	--		80	--
General Plant		100	--		21	--		17	--		118	--		277	--
TOTAL EXPENDITURE	-	335	--	-	194	--	-	187	--	-	278	--	-	523	--
System O&M		$ 248	--		$ 281	--		$ 305	--		$ 325	--		$ 376	--

CATEGORY	Historical Period (previous plan[1] & actual)									Forecast Period (planned)				
	2011			2012			2013			2014	2015	2016	2017	2018
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual[2]	Var					
	$ '000		%	$ '000		%	$ '000		%	$ '000				
System Access		3	--		41	--		37	--	422	40	20	45	12
System Renewal		133	--		165	--		150	--	254	419	504	531	361
System Service		1	--		-	--		55	--	49	142	60	58	15
General Plant		9	--		16	--		157	--	97	76	76	33	311
TOTAL EXPENDITURE	-	145	--	-	222	--	-	399	--	820	676	660	667	698
System O&M		$ 365	--		$ 591	--		$ 423	--	$ 675	$ 722	$ 777	$ 839	$ 894

Notes to the Table:

1. Historical "previous plan" data is not required unless a plan has previously been filed
2. Indicate the number of months of 'actual' data included in the last year of the Historical Period (normally a 'bridge' year):

5.4.1.3 Linking Investment Categories to Planning Process Outcomes

Planned System Access investments are dedicated towards the elimination of LTLT arrangements, as well as towards the upgrade of 1970's instrumentation and controls at the over 50 kV transformer station. The transformer station upgrades will enable the connection of renewable generation, as well as they accomplish several smart grid directive objectives. FFPC has committed $371,739 in 2014 to eliminate all LTLT arrangements as per the requirements of the DSC, as well as a total of $167,000 between 2014 and 2018 to upgrade transformer station protection and controls. The upgrades will also enable FFPC to monitor the performance and health of core station components, as well as of individual feeders. FFPC's local economy is in a state of recession due to the local pulp and paper mill laying of the majority of its work force over the last several years. The future prospect of the plant is unknown at this time. As a result of this, FFPC does not foresee any material customer growth over the forecast period and as such, has not allocated any capital expenditures towards customer driven load expansions. A total of $538,739 has been allocated towards System Access expenditures, representing 15.3% of the total planned capital expenditures over the forecast period.

System Renewal is by far the most dominant investment category demanding capital reinvestment. Due to FFPC's entire distribution system being rebuilt during a narrow window from the mid 1970s to mid 1980s, FFPC has historically operated in a "Maintenance Mode". As such, FFPC required relatively low levels of capital reinvestments as most distribution assets were relatively new. A disproportionately high portion of FFPC's asset base is approaching the end of its useful service life over the planning period, posing a high risk of failure. The outcomes of the asset management process have resulted in FFPC shifting from its current maintenance mode to a capital reinvestment mode going forward. The overall level of investment towards System Renewal had been increased according to FFPC's asset management process, in preparation for the large volume of assets predicted to fail in the near future. The overall average useful remaining life of FFPC's entire asset base is approximately 41.5%, as dictated by FFPC's asset management process (based on FFPC's Adjusted End-of-Life (AEOL) projection methodology that has been applied to individual assets). Based on the TUL values established in the "Kinectrics Report", the overall average useful remaining life of FFPC's asset base would be reduced to approximately 33.4%. FFPC's asset management and capital planning processes have resulted in planned system renewal investments of $2,068,466 over the 2014 to 2018 planning horizon. The Poles, Towers & Fixtures and Line Transformers categories reinvestments combined, account for 80% of all planned System Renewal expenditures. FFPC has committed $649,638 for Poles Tower & Fixtures and

$1,007,541 towards line transformers (overhead and underground combined). Approximately 58.7% of all planned capital expenditures over the forecast period are towards System Renewal.

System Service expenditures are largely driven by FFPC's desire to achieve operational objectives including; customer preference; maintaining/improving service reliability; and the elimination of potential safety hazards. Over the forecast period FFPC has committed a total of $323,500 towards the System Service category, which represents approximately 9.2% of total planned capital expenditures. Significant planned activities under this category include the installation of a $62k fire barrier in 2015, a $43k Outage Management System in 2017, a $60k Financial Information System ($40k 2015, $20k 2016), a total of $100k towards operational reliability improvements, and $28k towards eliminating safety hazards. The fire barrier will be constructed between the two transformer station power transformers as they are in close proximity to one another. The barrier will mitigate the risk of a critical failure of one power transformer causing damage to the other. The Outage Management System (OMS) will enable FFPC to respond to outages proactively, assist in pin-pointing equipment failures, offer improved oversight of the performance of FFPC's distribution system, as well as improve customer communication regarding outages. FFPC's current financial information system is very antiquated and lacks effective reporting, data export capability, and the ability to perform data analyses. FFPC is planning to purchase and transition to a more suitable tool such as Microsoft Great Plains. The elimination of identified Safety hazards as well as strategic reliability improvements projects are also included in this category.

General Plant investments are necessary in order for FFPC to support and improve the efficiency of day to day business and operational activities. Over the forecast period, FFPC has committed $592k towards General Plant, which represents approximately 16.8% of the total planned capital expenditures. FFPC is planning to invest $403k into its rolling stock, due to three service vehicles (a Double Bucket truck and two Pickup Trucks), as well as two trailers (chipper and wire stringing/tensioning trailer), reaching or surpassing their maximum useful service life. FFPC also has various smaller initiatives planned, such as business efficiency improvement initiatives, computer replacements and software updates.

5.4.1.4 Summary of Annual Capital Expenditures by Category

The following tables summarize FFPC's planned annual capital expenditures activities by Budget Year, Investment Category, Parent Project ID, Project Activity Name, Cost, USoA Account, Primary Investment Driver and Kinectrics Report Asset Group:

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	General Plant	14-14-007	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		14-14-007	Building Heater Replacements	$3,000	Transformer Station heater replacements	1808	Non-System Physical Plant	G5 - Station Buildings
		14-14-007	Cable Reel Stands	$2,000	Install cable reel stands at Operations Centre	1908	System Cap / Maint Support	G3 - Administrative Buildings
		14-14-007	Replace Shelving	$2,000	Upgrade stores area shelving at Operations Centre	1908	Non-System Physical Plant	G3 - Administrative Buildings
		14-14-007	Meter Room Flooring	$2,500	Misc. meter room improvements - replace flooring and fixtures	1908	Non-System Physical Plant	G3 - Administrative Buildings
		14-14-007	Office A/C	$1,000	Install air conditioning in lunch room	1908	Non-System Physical Plant	G3 - Administrative Buildings
		14-14-007	Admin Area Renovation	$3,500	Misc. Main Office renovations - Reception area	1908	Non-System Physical Plant	G3 - Administrative Buildings
		14-14-007	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		14-14-007	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		14-14-007	Operations Centre Copier	$4,000	Replace Operations Centre end-of-life multimedia centre	1920	Non-System Physical Plant	G1 - Office Equipment
		14-14-007	Computer Hardware	$5,000	Director laptop computers to support real-time communication and paperless information distribution.	1920	Non-System Physical Plant	G6 - Computer Equipment
		14-14-007	AMI MAS Server Replacement	$4,000	Replace end-of-life AMI system Master Application Server.	1920	Non-System Physical Plant	G6 - Computer Equipment
		14-14-007	AutoCad License	$2,000	Upgrade AutoCad drafting software for technical blue print management	1611	Non-System Physical Plant	G6 - Computer Equipment
		14-14-007	MS Office Productivity Package	$2,000	Director MS office productivity package to support real-time communication and paperless information distribution.	1611	Non-System Physical Plant	G6 - Computer Equipment
		14-14-007	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
		14-14-007	Label Printer - Asset Labeling	$2,500	Asset labeler for asset identification initiative (GIS).	1940	Business Operation Eff	G7 - Equipment
		14-14-007	Transformer Safe Transport Kit	$3,000	Transformer safe transport kit to mitigate risk of environmental spill from handling increased volume of failing transformers.	1940	Obj - Safety	G7 - Equipment
		14-18-005	Replace 1978 Fort Garry Industries Cable Reel Trailer	$50,000	Replace end-of-life cable stringing and tensioning trailer.	1930	Non-System Physical Plant	G2 - Vehicles
Total				$96,500				
2014	System Access	14-14-006	LTLT Elimination Pole Lines (88 Pri Spans)	$294,681	Overhead distribution feeder pole line expansions to connect to LTLT customers	1830	Mandated Service Obligations	1 - Fully Dressed Wood Poles
		14-14-006	LTLT Elimination Conductor	$9,180	Primary conductor for LTLT pole line extensions	1835	Mandated Service Obligations	8 - OH Conductors
		14-14-006	LTLT Elimination Directional Bore & Conduit	$27,000	Directional bore underneath CNR right-of-way and install conduit for feeder expansion to connect to LTLT customer.	1840	Mandated Service Obligations	40 - Ducts
		14-14-006	LTLT Elimination Pri UG Conductor	$2,298	Install UG primary conductor in duct (across CNR right-of-way), to extend feeder to connect to LTLT customer.	1845	Mandated Service Obligations	29 - Primary TR XLPE Cables in Duct
		14-14-006	LTLT Elimination Transformers	$38,580	Install new transformer to supply LTLT customers from expanded feeders	1850	Mandated Service Obligations	9 - OH Transformers
		14-18-004	Transformer T1 Protection	$25,000	REG Investment - Transformer Station power transformer T1 control and relaying upgrade.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays

		14-18-004	Transformer T2 Protection	$25,000	REG Investment - Transformer Station power transformer T2 control and relaying upgrade.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays
Total				$421,739				
2014	System Renewal	14-14-007	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		14-14-007	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
		14-14-007	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		14-14-007	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life CT & PT metering settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		14-14-007	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
		14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$11,036	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	3 Phase Pad Mounted Tx	$25,106	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$47,546	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pole Mounted Tx Spares	$11,960	Replace end-of-life critical spare transformers	1850	EOL - Failure	9 - OH Transformers
		14-18-003	Non-Profit Housing - 400 Blk Sixth St W - S118A To AT15	$4,642	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Sixth St Non-Profit Housing	$1,598	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Rainy Crest	$10,010	Replace end-of-life primary underground cables to nursing home.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
Total				$253,576				
2014	System Service	14-14-007	Primary Insulator Replacements	$10,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		14-14-007	Air Break Switches Insulator Replacements	$4,500	Air break switch primary insulator replacements as per inspection findings	1835	Obj - Reliability	4 - OH Line Switch
		14-14-007	Robert Moore Air Break Switch Relocation	$28,000	Remove, replace and relocate air break switch from School Yard	1835	Obj - Safety	4 - OH Line Switch
		14-14-007	Mobile Work Tablets	$2,500	Purchase mobile work tablets for transition to electronic inspection forms and for line crew on-site access to technical documentation.	1920	Other Performance/Functionality	G6 - Computer Equipment
		14-14-007	Elster Tx Primary Data Logger and Meter	$3,500	Primary meter for transformer setting, to support identification of theft of power and transformer loading profile development.	1945	Obj - Safety	G7 - Equipment

Total				$48,500				
2014 Total Capital Budget				**$820,316**				

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2015	General Plant	14-18-005	Replace 1999 Ford Pickup	$38,000	Replace end-of-life crew service/support vehicle.	1930	Non-System Physical Plant	G2 - Vehicles
		15-15-009	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		15-15-009	Build Outdoor Transformer Shelter	$6,000	Install weather shelter for transformer yard storage area.	1908	System Cap / Maint Support	G3 - Administrative Buildings
		15-15-009	Replace Shop Rollup Door	$12,000	Replace operations centre rollup garage door.	1908	System Cap / Maint Support	G3 - Administrative Buildings
		15-15-009	Reg & Finance Area Renovations	$3,500	Misc. Main Office renovations - Finance Area	1908	Non-System Physical Plant	G3 - Administrative Buildings
		15-15-009	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		15-15-009	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		15-15-009	PC Replacement	$5,000	Replace end-of-life computers at the Main Office.	1920	Non-System Physical Plant	G6 - Computer Equipment
		15-15-009	Computer Hardware	$1,000	Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
		15-15-009	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
Total				$75,500				
2015	System Access	14-18-004	Station Data Acquisition System	$20,000	REG Investment - install data acquisition system to connect to station IED's (intelligent electronic devices).	1531	Mandated Service Obligations	43 - Remote SCADA
		14-18-004	Station Communication Network Installation	$20,000	REG Investment - Install local area network at TS to enable connection of IED's and access to operating data.	1531	Mandated Service Obligations	G8 - Communication
Total				$40,000				
2015	System Renewal	14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$135,682	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$72,234	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pole Mounted Tx Spares	$32,660	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-003	1557 Colonization Rd W U/G	$8,609	Replace end-of-life primary underground cable servicing residential area	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct

		14-18-003	UG Feeder Cable Condition Testing & Rejuvenation Pilot	$28,000	Rejuvenate end-of-life primary underground feeder cables - pilot silicone injection technology project.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		15-15-009	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		15-15-009	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
		15-15-009	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		15-15-009	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		15-15-009	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
Total				$418,863				
2015	System Service	15-15-008	Transformer Fire Barrier	$62,000	Install fire and blast barrier between power transformer T1 and T2.	1808	Obj - Reliability	G5 - Station Buildings
		15-15-009	Backup Generator Switch / Install	$4,500	Install transfer switch and panel for connection of emergency backup generation to supply station lighting and DC battery bank chargers.	1808	Obj - Reliability	G5 - Station Buildings
		15-15-009	Generator	$5,500	Transformer Station backup generator for emergency lighting and DC system charging.	1808	Obj - Reliability	G5 - Station Buildings
		15-15-009	Primary Insulator Replacements	$5,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		15-15-009	OH Secondary Bus Replacements	$10,000	Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		15-15-009	Mass Customer Contact System	$15,000	Install and commission mass customer contact system to enable contacting customers regarding important event such as power interruptions.	1955	Customer Preference	G8 - Communication
		15-16-010	Financial Information System Phase 1	$40,000	Purchase and commission Financial Information System to enable data exports, enhanced reporting and data analysis for planning activities.	1611	Business Operation Eff	G6 - Computer Equipment
Total				$142,000				
2015 Total Capital Budget				**$676,363**				

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2016	General Plant	14-18-005	Replace 2003 Ford 4x4 Half Ton	$40,000	Replace end-of-life crew service/support vehicle.	1930	Non-System Physical Plant	G2 - Vehicles
		16-16-012	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		16-16-012	Interior Lighting Retrofit	$3,000	Transformer Station T12 lighting replacements	1808	Business Operation Eff	G5 - Station Buildings
		16-16-012	Yard Landscaping	$3,000	Landscape yard at Operations Centre - Install flower beds and general yard improvements	1908	System Cap / Maint Support	G3 - Administrative Buildings
		16-16-012	Cable Reel Shelter	$6,000	Install shelter over outdoor cable reel storage area	1908	System Cap / Maint Support	G3 - Administrative Buildings
		16-16-012	Office Carpeting	$2,500	Replace Main Office carpets.	1908	Non-System Physical Plant	G3 - Administrative Buildings
		16-16-012	Executive Area Renovations	$3,500	Misc. Main Office renovations - Board Room	1908	Non-System Physical Plant	G3 - Administrative Buildings
		16-16-012	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		16-16-012	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		16-16-012	Computer Hardware	$1,000	Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
		16-16-012	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
		16-16-012	Main Office Telephone Data Logger	$7,000	Purchase and commission Main Office telephone system data logger, to support telephone accessibility related RRR reporting.	1955	Business Operation Eff	G8 - Communication
Total				$76,000				
2016	System Access	14-18-004	Station OCB Protection	$20,000	REG Investment - Upgrade station independent breaker controls and protection.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays
Total				$20,000				
2016	System Renewal	14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$49,680	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	3 Phase Pad Mounted Tx	$66,319	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$37,031	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pole Mounted Tx Spares	$31,050	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-003	Westfort Apartments	$2,457	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct

		14-18-003	Green Manor Apartments	$2,542	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Rose Manor Apartments	$1,574	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		16-16-011	1947 OCB Replacements	$150,000	Replace end-of-life station independent breaker at Transformer Station.	1815	EOL - Failure Risk	17 - Station Independent Breakers
		16-16-012	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		16-16-012	T1 Battery Charger	$22,000	Replace end-of-life battery charger for Transformer Station T1 DC system.	1825	EOL - High Performance Risk	15 - Station DC System
		16-16-012	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
		16-16-012	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		16-16-012	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		16-16-012	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
Total				$504,331				
2016	System Service	15-16-010	Financial Information System Phase 2	$20,000	Integrate payroll and purchasing into FIS system.	1611	Business Operation Eff	G6 - Computer Equipment
		16-16-012	115 kV Sky Structure Insulator Replacements	$25,000	Replace Transformer Station primary insulators on sky structure.	1815	Obj - Reliability	23 - Steel Structure
		16-16-012	Primary Insulator Replacements	$5,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		16-16-012	OH Secondary Bus Replacements	$10,000	Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
Total				$60,000				
2016 Total Capital Budget				$660,331				

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2017	General Plant	17-17-013	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		17-17-013	Technical Station Renovations	$3,000	Transformer Station technical station renovations	1808	System Cap / Maint Support	G5 - Station Buildings
		17-17-013	Training Room Carpeting	$2,500	Replace carpeting in the training room located at the Operation Centre.	1908	Non-System Physical Plant	G3 - Administrative Buildings
		17-17-013	Door Replacements	$2,000	Operations Centre door replacements.	1908	Non-System Physical Plant	G3 - Administrative Buildings
		17-17-013	Technical Workstation Replacement	$3,500	Misc. Main Office renovations - Technical Office	1908	Non-System Physical Plant	G3 - Administrative Buildings
		17-17-013	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		17-17-013	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		17-17-013	Media Centre (Photo Copier)	$11,000	Replace the Main Office end-of-life media centre.	1920	Non-System Physical Plant	G1 - Office Equipment
		17-17-013	Computer Hardware	$1,000	Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
		17-17-013	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
Total				$33,000				
2017	System Access	14-18-004	Station Supervisory Control	$45,000	REG Investment - Install station controller and commission station supervisory control (monitor operating conditions and perform appropriate control actions currently performed manually).	1531	Mandated Service Obligations	43 - Remote SCADA
Total				$45,000				
2017	System Renewal	14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$123,932	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	3 Phase Pad Mounted Tx	$40,213	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$118,209	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pad Mounted Tx Spares	$15,525	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx Spares	$11,500	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-003	Rainbow Motel	$917	Replace end-of-life primary underground cables to multi-residential business complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Armstrong Apartments	$659	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct

		14-18-003	Shevlin Towers West	$1,667	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Shevlin Towers East	$1,672	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Feeder UG Cable Refurbishment Phase 1	$75,000	Rejuvenate end-of-life primary underground feeder cables. Attempt to sustain cables until Transformer Station as whole is at its end-of-life in 2034, at which time cables become obsolete.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		17-17-013	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		17-17-013	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
		17-17-013	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		17-17-013	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		17-17-013	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
Total				$530,971				
2017	System Service	17-17-013	Primary Insulator Replacements	$5,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		17-17-013	OH Secondary Bus Replacements	$10,000	Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		17-17-013	Elster "Access Detect" (OMS)	$43,000	Purchase and commission Outage Management System, to enable proactive outage alerts and localized customer interaction.	1611	Customer Preference	G6 - Computer Equipment
Total				$58,000				
2017 Total Capital Budget				**$666,971**				

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2018	General Plant	14-18-005	Replace Chipper Trailer	$25,000	Replace end-of-life chipper trailer to support vegetation management maintenance program.	1930	Non-System Physical Plant	G2 - Vehicles
		14-18-005	Replace 2004 Altec Double Bucket Truck	$250,000	Replace end-of-life double bucket truck, to support maintenance, capital and operational activities.	1930	System Cap / Maint Support	G2 - Vehicles
		18-18-014	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		18-18-014	Bathroom Renovation	$2,000	Transformer Station bathroom renovations	1808	System Cap / Maint Support	G5 - Station Buildings
		18-18-014	Window Replacements	$6,000	Replace Operations Centre windows.	1908	Non-System Physical Plant	G3 - Administrative Buildings
		18-18-014	Main Office Bathroom Renovations	$3,500	Misc. Main Office renovations - Bathroom	1908	Non-System Physical Plant	G3 - Administrative Buildings
		18-18-014	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		18-18-014	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		18-18-014	Computer Hardware	$1,000	Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
		18-18-014	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
		18-18-014	Phone System Upgrade	$13,000	Replace end-of-life Meridian phone system at the Main Office.	1955	Non-System Physical Plant	G8 - Communication
Total				$310,500				
2018	System Access	14-18-004	Station DC System Monitoring & Remote Annunciation	$12,000	REG Investment - Install supervisory control over auxiliary station components including DC systems.	1531	Mandated Service Obligations	43 - Remote SCADA
Total				$12,000				
2018	System Renewal	14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$48,430	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$115,053	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pole Mounted Tx Spares	$14,375	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-003	Strachan pl. switch S22-B	$9,874	Replace end-of-life primary underground cables in multi-residential area.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Riverview Cemetery	$5,741	Replace end-of-life primary underground cables to public municipal building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	CIBC	$575	Replace end-of-life primary underground cables to priority business customer.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct

		14-18-003	Feeder UG Cable Refurbishment Phase 2	$25,000	Rejuvenate end-of-life primary underground feeder cables. Attempt to sustain cables until Transformer Station as whole is at its end-of-life in 2034, at which time cables become obsolete.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		18-18-014	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		18-18-014	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
		18-18-014	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		18-18-014	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		18-18-014	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
Total				$360,724				
2018	System Service	18-18-014	Primary Insulator Replacements	$5,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		18-18-014	OH Secondary Bus Replacements	$10,000	Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
Total				$15,000				
2018 Total Capital Budget				**$698,224**				

5.4.1.5 Impact of Regional Planning Process on DS Plan

No formal Regional Planning Process meetings have occurred and as such FFPC is not aware of any corresponding deliverables that may impact this DS Plan. As per the Process Planning Working Group's June 7, 2013 presentation to distributors, it is expected to take up to four (4) years to complete the first planning cycle. As such, FFPC has not allocated any capital expenditures towards Regional Planning deliverables over the forecast period.

5.4.1.6 Customer Engagement Activities

FFPC engaged its customers through means of a customer satisfaction survey which was conducted during July and August of 2013. For detailed information regarding the engagement activity refer to Section 5.2.2.4, 5.2.3.5, 5.4.1.8.a as well as Appendix 3 for the complete survey results. The survey was very well received and considerable feedback was obtained. This allowed FFPC to gain valuable insight into customer needs, values, preferences and expectations. Customers overwhelmingly expressed a high level of satisfaction with FFPC in general, with the reliability of their electricity supply, as well as with current service offerings.

5.4.1.7 Distribution System Development over Forecast Period

Based on the current state of the local economy, ongoing conservation and demand management efforts, as well as current renewable generation uptake levels, FFPC anticipates that its overall volume of electricity as delivered to its single supply point will decrease slightly over the forecast period. FFPC's local economy is in a state of recession due to its largest employer curtailing its operation, thereby reducing its workforce to approximately 20%. As such, FFPC is forecasting decreased customer counts over the planning horizon, resulting in downward pressure on consumption demands.

Conservation and demand management efforts have gained considerable traction. FFPC anticipates being able to achieve its 2011 to 2014 Conservation Targets, which would represent a cumulative volumetric reduction of 3.64 GWh, as well as a 0.61 MW reduction in annual peak demand.

FFPC anticipates connecting approximately 62.5 kW of renewable generation year-over-year, based on FFPC's average project uptake between the years 2011 and 2013. It is also worth noting that FFPC has been approached by several microFIT and FIT applicants wishing to relocate their projects to FFPC's service territory. The combined relocation projects represent 360 kW of generation capacity, of which 20 kW have are approaching project completion. The applicants had their original projects approved outside of FFPC's service territory; however, they could not be connected due to capacity constraints and as such were subject the OPA's relocation program offering. It is important to note that given the continued high level of interest in renewable generation, FFPC is planning to upgrade the controls and protection at its over 50 kV transformer station to increase connection capacity. The planned upgrades will also enable feeder monitoring from which less restrictive constraints can be established, as well as they will accommodate reverse power flow. Refer to section 5.4.3 for detailed system constraints, as well as the planned renewable enabling investments that will alleviate them.

5.4.1.8 Special Capital Projects

5.4.1.8.a. Customer Preference

Based on the feedback received from the 2013 customer engagement (surveys), FFPC has included the following projects in response to customer preference:

- FFPC will deploy a mass customer contact system in 2015 that will enable FFPC to alert customers by telephone or email of important events such as planned power outages. This rollout is expected to require a capital investment of $15k. FFPC is planning to further enhance its communication and outage response capabilities though the deployment of an Outage Management System (OMS) in 2017. The OMS utilizes the existing AMI system deployed, and is expected to require a capital investment of $43k in 2017.
- Many customers felt that being billed on true calendar month consumption would serve them better. As such, FFPC is planning to transition its billing process such that all customers are billed on the consumption used between the first day and the end of the last day of every calendar month. This project will not require a capital investment; however, it will require considerable staff time to implement the transition.
- A significant portion of customers would like to receive electronic bills via email. In response to this request, as well as in support of the smart grid deployment objectives, FFPC is planning to deploy e-billing in early 2014. The expected capital rollout costs are $7k
- A portion of customers also expressed an interest in being able to access their consumption data and billing data online. FFPC is planning on offering customer access to this data in parallel to the e-billing rollout, and as such the service will be offered in early 2014. FFPC has allocated $5K towards capital expenditures.
- It is important to note that Fort Frances has a large elderly population who prefer traditional business communication methods, as most are not computer literate and as such do not utilize the internet or emails. FFPC's business strategy is to offer its consumers a choice of paper bills versus electronic bills, as well as preferred means of communication. This message was very clear as per the customer feedback received from the 2013 survey.
- Customers are also very interested in learning more about the electricity industry in general and about specific topics such as Conservation and Demand Management, Renewable Generation and Smart Grid. FFPC is planning on adding a Technical Customer Service Representative to its staff in 2014, who will be actively involved with all consumer engagement activities, such as conducting surveys and delivering consumer education campaigns. Other core job responsibilities include supporting the annual administration of FFPC's asset management process and assistance in all planning activities.

5.4.1.8.b. Technology Based Opportunities & Innovation

In 2005 FFPC invested in a Geographical Information System (GIS) which has evolved into a powerful core business system. The system is the heart of FFPC's current asset management process as well as day to day work planning. Since the original deployment, FFPC dedicated tremendous resources towards quantifying FFPC's asset base, as well as linking it to all practical available data sources such as inspection results, condition testing results, asset attributes (size, location, serial number, replacement cost etc.), and property information (ownership, easements, mailing address etc.). In 2011, FFPC was able to showcase its GIS system by qualifying to participate in the Scientific Research and Educational Development (SR&ED) Tax incentive program. FFPC does not require material capital expenditures towards its GIS system over the forecast period; however, significant staff time will be required to further enhance functionality.

In 2013 FFPC invested in a Work Planning module that is built on the foundation of its GIS system. The tool will allow FFPC to link work orders (capital and maintenance histories) to assets, track asset changes through the work order process (i.e. transformer moving from inventory to field) and to help optimize future investments by allowing costing analyses to performed with ease. FFPC is currently working on integrating the tool and as such will be devoting significant resources over the forecast period to fully commission it. FFPC does not require material capital expenditures towards this tool but rather staff time.

In 2017, FFPC plans to build on the foundation of its AMI system by investing $43k of capital expenditures on purchasing and integrating an Outage Management System (OMS). The OMS essentially utilizes smart meters and the smart meter network installed, to alert FFPC of system events. Typical system events include a metering losing power, implying a particular customer address losing power, which will prompt appropriate corrective action. A series of meters losing power can be used to infer that a transformer failed, which would again prompt FFPC to take appropriate action. The OMS will enable FFPC to respond to outages proactively, assist in pin-pointing equipment failures, as well as offer improved oversight of the performance of FFPC's distribution system as a whole.

5.4.1.8.c. Study/Innovation Projects

Over the forecast period FFPC will be focusing on further developing the functionality of its core business systems, to unlock their potential functionality. This will maximize FFPC's existing investment into its toolkit. FFPC does not have any capital investments earmarked specifically for "study" or "demonstrative" purposes; however, FFPC will be dedicating considerable resources towards further integrating technology into its business as discussed throughout this DS Plan. FFPC will specifically be focusing on further enhancing its asset management process, through developing asset specific health indexes, as well as adding a layer of "labour hours" required to replace individual assets to improve on resource planning and cost projections. Another focus area will be to continue to gather asset information such as mapping of customer to transformer relationships and mapping of direct buried secondary cable runs.

FFPC will also be adding a new financial information system to its toolkit and will be commissioning its GIS based work order system that was purchased in the fall of 2013. The additional tools will enable FFPC to link cost components (labour, fleet vehicle and material) directly to individual assets, provide an automated work order system, enable depreciation of assets to be tracked at the individual asset level, enable financial modeling, improve financial reporting and graphical representation of financial information, enable electronic data exports and imports, as well as provide a calculation engine (for automated generation of asset health indexes etc.).

5.2.1.1.a. Renewable Enabling Improvements

There has been significant interest and uptake within FFPC's service territory regarding the installation of renewable generation under the microFIT and FIT programs. FFPC's distribution network is well suited for hosting renewable generation. FFPC's most notable limitations regarding accommodating renewable generation are the lack of insight into individual feeder loading profiles, which have resulted in the establishment of conservative feeder constraints that error on the side of safety, as well as FFPC's transformer station is currently unable to accommodate reverse power flows at any level. FFPC is planning to alleviate these constraints by investing $167k over the forecast period, in protection and control upgrades at its greater than 50 kV transformer station "Fort Frances MTS". As the Northwest Region is no longer considered "Transmission Capacity Constrained", FFPC expects an additional 312 kW of renewable generation capacity to come on line between 2014 and 2018. For details regarding specific limitations and detailed renewable enabling improvements refer to section 5.4.3 "FFPC System Capability Assessment for Renewable Energy Generation".

5.4.2 Capital Expenditure Planning Process Overview

Step 5 of FFPC's Asset Management Process illustrates FFPC's capital expenditure planning process. FFPC evaluates and prioritizes all potential investment items based on the relevance and importance of the investment drivers, and how prospective investments align with satisfying capital planning objectives.

5.4.2.1 Origin of Capital Planning Objectives

FFPC's capital planning objectives are derived from its Corporate Vision, Mission and Values.

5.4.2.1.a. FFPC's Vision:

The Fort Frances Power Corporation strives to be a model distributor of electricity and supplier of supporting energy services, with excellence in customer focus, operational efficiency and community partnership.

5.4.2.1.b. FFPC's Mission:

To deliver electricity and provide supporting energy services safely, reliably and cost-effectively, in support of the well being of our community, for whom we exist.

5.4.2.1.c. FFPC's Values:

We Value Safety:

We believe that all work related injuries can be prevented, and we are committed to the safety of our employees and the general public. We are committed to providing our employees with all of the proper resources that allow them to work safely, as well as to ensure that public safety is maintained.

We Value Our Community and the 1905 Historic Power Agreement:

We believe that the well being of the 1905 Historic Power Agreement, held between the owner of the local generating station assets and the residents and small businesses of the Town of Fort Frances, is vital to the future success of our community. We are committed on behalf of the residents and small businesses of the Town of Fort Frances, to administer the agreement and to ensure that the rights and obligations of the agreement are upheld, thereby ensuring its longevity. We also believe we are stewards of our environment and, as such, we will conduct our business in an environmentally responsible manner. We believe that our success hinges largely on the success of our community.

We Value Our Employees:

We believe that our employees are the cornerstone of our organization. We are committed to providing a safe, healthy and fulfilling work environment for our employees, with fair remuneration, sound management and opportunities for learning and professional development.

We Value Customer Focus:

We are committed to offering superior customer services in a manner that responds to customer preferences and needs. We are committed to providing our customers with a safe and reliable supply of electricity at the lowest rates possible that do not undermine our viability.

We Value Operational Efficiency:

We believe in the philosophy of Continuous Improvement, and we will strive to continuously improve the efficiency of our operation and processes. We will continually improve by harvesting the innovation of our employees and by integrating technology into our business.

5.4.2.2 Strategic Capital Planning Objectives:

FFPC's capital planning objectives are to:

- Support FFPC in delivering electricity and providing supporting energy services safely, reliably, and cost-effectively.

Safety:

- To maintain the safety of the distribution system so that it does not present any undue hazards to personnel or to the general public.
- To meet or exceed all regulatory requirements with respect to electrical distribution system safety.

Reliability:

- To maintain the distribution system service reliability at a level that meets or exceeds the expectations of consumers and the community.
- To maintain the distribution system service reliability at a level that meets or exceeds regulatory requirements.

Cost Effectiveness:

- To support the outcomes of our asset management process balancing cost, reliability and risk.
- To support necessary reinvestments into our asset base to keep pace with asset deterioration.

Operational Efficiency:

- That investment decisions are based on the results of rigorous data driven processes.
- That our processes continually improve through the deployment of innovation and technology.

Customer & Community Focus:

- That our investment plans and service offering are aligned with needs and demands of our customers and community.
- That our investment decisions and service offerings support the well being of our customers and community, for whom we exist.

Meeting Obligations:

- That we remain compliant with all applicable governing agencies, laws and regulatory statutes
- That we support the deployment and implementation of all mandated service obligations

5.4.2.3 Ranking of Capital Investment Priorities:

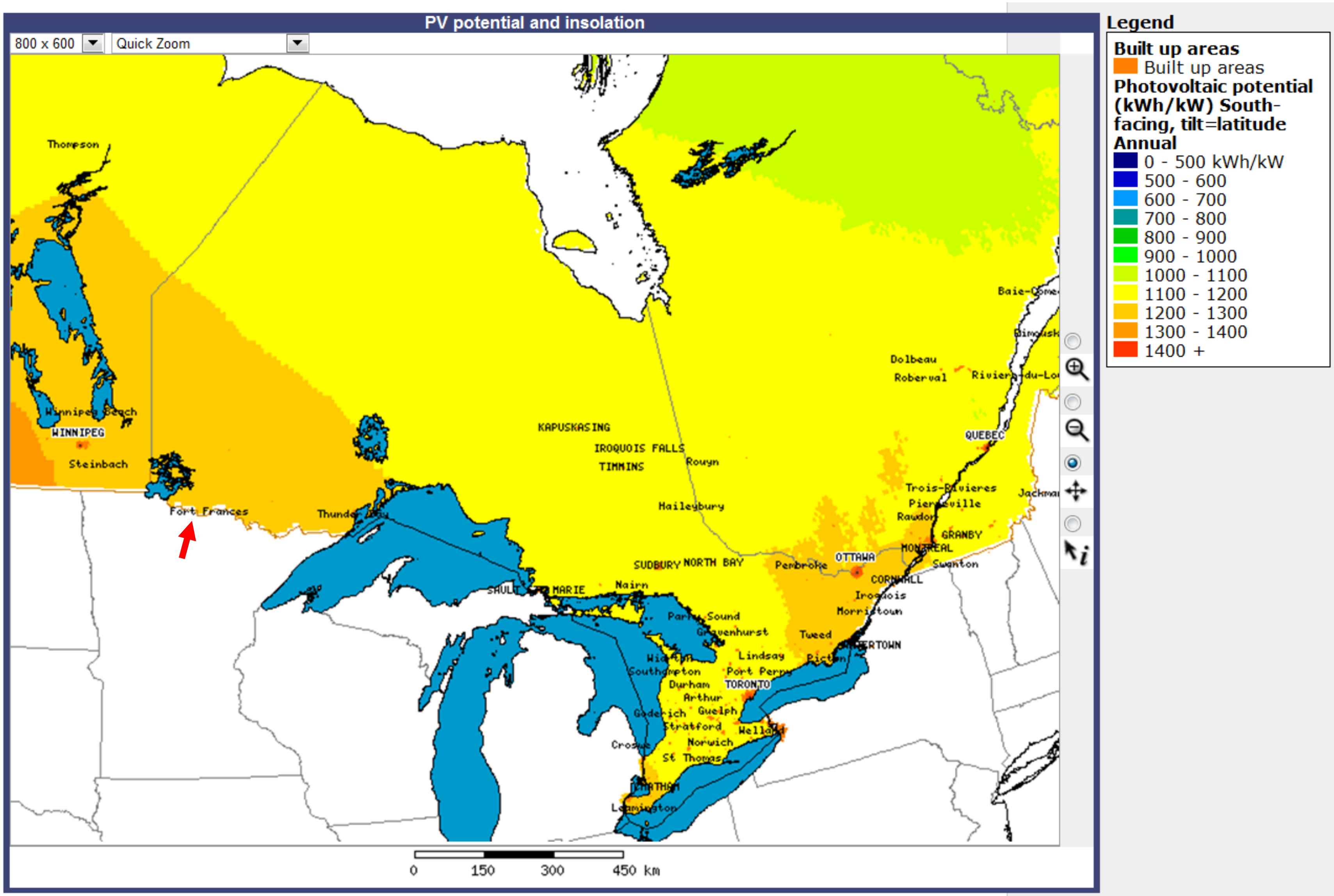
FFPC selects and prioritizes its capital investments projects based on the degree to which they achieve the following objectives:

1. Ensuring that the health and safety of employees and the public is maintained
2. Eliminate or mitigate threats to the environment
3. Ensuring compliance to regulatory and legal obligations
4. Meeting the needs and preference of customers
5. Replacing, Sustaining or retiring assets that are at the end of their useful service life
6. Improving operational efficiency and effectiveness

5.4.2.4 Outlook for Accommodating Connection of Renewable Generation

FFPC’s distribution system and service territory are well suited for the deployment of renewable generation, specifically for hydroelectric and photovoltaic. Solar radiation levels provided by Ministry of Agriculture and Food specify that Fort Frances is situated in the second highest photovoltaic potential zone (second highest sun radiation intensity). Furthermore, customer density is sufficient such that electricity generated will be consumed in close proximity, whereas outlying rural areas lack customer density (to consume the generation produced so that it does not have to be transported) resulting in many projects being rejected due to capacity limitations.

As FFPC owns and operates a distribution system, as well as a greater than 50 kV transformer station in close proximity of its customer base, it offers the flexibility of connecting smaller scale projects to its distribution system and larger scale projects directly to its transformer station. As previously mentioned, FFPC is planning on investing towards renewable enabling improvements at its greater than 50 kV transformer station. The station’s current vintage of controls do not offer insight into feeder loading, as well as cannot accommodate reverse power flow at any level. Based on the current renewable generation interest level and on the October announcement that an additional 10 MW of capacity has been allocated to the Northwest region by the OPA, FFPC anticipates receiving increased volumes of generation connection requests. As such, FFPC also anticipates encountering connection constraints in the near future, if it was not to proceed with the planned renewable enabling improvements. For detailed information regarding system limitations to accommodating renewable generation, as well as corresponding planned investments, refer to section 5.4.3. The following map illustrates the generation potential for PV systems in Ontario:


PV potential and insolation
800 x 600
Quick Zoom
Legend
Built up areas
Built up areas
Photovoltaic potential (kWh/kW) South-facing, tilt=latitude
Annual
0 - 500 kWh/kW
500 - 600
600 - 700
700 - 800
800 - 900
900 - 1000
1000 - 1100
1100 - 1200
1200 - 1300
1300 - 1400
1400 +
0
150
300
450 km
Thompson
Winnipeg Beach
WINNIPEG
Steinbach
Fort Frances
KAPUSKASING
IROQUOIS FALLS
TIMMINS
Rouyn
Haileybury
SUDBURY
NORTH BAY
Pembroke
OTTAWA
Nairn
Parry Sound
Gravenhurst
Tweed
Lindsay
Port Perry
TORONTO
Durham
Arthur
Guelph
Stratford
Norwich
St Thomas
Leamington
Dolbeau
Roberval
QUEBEC
Trois-Rivieres
Pierreville
GRANBY
Swanton
CORNWALL
Iroquois
Morristown
Baie-Comeau
Rimouski

5.4.2.5 Linking Projects to Asset Management Process Outcomes

FFPC's asset management process (Steps 1 to 4) by the nature of its design, identifies and prioritizes system renewal activities. FFPC has transitioned from a zone approach such as "West Feeder Upgrade" to a componentized asset replacement approach such as "Transformer Replacements" based on asset class. The management of asset lifecycles with respect to age, condition, and likelihood of failure account for approximately two-thirds (including General Plant) of all of FFPC's planned investments over the 2014 to 2018 forecast period. As per FFPC's asset management process, "Adjusted End-of-Life" (AEOL) dates drive planning and investment activities. The following asset counts and associated replacement costs are based on FFPC's AEOL profile and represent significant outputs:

Asset Class	Planned # / Meters of Replacements/Refurbishments Between 2014 and 2018 Based on AEOL Analysis	Total Estimated Replacement/Refurbishment Cost for Period 2014 to 2018
Fully Dressed Wood Poles	220	**$ 649,638**
OH Line Switches	1	**$ 28,000**
OH Transformers	116	**$ 491,617**
Station Independent Breakers	1	**$ 150,000**
Primary TR XLPE Cables in Duct	8750	**$ 294,020**
Pad-Mounted Transformers (Single Phase)	35	**$ 368,761**
Pad-Mounted Transformers (Three Phase)	7	**$ 147,163**
Trucks & Buckets	3	**$ 328,000**
Trailers	2	**$ 75,000**
Total		$ 2,532,199

FFPC refines identified system renewal activities based on budget envelopes, work force and resource considerations, seasonal weather considerations, material acquisition lead times, as well as the degree to which other corporate objectives are met.

5.4.2.6 Analysis of Capital System Renewal (including General Plant) Budget Allocations

FFPC has adopted a capital reinvestment strategy that is dictated by the properties of its asset base. The investment into a GIS system has enabled the creation of a "bottom up" asset management process and capital investment plan, which are aligned with the physical properties of the assets managed. FFPC has attained improved oversight of its assets to enable effective and efficient long range planning. Of the total planned Capital Investment Amount of $3,522,205 over the 2014 to 2018 planning period, $2,775,966 or 78.8% are allocated towards the renewal of distribution and general plant.

FFPC has established ideal asset class replacement rates which are based on the asset count within each asset class, and the expected service life for each asset type. Dividing the total asset class count by the expected service life of the asset class, establishes a normalized or ideal asset class replacement rate.

This asset class replacement rate would be the replacement rate for an evenly distributed asset population, over the period of one lifecycle.

If FFPC were to adopt the minimum useful life values for all assets owned as determined in the "Kinectrics Report", FFPC would need to reinvest $1.14 million annually to sustain the asset replacement rate. If FFPC were to adopt the maximum useful life values for all assets owned as determined in the "Kinectrics Report", FFPC would need to reinvest $0.52 million annually to sustain the asset replacement rate.

Using the TUL values determined in the "Kinectrics Report" as an industry benchmark, FFPC would need to reinvest $0.739 million annually to sustain the asset replacement rate. FFPC's asset management process has allowed FFPC to base its budget benchmark on the "Adjusted End-of-Life" (AEOL) profile resulting in slightly longer useful service lives. Longer useful service lives were achieved due to optimizing asset lifecycles, and the results of asset inspections and condition tests that warrant the extensions. Based on the AEOL profile, FFPC needs to reinvest $0.618 million annually to keep pace with the overall asset deterioration rate. Capital investment needs of FFPC's transformer station are sporadic in nature, therefore FFPC has adjusted its ideal reinvestment rate target by only including actual planned capital expenditures over the planning period. As such, FFPC's ideal annual reinvestment rate is reduced to $568,857, which FFPC has adopted as its annual benchmark for System Renewal investments (including General Plant renewals). FFPC hopes to achieve a 2.4% overall cost reduction through improved planning and has set its actual 2014 to 2018 average budget allocation to $555,193. FFPC's asset class age profiles are not evenly distributed, resulting in FFPC facing a "tidal wave" effect over the forecast period. As such, the average annual planned System Renewal (including General Plant) investments of $555,193 are minimalistic and are viewed as essential as opposed to discretionary.

The following tables summarize planned System Renewal capital expenditures over the 2014 to 2018 planning horizon, based on assets that were identified to be at the end of their useful service life, as per outputs of Step 4 of the asset management process. Capital expenditures driven by other investment drivers such as the elimination of LTLT's, Customer Preference or Renewable Enabling Improvements are not included in this summary. The table also illustrates the Useful Life and Reinvestment Need analysis for each asset category. Various reinvestment needs boundaries are illustrated representing various adoptions of useful service life philosophies, such as the "Kinectrics Report's" MIN UL, TUL, MAX UL as well as FFPC'S adopted UL. Lastly, the table also illustrates budgeted reinvestment amount by asset class.

FFPC Asset Summary, Useful Life Assessment, Investment Boundaries and Capital Budget Allocations

		Asset Details			FFPC Assets			Kinectrics Useful Life			Useful Life Assessment					Reinvestment Needs Assessment					Capital Budget Allocation		
Parent*	#	Category| Component | Type			Count	Units	Average Age of Population (Years)	MIN UL	TUL	MAX UL	FFPC Adopted Useful Life (UL)	Remaining Useful Life Relative to Kinectrics TUL	% Remaining Useful Life Relative to Kinectrics TUL	Remaining Useful Life Relative to FFPC Adopted UL	% Remaining Useful Life Relative To FFPC Adopted UL	Total Replacement Cost of Asset Group	Average Annual Reinvestment Need Based on Kinectrics Min UL	Average Annual Reinvestment Need Based on Kinectrics TUL	Average Annual Reinvestment Need Based on Kinectrics Max UL	Average Annual Reinvestment Need Based on FFPC Adopted UL	Asset Management Process (Step 4) 2014 - 2018 Total Capital Allocation	Average Annual Capital Allocation (2044 to 2018)	% of Total DS Plan Capital Expenditures
OH	1	Fully Dressed Wood Poles	Overall		1776	Each	21.79	35	45	75	45	23.21	51.58%	23.21	51.6%	$ 5,850,761	$ 167,165	$ 130,017	$ 78,010	**$ 130,017**	$ 679,638	$ 135,928	19.3%
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	2	Fully Dressed Concrete Poles	Overall		N/A			50	60	80													
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	3	Fully Dressed Steel Poles	Overall		N/A			60	60	80													
			Cross Arm	Wood	N/A			20	40	55													
				Steel	N/A			30	70	95													
	4	OH Line Switch (Expressed as sets of 3 Phase Switches)			35	Each	24.34	30	45	55	45	20.66	45.90%	20.66	45.9%	$ 254,409	$ 8,480	$ 5,654	$ 4,626	**$ 5,654**	$ 32,500	$ 6,500	0.9%
	5	OH Line Switch Motor			N/A			15	25	25													
	6	OH Line Switch RTU			N/A			15	20	20													
	7	OH Integral Switches			N/A			35	45	60													
	8	OH Conductors	Primary Conductor		224.2	km	33.77	50	60	75	60	26.23	43.72%	26.23	43.7%	$ 676,409	$ 13,528	$ 11,273	$ 9,019	**$ 11,273**	$ -	$ -	0.0%
			Secondary Conductor		114.8	km	28.00	25	35	40	40	7.00	20.00%	12.00	30.0%	$ 1,033,603	$ 41,344	$ 29,532	$ 25,840	**$ 25,840**	$ 50,000	$ 10,000	1.4%
	9	OH Transformers			629	Each	28.79	30	40	60	40	11.21	28.02%	11.21	28.0%	$ 2,751,265	$ 91,709	$ 68,782	$ 45,854	**$ 68,782**	$ 491,617	$ 98,323	14.0%
	10	OH Shunt Capacitor Banks			N/A			25	30	40													
	11	Reclosers			N/A			25	40	55													
TS & MS	12	Power Transformers	Overall		2	Each	38.00	30	45	60	58	7.00	15.56%	20.00	34.5%	$ 1,930,575	$ 64,352	$ 42,902	$ 32,176	**$ 33,286**	$ -	$ -	0.0%
			Bushing		12	Each	38.00	10	20	30	44	0.00	0.00%	6.00	13.6%	$ 68,351	$ 6,835	$ 3,418	$ 2,278	**$ 1,553**	$ -	$ -	0.0%
			Tap Changer		2	Each	38.00	20	30	60	58	0.00	0.00%	20.00	34.5%	$ 1,127,792	$ 56,390	$ 37,593	$ 18,797	**$ 19,445**	$ -	$ -	0.0%
	13	Station Service Transformer			1	Each	40.00	30	45	55	45	5.00	11.11%	5.00	11.1%	$ 8,544	$ 285	$ 190	$ 155	**$ 190**	$ -	$ -	0.0%
	14	Station Grounding Transformer			N/A	Each		30	40	40													
	15	Station DC System	Overall		2	Each	23.00	10	20	30	29	0.00	0.00%	6.00	20.7%	$ 85,439	$ 8,544	$ 4,272	$ 2,848	**$ 2,946**	$ -	$ -	0.0%
			Battery Bank		2	Each	9.00	10	15	15	15	6.00	40.00%	6.00	40.0%	$ 51,263	$ 5,126	$ 3,418	$ 3,418	**$ 3,418**	$ 10,000	$ 2,000	0.3%
			Charger		2	Each	23.00	20	20	30	29	0.00	0.00%	6.00	20.7%	$ 34,176	$ 1,709	$ 1,709	$ 1,139	**$ 1,178**	$ 22,000	$ 4,400	0.6%
	16	Station Metal Clad Switchgear	Overall		11	Each	45.00	30	40	60	62	0.00	0.00%	17.00	27.4%	$ 845,844	$ 28,195	$ 21,146	$ 14,097	**$ 13,643**	$ -	$ -	0.0%
			Removable Breaker		11	Each	45.00	25	40	60	62	0.00	0.00%	17.00	27.4%	$ 205,053	$ 8,202	$ 5,126	$ 3,418	**$ 3,307**	$ -	$ -	0.0%
	17	Station Independent Breakers			1	Each	67.00	35	45	65	69	0.00	0.00%	2.00	2.9%	$ 138,411	$ 3,955	$ 3,076	$ 2,129	**$ 2,006**	$ 150,000	$ 30,000	4.3%
	18	Station Switch			5	Each	41.00	30	50	60	62	9.00	18.00%	21.00	33.9%	$ 68,351	$ 2,278	$ 1,367	$ 1,139	**$ 1,102**	$ -	$ -	0.0%
	19	Electromechanical Relays			34	Each	36.00	25	35	50	45	0.00	0.00%	9.00	20.0%	$ 131,576	$ 5,263	$ 3,759	$ 2,632	**$ 2,924**	$ -	$ -	0.0%
	20	Solid State Relays			N/A	Each		10	30	45													
	21	Digital & Numeric Relays			8	Each	1.50	15	20	20	20	18.50	92.50%	18.50	92.5%	$ 56,390	$ 3,759	$ 2,819	$ 2,819	**$ 2,819**	$ -	$ -	0.0%
	22	Rigid Busbars			3	Each	36.00	30	55	60	62	19.00	34.55%	26.00	41.9%	$ 42,719	$ 1,424	$ 777	$ 712	**$ 689**	$ -	$ -	0.0%
	23	Steel Structure			1	Each	36.00	35	50	90	62	14.00	28.00%	26.00	41.9%	$ 136,702	$ 3,906	$ 2,734	$ 1,519	**$ 2,205**	$ 25,000	$ 5,000	0.7%
UG	24	Primary Paper Insulated Lead Covered (PILC) Cables			N/A			60	65	75													
	25	Primary Ethylene-Propylene Rubber (EPR) Cables			N/A			20	25	25													
	26	Primary Non-Tree Retardant (TR) Cross Linked Polyethylene (XLPE) Cables Direct Buried			N/A			20	25	30													

	27	Primary Non-TR XLPE Cables in Duct		N/A			20	25	30													
	28	Primary TR XLPE Cables Direct Buried		N/A			25	30	35													
	29	Primary TR XLPE Cables in Duct		30.7	km	27.07	35	40	55	40	12.93	32.32%	12.93	32.3%	$ 931,695	$ 26,620	$ 23,292	$ 16,940	**$ 23,292**	$ 180,537	$ 36,107	5.1%
	30	Secondary PILC Cables		N/A			70	75	80													
	31	Secondary Cables Direct Buried		3.8	km	28.00	25	35	40	35	7.00	20.00%	7.00	20.0%	$ 68,366	$ 2,735	$ 1,953	$ 1,709	**$ 1,953**	$ 10,000	$ 2,000	0.3%
	32	Secondary Cables in Duct		N/A			35	40	60													
	33	Network Transformers	Overall	N/A			20	35	50													
			Protector	N/A			20	35	40													
	34	Pad-Mounted Transformers	Single Phase	215	Each	27.70	25	40	45	40	12.30	30.74%	12.30	30.7%	$ 2,218,967	$ 88,759	$ 55,474	$ 49,310	**$ 55,474**	$ 368,761	$ 73,752	10.5%
			Three Phase	38	Each	20.05	25	40	45	40	19.95	49.87%	19.95	49.9%	$ 808,033	$ 32,321	$ 20,201	$ 17,956	**$ 20,201**	$ 147,163	$ 29,433	4.2%
	35	Submersible/Vault Transformers		N/A			25	35	45													
	36	UG Foundation		170	Each	27.52	35	55	70	80	27.48	49.97%	52.48	65.6%	$ 814,956	$ 23,284	$ 14,817	$ 11,642	**$ 10,187**	$ -	$ -	0.0%
	37	UG Vaults	Overall	N/A			40	60	80													
			Roof	N/A			20	30	45													
	38	UG Vault Switches		N/A			20	35	50													
	39	Pad-Mounted Switchgear		N/A			20	30	45													
	40	Ducts		23.5	km	27.95	30	50	85	80	22.05	44.10%	52.05	65.1%	$ 322,801	$ 10,760	$ 6,456	$ 3,798	**$ 4,035**	$ -	$ -	0.0%
	41	Concrete Encased Duct Banks		1.9	km	33.46	35	55	80	80	21.54	39.16%	46.54	58.2%	$ 712,998	$ 20,371	$ 12,964	$ 8,912	**$ 8,912**	$ -	$ -	0.0%
	42	Cable Chambers		5	Each	20.40	50	60	80	60	39.60	66.00%	39.60	66.0%	$ 35,000	$ 700	$ 583	$ 438	**$ 583**	$ -	$ -	0.0%
S	43	Remote SCADA		N/A			15	20	30													
General Plant	1	Office Equipment		Unknown	Each	Unknown	*5*	*10.0*	*15*	15	Unknown	Unknown	Unknown	Unknown	$ 60,000	$ 12,000	$ 6,000	$ 4,000	**$ 4,000**	$ 15,000	$ 3,000	0.4%
	2	Vehicles	Trucks & Buckets	7	Each	8.00	*5*	*10.0*	*15*	15	2.00	20.00%	7.00	46.7%	$ 801,000	$ 160,200	$ 80,100	$ 53,400	**$ 53,400**	$ 328,000	$ 65,600	9.3%
			Trailers	2	Each	26.00	*5*	*12.5*	*20*	20	0.00	0.00%	0.00	0.0%	$ 75,000	$ 15,000	$ 6,000	$ 3,750	**$ 3,750**	$ 75,000	$ 15,000	2.1%
			Vans	N/A			*5*	*7.5*	*10*													
	3	Administrative Buildings		1	Each	45.00	*50*	*62.5*	*75*	75	17.50	28.00%	30.00	40.0%	$ 550,000	$ 11,000	$ 8,800	$ 7,333	**$ 7,333**	$ 65,000	$ 13,000	1.8%
	4	Leasehold Improvements (Generator)		1	Each	5.00	*20*	*20.0*	*20*	20	15.00	75.00%	15.00	75.0%	$ 86,122	$ 4,306	$ 4,306	$ 4,306	**$ 4,306**	$ -	$ -	0.0%
	5	Station Buildings	Station Buildings	2	Each	39.0	*50*	*62.5*	*75*	62	23.50	37.60%	23.00	37.1%	$ 368,375	$ 7,368	$ 5,894	$ 4,912	**$ 5,942**	$ 31,000	$ 6,200	0.9%
			Parking	1	Each	24.00	*25*	*27.5*	*30*	30	3.50	12.73%	6.00	20.0%	$ 5,000	$ 200	$ 182	$ 167	**$ 167**	$ -	$ -	0.0%
			Fence	1	Each	42.00	*25*	*42.5*	*60*	62	0.50	1.18%	20.00	32.3%	$ 22,500	$ 900	$ 529	$ 375	**$ 363**	$ -	$ -	0.0%
			Roof	2	Each	39.00	*30*	*30.0*	*30*	40	0.00	0.00%	1.00	2.5%	$ 30,000	$ 1,000	$ 1,000	$ 1,000	**$ 750**	$ -	$ -	0.0%
	6	Computer Equipment	Hardware	Unknown	Each	Unknown	*3*	*4.0*	*5*	5	Unknown	Unknown	Unknown	Unknown	$ 32,000	$ 10,667	$ 8,000	$ 6,400	**$ 6,400**	$ 35,500	$ 7,100	1.0%
			Software	Unknown	Each	Unknown	*2*	*3.5*	*5*	5	Unknown	Unknown	Unknown	Unknown	$ 76,000	$ 38,000	$ 21,714	$ 15,200	**$ 15,200**	$ -	$ -	0.0%
	7	Equipment	Power Operated	Unknown	Each	Unknown	*5*	*7.5*	*10*	7	Unknown	Unknown	Unknown	Unknown	$ 7,000	$ 1,400	$ 933	$ 700	**$ 1,000**			
			Stores	N/A			*5*	*7.5*	*10*													
			Tools, Shop, Garage Equip.	Unknown	Each	Unknown	*5*	*7.5*	*10*	10	Unknown	Unknown	Unknown	Unknown	$ 10,000	$ 2,000	$ 1,333	$ 1,000	**$ 1,000**	$ 30,500	$ 6,100	0.9%
			Measurement & Testing Equip	Unknown	Each	Unknown	*5*	*7.5*	*10*	8	Unknown	Unknown	Unknown	Unknown	$ 65,000	$ 13,000	$ 8,667	$ 6,500	**$ 8,125**			
	8	Communication	Towers	N/A			*60*	*65.0*	*70*													
			Wireless	Unknown	Each	Unknown	*2*	*6.0*	*10*	10	Unknown	Unknown	Unknown	Unknown	$ 9,600	$ 4,800	$ 1,600	$ 960	**$ 960**	$ -	$ -	0.0%
	9	Residential Energy Meters		N/A			*25*	*30.0*	*35*													
	10	Industrial/Commercial Energy Meters		N/A			*25*	*30.0*	*35*													
	11	Wholesale Energy Meters		2	Each	5.00	*15*	*22.5*	*30*	9	17.50	77.78%	4.00	44.4%	$ 18,000	$ 1,200	$ 800	$ 600	**$ 2,000**	$ -	$ -	0.0%
	12	Current & Potential Transformer (CT & PT)		479	Each	Unknown	*35*	*42.5*	*50*	40	Unknown	Unknown	Unknown	Unknown	$ 85,262	$ 2,436	$ 2,006	$ 1,705	**$ 2,132**	$ 12,500	$ 2,500	0.4%
	13	Smart Meters		3966	Each	4.92	*5*	*10.0*	*15*	15	5.08	50.76%	10.08	67.2%	$ 650,543	$ 130,109	$ 65,054	$ 43,370	**$ 43,370**	$ 16,250	$ 3,250	0.5%
	14	Repeaters - Smart Metering		N/A			*10*	*12.5*	*15*													
	15	Data Collectors - Smart Metering		7	Each	5.00	*15*	*17.5*	*20*	17	12.50	71.43%	12.00	70.6%	$ 17,972	$ 1,198	$ 1,027	$ 899	**$ 1,057**	$ -	$ -	0.0%
Totals															$ 24,379,820.51	$ 1,144,782	$ 739,250	$ 519,907	**$ 618,169**	**$ 2,775,966**	**$ 555,193**	**78.8%**

5.4.2.7 Customer Engagement Mechanisms

FFPC conducted an extensive customer survey throughout the summer of 2013 to solicit customer feedback. A survey was mailed out to all of FFPC's customers in all rate classes via a bill insert. This approach gave all customers the equal opportunity to participate in the survey. To support this initiative, FFPC also launched an extensive newspaper advertising campaign to encourage participation.

FFPC received an overwhelming positive response to the survey. Almost 10% of FFPC's entire customer base completed and returned surveys for analysis. FFPC survey found that customers are very pleased with FFPC's performance overall. It is worth noting that under the "Overall Satisfaction" portion of the survey, only 1 out of 345 responses received, indicated a degree of dissatisfaction.

The survey results offered considerable insight into customer satisfaction, priorities and preferences. Based on the survey findings, FFPC is planning on implement the following projects over the 2014 to 2018 planning horizon.

1 - Mass customer contact system (outage notification etc):	2015 Rollout
2 - Transition to true calendar monthly billing:	2014 Rollout
3 - Offering Electronic Billing:	2014 Rollout
4 - Online access to consumption and billing data:	2014 Rollout
5 - Outage Management System:	2017 Rollout
6 - Maintaining current reliability performance levels	Ongoing

For detailed information regarding customer engagement activities refer to Section 5.2.2.4, 5.2.3.5, 5.4.1.8.a, as well as to Appendix 3 for a copy of FFPC's customer survey and corresponding analysis.

5.4.2.8 Distributor Owned Renewable Generation Projects

FFPC has investigated the feasibility of investing in distributor-owned renewable generation throughout FFPC's licensed service territory, as it is very conducive to hydroelectric and photovoltaic generation. At the time of preparing this DS Plan, FFPC has not formally proceeded with the development of any such projects. For details regarding FFPC's capability to accommodate renewable generation and for FFPC's renewable generation enabling investment plan, refer to section 5.4.3

5.4.3 FFPC System Capability Assessment for Renewable Energy Generation

5.4.3.1 Third Party Assessment Report Highlights

FFPC contracted Siemens Canada to perform a system capability assessment on FFPC's Fort Francs MTS Transformer station. The following assessments are based on the findings contained within the Siemens Assessment Report.

Connection of renewable energy generation facilities, (generation), within FFPC's existing distribution system requires suitable connection points. The proposed size and type of generation determines if modifications to the existing distribution system or the installation of a new dedicated feeder tied directly into the Fort Frances MTS Transformer Station (FFMTS) are required. Protection requirements within the transformer station, distribution system and new generating facility are determined based on the size of generation proposed.

In preparation of accommodating the connection of generation facilities within the distribution system, FFPC must within its transformer station, implement new protection components to ensure the safety of people, both private citizens and electrical workers, and equipment. The existing transformer station instrumentation does not give FFPC the ability to accurately define constraints with confidence as there is no metering or relaying from which time stamped measurement data or event data can be obtained. All current measurements are from analog gauges that do not have clocks or data logging capabilities.

5.4.3.2 Existing Transformer Station Protections

The existing protections within the Fort Frances MTS Transformer station are single function electro-mechanical relays. With the installation of almost any generation within the distribution system, added protection will be required. Advances with protection technology since the original protections in the transformer station were installed, will make the addition of single function relays un-economical. New relaying, which may or may not include load side voltage monitoring and/or generator breaker status monitoring, will be required depending on the size of the new generation being installed.

Presently there are auto-reclosure relays on the feeder breakers. Re-closure relays without monitoring the feeder, either by the generator breaker status or voltage monitoring, may allow the closing of a feeder breaker in the main transformer station onto an energized line out of synchronization. This is not a desirable situation for the distributor or generation facility and could cause significant damage to equipment and/or personnel.

The existing auto-reclosure protection configuration is also not configured for reverse power flow in the event that feeder generation exceeds feeder loading. As such, feeder constraints are currently set to relatively conservative constraints until they can be more accurately defined with the addition of monitoring instrumentation.

5.4.3.3 Generator Protections

The required protections within any new large scale generation facility will be outlined in a document to be prepared as/when required. The size of any new generation and the associated possible impact on the existing system will determine the required protections that the new generating facility will be required to install.

The IEEE Guide for AC Generator Protection and other distributor's generator grid connection requirements will be reviewed and used to prepare a comprehensive outline of requirements for any new generation. Typically new generator protection relays contain enough protective elements to provide full protection for the new generator, as well as for the distribution system. If the new generation facility is comprised of more than one generator being tied into the system, a full review of the main interconnecting points will have to be taken.

To date FFPC has received several inquiries from large scale generator applicants but no formal applications have been submitted to FFPC.

5.4.3.4 Tie In Points

Within the transformer station there are presently 6 x 12.47 kV feeders. Each feeder has overload protection set at 480 amperes, which is equivalent to approximately 10 MW of power. If the new generation facility is located near a point where the distribution feeder ampacity has not been stepped down (smaller conductors), it could be tied directly to these locations along any of the six feeders. Another option is to tie the generator directly into the switchgear located within FFMTS. There are presently 2 spare 12.47 kV breakers which could be utilized; however, this would eliminate one spare, and thereby limit system redundancy.

Another option would be to double up one feeder. This would involve more work in the transformer station switchgear but this configuration would only use one breaker to supply a load and be the tie in point for the new generation facility.

Where and how any new generation is to be tied into the existing system will be solely dependent on the size and technology of the generation facility. When an application for connection is made and the size becomes know, a full review of the listed options with associated costs would be made.

5.4.3.5 Generation Up To 10 MW

Generation of up to 10 MW would likely be connected directly into the existing 12.47 kV distribution system or in other words at the feeder level. Provided that the ampacity of the distribution system is suitable, no issues are seen at the feeder level. The closer a generator is located to a transformer station, the greater the available generation connection capacity. It should be noted; however, that photovoltaic generation has an additional capacity limitation that is equivalent to 30% of a feeder's minimum load.

5.4.3.6 Generation of 10 MW and Larger

Larger amounts of generation, where the connected ampacity exceeds any present distribution capacity, would need either a new dedicated feeder, or system upgrades to existing feeders. As FFPC has not received any formal applications from generators in this category, no feeder expansions or upgrades have been planned.

5.4.3.7 Transmitting Power to 115 kV grid

Once new generation is tied into the existing 12.47 kV distribution system, the power not absorbed by the existing 12.47 kV load would have to be exported onto the 115 kV grid. The worst case scenario for power flow would be no existing load on the lowest rated transformer, (both transformers are rated at 20/25 MVA). Based on this worst case scenario, the largest generation capacity that can be tied directly into the system through either transformer would be approximately 25 MW at unity power factor. However, based on the current loading and assuming equal division of loads between the two transformers located at FFMTS, the allowable total new generation can be increased beyond the 25 MW as the load could be shared between the two station transformers. Although the absolute nameplate limitation of each transformer is 25 MVA, current constraints have been set according to the industry standard 60% reverse power flow limitation at a 0.9 power factor, which results in a station limitation of 10.8 MW.

5.4.3.8 Protections and Generator Requirements

In general, generator protection is solely determined by the generating facility. If the generating facility it being tied directly onto FFPC's existing distribution system, FFPC must ensure that any new generation does not negatively impact its existing customers. In order to ensure this, generator tie-in requirements will be needed. These as indicated above, will be prepared on an as needed basis. It should be noted that small scale generators in the microFIT category typically have enough protection built into the inverter and usually no additional protection is required. As part of FFPC's microFIT approval process, inverter protection requirements are verified.

Generator Tie-In Requirements will contain the minimum protective and system monitoring criteria that each generating facility is required to have. Coordination of new protections will be performed by the new generating facility, but submitted and reviewed by FFPC. This is to ensure the new generating facility does not negatively impact the existing system.

5.4.3.9 Applications from Renewable Generators Up to 10 kW

FFPC has experienced successful uptake on the microFIT program offering within its licensed service territory. To date FFPC has been able to accommodate requests for generator connections from all applicants that have filed their "Application for Generator Connections" submission with FFPC, upon receiving authorization from the OPA to do so. FFPC itself has not had to reject any applications due to any type of constraints to date.

The following is a summary of active microFIT installations within FFPC's licensed service territory:

Summary of Active microFIT Installation Within FFPC's Licensed Service Territory As at June 26, 2013						
OPA Project Reference Number	**Technology**	**Capacity (kW)**	**Inverter Rating (kW)**	**LDC Connection Date**	**Feeder (Dx)**	**Application Status**
FIT-MCT42NH	Solar PV (Rooftop)	5.445	4.9	12/30/2010	West (A)	Contract Offer - Accepted
FIT-MZG433B	Solar PV (Rooftop)	10	9.9	11/08/2011	Victoria (E)	Contract Offer - Accepted
FIT-MCFUYIA	Solar PV (Rooftop)	10	10	11/08/2011	East (G)	Contract Offer - Accepted
FIT-MRCR6IY	Solar PV (Rooftop)	10	10	09/22/2011	West (A)	Contract Offer - Accepted
FIT-MFWPEWJ	Solar PV (Rooftop)	10	9.9	11/08/2011	Crowe (F)	Contract Offer - Accepted
FIT-MQ4KUXM	*Solar PV (Rooftop)*	*10*	*10*	*10/24/2011*	*Third (B)*	*Contract Offer - Rejected*
FIT-MA6GGB6	Solar PV (Rooftop)	7.905	6.665	02/28/2013	West (A)	Contract Offer - Accepted
FIT-MZ874TZ	Solar PV (Rooftop)	10	10	03/20/2013	West (A)	Contract Offer - Accepted
Total		**73.35**	**71.365**			

*Note: One microFIT installation failed to meet OPA contract acceptance requirements and as such the generation facility is built but is currently not operational. FFPC has been informed that this project may resume production under a new contract in the near future.

Please note that most solar photovoltaic (PV) installations appear to have a higher generation capacity when arithmetically adding up the wattage of all panels; however, the output of these installations is limited to the rating of the inverter which dictates the "nameplate rating" of the system. FFPC currently has 71.365 kW of microFIT generation online based on the summation of inverter nameplate ratings.

5.4.3.10 Applications from Renewable Generators over 10 kW

To date FFPC has received one application for a renewable generation system that is over 10 kW in size. The application received was for a 100 kW capacity allocation exempt rooftop solar system. FFPC was able to accommodate this application and the project was commissioned in the summer of 2011. Since this time, FFPC has had several applicants express interest in installing FIT projects; however, none have brought forward a formal application to FFPC's attention. FFPC has; however, received several inquiries from microFIT and FIT project applicants looking to relocate their projects from constrained service territories to FFPC's licensed service territory.

Summary of Active FIT Installations Within FFPC's Licensed Service Territory As at June 26, 2013						
OPA Project Reference Number	**Technology**	**Capacity (kW)**	**Inverter Rating (kW)**	**LDC Connection Date**	**Feeder (Dx)**	**Application Status**
FIT-FPUWGLU	Solar PV (Rooftop)	119.15	100	09/06/2011	West (A)	Contract Offer - Accepted
Total		**119.15**	**100**			

5.4.3.11 Forecasted Renewable Generation Connections 2014 to 2018

FFPC has consulted with several microFIT applicants regarding connecting renewable generation onto FFPC's distribution system. FFPC has performed a connection analysis on the following microFIT applications and expects that the following projects will come online throughout the fall of 2013.

Summary of Active microFIT Applications Within FFPC's Licensed Service Territory As at June 26, 2013						
OPA Project Reference Number	**Technology**	**Capacity (kW)**	**Inverter Rating (kw)**	**LDC Connection Date**	**Feeder (Dx)**	**Application Status**
FIT-MNVMBQM	Solar PV (Rooftop)	10	*5.16*	TBD	Crowe (F)	Pending Connection
FIT-MATG6YW	Solar PV (Rooftop)	6	6	TBD	*Crowe (F)*	Submitted
FIT-M4N72GJ	Solar PV (Rooftop)	10	*10*	TBD	*West (A)*	LDC has issued the Offer to Connect
Total		**26**	**21.16**			

5.4.3.12 OPA Relocation Program Inquiries

FFPC has been contacted by microFIT and FIT applicants who are looking to relocate their generation project to within FFPC's licensed distribution service territory under the OPA's Relocation Program. The applicants of the following microFIT projects have formally approached FFPC to relocate their constrained project to within FFPC licensed service territory:

Summary of microFIT Relocation Requests to within FFPC's Licensed Service Territory As at June 26, 2013						
OPA Project Reference Number	**Technology**	**Capacity (kW)**	**Inverter Rating (kw)**	**LDC Connection Date**	**Feeder (Dx)**	**Application Status**
FIT-M8326BE	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MUC16VW	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M32WKMD	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M6FPQCX	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M7ZPXJV	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MICZ2FI	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MM6ZWYB	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MVRRKE8	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MW9JXTY	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MCZHE3E	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MFPT2ZN	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MWBUTFI	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MR3UHUJ	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M39DQHT	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M3ZJ4TB	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M4AI24V	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M4RA9YZ	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M838TPP	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M8CIUZW	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M98PJCF	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MAW6P4I	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MFCX6Z4	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MGUEVBH	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MJMC2M8	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MRY2JKH	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MU6T9HZ	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MZDTUFG	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MTE9JFR	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MUN9EP6	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-M9Z2KAH	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MBGN96P	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MCMBV94	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MI9T26Q	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MKA62PB	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MM3J8AA	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
FIT-MU88QJZ	Solar PV (Ground)	TBD	10	TBD	West (A)	Unknown to LDC
Total		**0**	**360**			

FFPC has also been approached about combined relocation projects having generation capacity of up to 340 kW. FFPC notes that it has the capacity to accommodate these projects; however, FFPC notes that it needs to proceed with its planned renewable generation enabling projects as discussed throughout this submission to improve protection and monitoring of feeders and mains. As at the time of preparing this submission, two of the above relocation projects are in the construction phase, after receiving OPA and FFPC approval to proceed.

5.4.3.13 FFPC Distributed Generation Operating Constraints

At the time of preparing this submission FFPC had to rely on spot testing in determining how FFPC's load from its transformer station is distributed among the six feeders, as individual feeder metering data is not yet available. The total station load was determined using wholesale metering data. The following table illustrates FFPC's maximum and minimum feeder loading, as well as total system loading based on 2012 yearend data. It should be noted that the "Min Load (kW)" criteria corresponds to FFPC's reverse power flow constraints and that 30% of this value also corresponds to the limitation of PV generation on any feeder. With improved monitoring, FFPC expects these limits to increase due to several factors including the consideration that the 30% limitation should only apply during daytime hours, when solar systems produce power (minimum flows typically occur throughout the night).

FFPC Distribution System Load Profile Based on 2012 Year-End Data

FFMTS Transformer	**FFMTS Feeder**	**% System Total Load**	**Max Load (kW)**	**Min Load (kW)**
T1	West Feeder (A)	19.9%	3,235	869
	Mowat Feeder (D)	11.6%	1,897	509
	East Feeder (G)	14.0%	2,287	614
T1 Subtotal (kW)			**7,419**	**1,993**
T2	Third Street Feeder (B)	15.1%	2,464	662
	Victoria Feeder (E)	20.4%	3,319	891
	Crowe Feeder (F)	18.9%	3,087	829
T2 Subtotal (kW)			**8,869**	**2,382**
System Total (kW)		**100.0%**	**16,288**	**4,375**

As can be seen from the table above, under normal operating conditions, the reverse power flow state will arise when the generation exceeds load at the feeder level, the station transformer level or the system level. FFPC has used the reverse power flow state to define absolute generation constraints as system upgrades are required to accommodate reverse power flows.

Further to this, the maximum allowable amount of PV generation should not exceed one third of the feeder minimum load, as stated in the Institute of Electrical and Electronics Engineers (IEEE) standard IEEE1547 *Standard for Interconnecting Distributed Resources with Electrics Power Systems.* Under this set of criteria FFPC's photovoltaic generation limits by feeder are:

FFPC Feeder Constraints Based on 30% Minimum Feeder Load PV Limitation Criteria			
FFMTS Feeder	**30% PV Min Feeder Loading Limitation (kW)**	**Current PV Generation Level (kW)**	**Remaining Feeder PV Capacity (kW)**
West Feeder (A)	261	131.6	129
Mowat Feeder (D)	153	0	153
East Feeder (G)	184	10	174
Third Street Feeder (B)	199	10	189
Victoria Feeder (E)	267	9.9	258
Crowe Feeder (F)	249	9.9	239
Total kW	1,313	171	1,141

As discussed in the third party assessment section, FFPC's feeders all have an ultimate ampacity constraint of 10 MW, which is much higher than any other constraint and will therefore likely not be encountered.

The base thermal capacity for the FFMTS station and buses has been defined using the 60% reverse power flow limitation rule (relative to lowest power transformer thermal rating which in this case is 20 MVA) assuming a power factor of 0.9. FFMTS is therefore rated at having a 10.8 MW renewable generation connection capacity limit as per the following:

Station Capacity Limit = Lowest Station Transformer Thermal Rating in MVA x 60% x 0.9 Power Factor

= 20 x 0.6 x 0.9 = 10.8 MW

It should also be noted that this limit can easily be increased with more intelligence and automation at FFMTS. It could easily be doubled to 21.6 MW if protection was coordinated with Generation Facilities.

FFPC's most stringent constraints correspond to the maximum suggested photovoltaic generation amount on any feeder, relative to the minimum feeder load as per the above table. Again these constraints are expected to be relaxed with improved feeder metering/relaying as the constraints can be refined to align with daylight hours.

In summation given FFPC's current circumstance with limited metering and protection, FFPC can accommodate:

- Up to 10.8 MW of renewable generation at FFMTS based on station transformer constraints
- Up to 1.141 MW of additional photovoltaic generation
- Up to 10 MW of renewable generation on any feeder based on feeder ampacity limitations
- For Reverse flow limitation please refer to the "Minimum Load" listing above

5.4.3.14 Load Forecast With Respect to Supply Point Loading

<u>Please note that the intent of this load forecast is to project electrical loading at FFPC's supply point, and not for the purpose of projecting operating revenue.</u> This load forecast is based on the impact that Renewable Generation connections, CDM and the local economy are projected to have on FFPC's supply point. For the weather normalized load forecast used to establish operating revenue please refer to "Exhibit 3, Tab 2, Schedule 1".

FFPC has a single supply point called "2201F1B", which is the incoming 115kV supply to FFPC's "Fort Frances MTS" transformer station, from HONI's "Fort Frances TS" transformer station.

FFPC is expecting to see reductions in demand and in the volume of electricity delivered through this single supply point "2201F1B" in the near future, due to the effects of conservation and demand management programs, the state of the local economy, as well as due to offsetting distributed generation coming online.

5.4.3.15 Reductions Due to Offsetting Renewable Generation

To date all of FFPC's distributed generation systems are either ground-mounted or rooftop photovoltaic systems. FFPC has calculated the following generation profile based on the actual total volume of generation produced from the PV systems, divided by the total nameplate capacity of the corresponding generation systems. It is worth noting that winter time PV generation is greatly affected by snow loads, and as such, FFPC has experienced large reductions in PV generation due to large accumulations of winter snow deposits. The following table illustrates the average anticipated kWh of generation for every 1 kW of installed PV generation capacity based on the 2012 test year data.

FFPC PV Generation Profile based on 2012 Test Year	
Month	KWh/kW
January	22.10
February	39.31
March	98.70
April	151.43
May	147.60
June	180.19
July	172.14
August	156.33
September	116.52
October	57.15
November	27.42
December	8.30
Total	**1177.19**

Multiplying the generation capacity by FFPC's distribution system loss factor of 1.0406 represents the actual volumetric reduction equivalent at FFPC's supply point "2201F1B".

Without considering the impact of the 360 kW PV relocation projects, FFPC anticipates connecting approximately 62.5 kW of renewable generation year-over-year, based on FFPC's average project uptake from years 2011 to 2013. Assuming this average uptake and that PV projects in Northern Ontario are not curtailed, the following table represents FFPC's anticipated renewable generation forecast. The supply point demand reductions correspond to the combined nameplate rating of all PV generating systems as per the column "Total PV Generating Capacity (kW)". Note that FFPC is assuming that future projects come on line mid-year (July 1st).

2013 Projected Renewable Energy Generation				
Month	Total PV Generating Capacity (kW)	Conversion Efficiency (kWh/kW)	Projected Generation (kWh)	Vol. Reduction at Supply Point (kWh)
Jan	144.7	22.10	3,198	3,327.83
Feb	144.7	39.31	5,689	5,919.82
Mar	151.365	98.70	14,940	15,546.39
Apr	161.365	151.43	24,435	25,427.34
May	161.365	147.60	23,818	24,784.77
June	161.365	180.19	29,077	30,257.52
July	161.365	172.14	27,777	28,905.07
Aug	161.365	156.33	25,226	26,250.10
Sept	166.525	116.52	19,403	20,190.55
Oct	176.525	57.15	10,088	10,497.87
Nov	186.525	27.42	5,115	5,322.32
Dec	186.525	8.30	1,548	1,611.00
Total			190,314	198,040.58

2014 Projected Renewable Energy Generation				
Month	Total PV Generating Capacity (kW)	Conversion Efficiency (kWh/kW)	Projected Generation (kWh)	Vol. Reduction at Supply Point (kWh)
Jan	186.525	22.10	4,122	4,289.73
Feb	186.525	39.31	7,333	7,630.92
Mar	186.525	98.70	18,410	19,157.60
Apr	186.525	151.43	28,245	29,391.97
May	186.525	147.60	27,531	28,649.20
June	186.525	180.19	33,611	34,975.26
July	249.025	172.14	42,867	44,607.47
Aug	249.025	156.33	38,930	40,510.22
Sept	249.025	116.52	29,015	30,193.38
Oct	249.025	57.15	14,232	14,809.41
Nov	249.025	27.42	6,828	7,105.70
Dec	249.025	8.30	2,067	2,150.81
Total			253,192	263,471.69

2015 Projected Renewable Energy Generation				
Month	Total PV Generating Capacity (kW)	Conversion Efficiency (kWh/kW)	Projected Generation (kWh)	Vol. Reduction at Supply Point (kWh)
Jan	249.025	22.10	5,504	5,727.11
Feb	249.025	39.31	9,790	10,187.86
Mar	249.025	98.70	24,579	25,576.85
Apr	249.025	151.43	37,710	39,240.51
May	249.025	147.60	36,757	38,248.86
June	249.025	180.19	44,873	46,694.63
July	311.525	172.14	53,626	55,803.00
Aug	311.525	156.33	48,700	50,677.43
Sept	311.525	116.52	36,298	37,771.28
Oct	311.525	57.15	17,803	18,526.26
Nov	311.525	27.42	8,542	8,889.09
Dec	311.525	8.30	2,586	2,690.61
Total			326,767	340,033.48

2016 Projected Renewable Energy Generation				
Month	Total PV Generating Capacity (kW)	Conversion Efficiency (kWh/kW)	Projected Generation (kWh)	Vol. Reduction at Supply Point (kWh)
Jan	311.525	22.10	6,885	7,164.49
Feb	311.525	39.31	12,248	12,744.79
Mar	311.525	98.70	30,748	31,996.10
Apr	311.525	151.43	47,174	49,089.04
May	311.525	147.60	45,982	47,848.51
June	311.525	180.19	56,135	58,413.99
July	374.025	172.14	64,385	66,998.53
Aug	374.025	156.33	58,471	60,844.63
Sept	374.025	116.52	43,580	45,349.18
Oct	374.025	57.15	21,375	22,243.11
Nov	374.025	27.42	10,256	10,672.47
Dec	374.025	8.30	3,104	3,230.42
Total			400,341	416,595.27

2017 Projected Renewable Energy Generation				
Month	Total PV Generating Capacity (kW)	Conversion Efficiency (kWh/kW)	Projected Generation (kWh)	Vol. Reduction at Supply Point (kWh)
Jan	374.025	22.10	8,266	8,601.88
Feb	374.025	39.31	14,705	15,301.73
Mar	374.025	98.70	36,917	38,415.34
Apr	374.025	151.43	56,638	58,937.58
May	374.025	147.60	55,207	57,448.16
June	374.025	180.19	67,397	70,133.35
July	436.525	172.14	75,143	78,194.07
Aug	436.525	156.33	68,241	71,011.84
Sept	436.525	116.52	50,862	52,927.08
Oct	436.525	57.15	24,947	25,959.96
Nov	436.525	27.42	11,970	12,455.85
Dec	436.525	8.30	3,623	3,770.23
Total			473,916	493,157.06

2018 Projected Renewable Energy Generation				
Month	Total PV Generating Capacity (kW)	Conversion Efficiency (kWh/kW)	Projected Generation (kWh)	Vol. Reduction at Supply Point (kWh)
Jan	436.525	22.10	9,648	10,039.26
Feb	436.525	39.31	17,162	17,858.67
Mar	436.525	98.70	43,085	44,834.59
Apr	436.525	151.43	66,102	68,786.11
May	436.525	147.60	64,432	67,047.81
June	436.525	180.19	78,659	81,852.71
July	499.025	172.14	85,902	89,389.60
Aug	499.025	156.33	78,012	81,179.05
Sept	499.025	116.52	58,144	60,504.97
Oct	499.025	57.15	28,519	29,676.81
Nov	499.025	27.42	13,684	14,239.23
Dec	499.025	8.30	4,142	4,310.04
Total			547,491	569,718.85

5.4.3.16 Reductions Due to Conservation and Demand Management

FFPC anticipates being able to achieve its 2011 to 2014 Conservation Targets, which would represent a cumulative volumetric reduction of 3.64 GWh, as well as a 0.61 MW reduction in annual peak demand. FFPC can only project CDM related reductions up to the end of 2014, as FFPC is unsure of CDM program activities beyond that point. Since CDM reductions are achieved at the customer level, corresponding reductions at FFPC's supply point also need to be multiplied by FFPC's loss factor of 1.0406. FFPC anticipates the following reductions:

FFPC CDM Reductions Targets					
Reduction Units	2011 Reduction	2012 Reduction	2013 Reduction	2014 Reduction	Target
kW	23	267	427	610	610
kWh	140,959	951,041	1,092,000	1,456,000	3,640,000

FFPC Supply Point Reductions Due To CDM Initiatives				
Reduction Units	2011 Reduction	2012 Reduction	2013 Reduction	2014 Reduction
kW	24	278	444	635
kWh	107,133	564,725	1,178,437	1,789,706

5.4.3.17 Reductions Due to the State of the Local Economy

The Town of Fort Frances was built around a pulp and paper mill at the turn of the century and this plant has historically been the single largest employer supporting the community. In 2009 the plant was owned and operated by Abitibi-Consolidated Inc. at which time the company filed for creditor protection, "Chapter 11." Since then, the operation has been largely curtailed such that currently only 25% of all employees are still employed. Approximately 500 good paying positions have been lost and this has had a significant impact on the local economy. Of these 500 positions, approximately 300 were lost in the spring of 2013.

Although FFPC does not directly supply the manufacturing portions of the Pulp and Paper Mill (as it is transmission connected to HONI), FFPC does supply auxiliary support complexes including office buildings, parking lots, and warehouses. According to the billing history of the auxiliary support complexes, FFPC estimates that the continued curtailment of these facilities will equate to a direct loss of approximately 1.85% of FFPC's total customer load, based on 2012 consumption data. FFPC also anticipates that the mill's production curtailment and labour force layoffs will result in a drop in residential and commercial business load. FFPC estimates that the short term impact will be roughly three times the amount of load lost from servicing the auxiliary support complexes. In the event of prolonged production curtailments and labour force layoffs, FFPC estimates that by 2018 the impact on the community will be roughly five times that of the load lost from servicing the auxiliary support complexes. There are many variables such as the Canadian Dollar to US Dollar exchange rate, which could have a significant impact on either the success or the demise of the plant, which FFPC cannot predict.

Based on the current state of the plant FFPC anticipates the following reductions:

Reduction Units	2013 Reduction	2014 Reduction	2015 Reduction	2016 Reduction	2017 Reduction	2018 Reduction
Direct Sales to Mill Accounts (kWh)	767,849	1,535,699	1,535,699	1,535,699	1,535,699	1,535,699
Impact on Dependant Consumers (kWh)	2,303,548	4,607,096	5,374,945	6,142,795	6,910,644	7,678,493
Total Reduction as seen at Supply Point (x1.0406)	3,196,096	6,392,192	7,191,216	7,990,240	8,789,264	9,588,288

5.4.3.18 Planned Network (REG) Investments

FFPC has developed a renewable generation enabling improvement plan aimed at safely and reliably accommodating the connection of renewable energy generation facilities. All of FFPC's planned expenditures are for improvements to its transformer station "FFMTS", as the station and its core components are of original 1970's vintage. The station presently cannot accommodate 2-way or reverse electrical flow at any level, as it was designed for the purpose of solely supplying loads.

FFPC's plan is to modify station protection (relaying) and controls over a seven year period, beginning with feeder breakers where it is most likely that a reverse power flow state will be encountered in the near future. FFPC will also be able to improve monitoring of its feeders to establish more accurate and less conservative operating constraints with confidence. Given the current level of interest in renewable generation, FFPC's rationale is to replace relaying and to enhance monitoring in the following sequence over a seven year horizon (years 2012 and 2013 phases have been completed):

1. Tx Station Feeder Breakers
2. Tx Station Transformers and associated Main Secondary Breakers
3. Tx Station Communication Network
4. Tx Station Primary Protection (115 kV Oil Filled Circuit Breakers)
5. Tx Station Supervisory Control & Remote Annunciation

It should be noted that these renewable generation enabling investments also accomplish many mandated Smart Grid objectives, as will be discussed further in this submission.

FFPC's plan is based on the eligible renewable generation enabling improvements as per Section 3.3.2 of the Distribution System Code which limits the scope to:

3.3.2 Renewable enabling improvements to the main distribution system to accommodate the connection of renewable energy generation facilities are limited to the following:

a. modifications to, or the addition of, electrical protection equipment;
b. modifications to, or the addition of, voltage regulating transformer controls or station controls;
c. the provision of protection against islanding (transfer trip or equivalent);
d. bidirectional reclosers;
e. tap-changer controls or relays;
f. replacing breaker protection relays;
g. Supervisory Control and Data Acquisition system design, construction and connection;
h. any other modifications or additions to allow for and accommodate 2-way electrical flows or reverse flows; and
i. communication systems to facilitate the connection of renewable energy generation facilities.

The following table summarizes the planned project phases by year:

FFPC Planned Renewable Generation Enabling Improvement Project Summary For Years 2012 to 2018			
Planned Year	**Project Name**	**Estimated Cost**	**OEB Investment Category**
2012	T1 Breakers Protection	$ 27,673	System Access
2013	T2 Breakers Protection	$ 35,000	System Access
2014	Transformer T1 Protection	$ 25,000	System Access
2014	Transformer T2 Protection	$ 25,000	System Access
2015	Tx Station Communication Network Installation	$ 20,000	System Access
2015	Tx Station Data Acquisition System	$ 20,000	System Access
2016	Tx Station OCB Protection	$ 20,000	System Access
2017	Tx Station Supervisory Control	$ 45,000	System Access
2018	Tx Station DC System Monitoring & Remote Annunciation	$ 12,000	System Access
	Total	**$ 229,673**	

5.4.3.18.a. 2012 - T1 Breaker Protection (Installed)

The majority of FFPC's applicant requests for renewable energy connections to date have been for connections to FFPC's "West Feeder (A)," which is supplied from FFPC's station transformer "T1". The West Feeder is the most likely feeder to encounter a reverse power flow state given the volume of existing and proposed generation connections. FFPC has the ability to accommodate considerable renewable generation; however, protection and relaying modifications are required to accommodate the continued demand for connection requests safely and reliably. FFPC placed the highest priority on replacing the breaker protection (relays) associated with transformer “T1”. In 2012 FFPC replaced the original 1970’s vintage single function electromechanical feeder level breaker relays with modern day Schweizer Engineering Laboratories SEL-751 digital feeder protection relays. The modern day relays provide bi-directional recloser functionality, over-current protection, feeder metering, as well as event/data logging. One device replaces seven individual devices while also delivering additional functionality and flexibility. Given the greatly enhanced functionality, FFPC will be capable of more closely monitoring and logging feeder operating conditions once a communications network is installed. Improved monitoring of operating conditions will allow FFPC to better define operating constraints, as well as quantify feeder reliability. The following figures illustrate the before and after of FFPC’s protection replacement to accommodate renewable energy generation facilities on the “West Feeder (A)”.

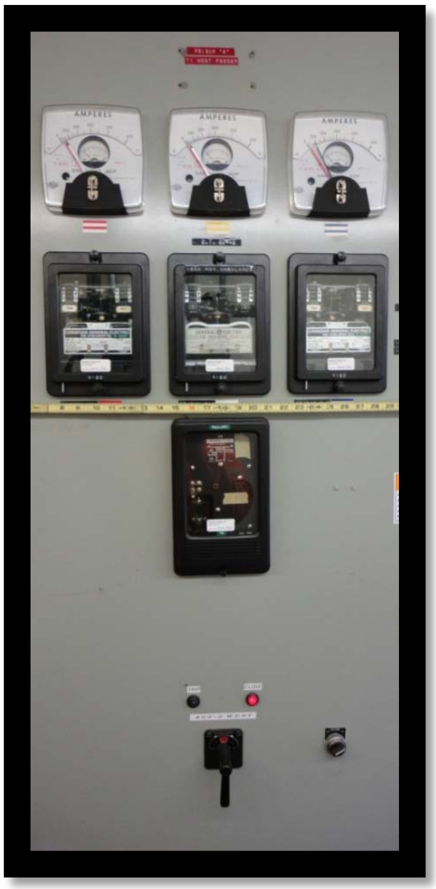


Figure 4: West Feeder Original Single Function Electromechanical Relays

Figure 5: West Feeder Replacement Multifunction Protection Relay

5.4.3.18.b. 2013 - T2 Breaker Protection

For the same reasons as mentioned above, FFPC is planning to upgrade transformer T2's vintage single function electromechanical feeder level breaker relays with modern day Schweizer Engineering Laboratories SEL-751 digital feeder protection relays. Again the modern day relays provide bi-directional recloser functionality, over-current protection, feeder metering, as well as event/data logging.

5.4.3.18.c. 2014 - Transformer T1 & T2 Protection

The station power transformers "T1" and "T2" as well as their secondary main breakers are currently also protected by 1970's vintage single function electromechanical relays. Both station transformers are equipped with automatic tap changers that compensate for incoming voltage fluctuations. The existing protection scheme is also not designed for bi-directional or reverse power flow, and as such FFPC is planning to upgrade the dated protection. The installation of a single modern day digital protection unit will replace numerous single function relays, as well as numerous analog measurement gauges and allow for reverse power flow situations.

5.4.3.18.d. 2015 - Transformer Station Communication Network Installation

Fort Frances MTS in its current state does not have any type of communication network to allow Intelligent Electronic Devices (IEDs), such as FFPC's recently installed T1 breaker relays, to communicate to a central data server, a supervisory controller or to any other internal or external devices. FFPC is planning to install a communications network that will allow the interconnection of IEDs on a common network. Fort Frances MTS has two separate buildings housing transformer T1 and T2's respective breaker cells, and this project will supply a common communication network to both buildings. The communications network will be instrumental in allowing for IED control, as well as IED data to be collected for planning and analysis purposes.

5.4.3.18.e. 2016 - Transformer Station OCB Protection

Fort Frances MTS has three single-phase 115 kV Oil Filled Circuit breakers as its primary protection on the incoming transmission line. The existing electromechanical single function protective relays for these breakers are also of original 1970's vintage and also do not accommodate reverse power flows. The existing protection also does not allow for effective monitoring of supply point conditions and lacks the capability of capturing and logging event or operating data.

5.4.3.18.f. 2017 - Transformer Station Supervisory Control

Fort Frances MTS currently does not have any kind of supervisory or SCADA system functionality. FFPC is planning to implement a supervisory system to improve core station functionality. This includes real-time station equipment outage/trouble reporting, as well as automatic operation of station/feeder components. Automatic operation of station/feeder components would allow for the isolation of faults and rerouting of distribution supply, thereby minimizing the effects of localized outages.

FFPC plans to accomplish this by installing and configuring an SEL RTAC SEL-3530 Real-Time Automation Controller, or equivalent. This device will be also be the main device to enable the implementation of the “Smart Grid”.

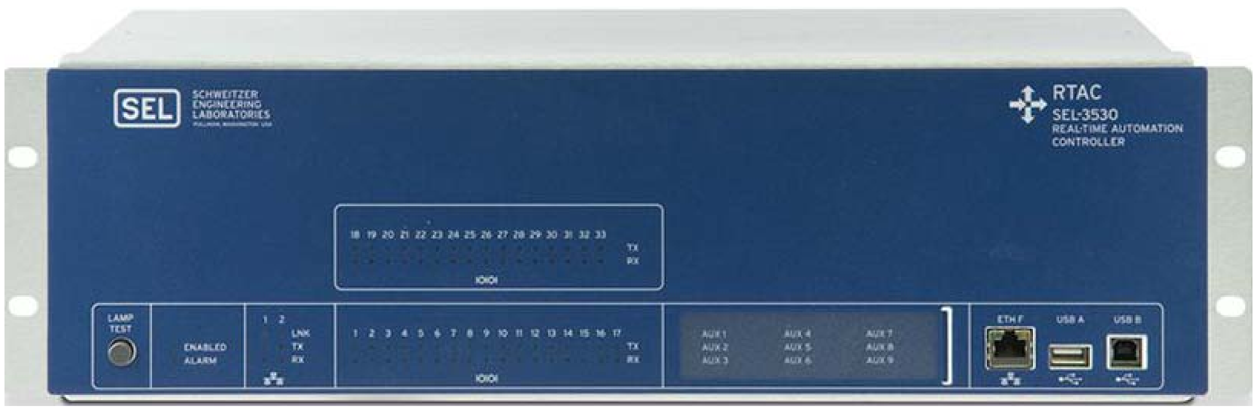
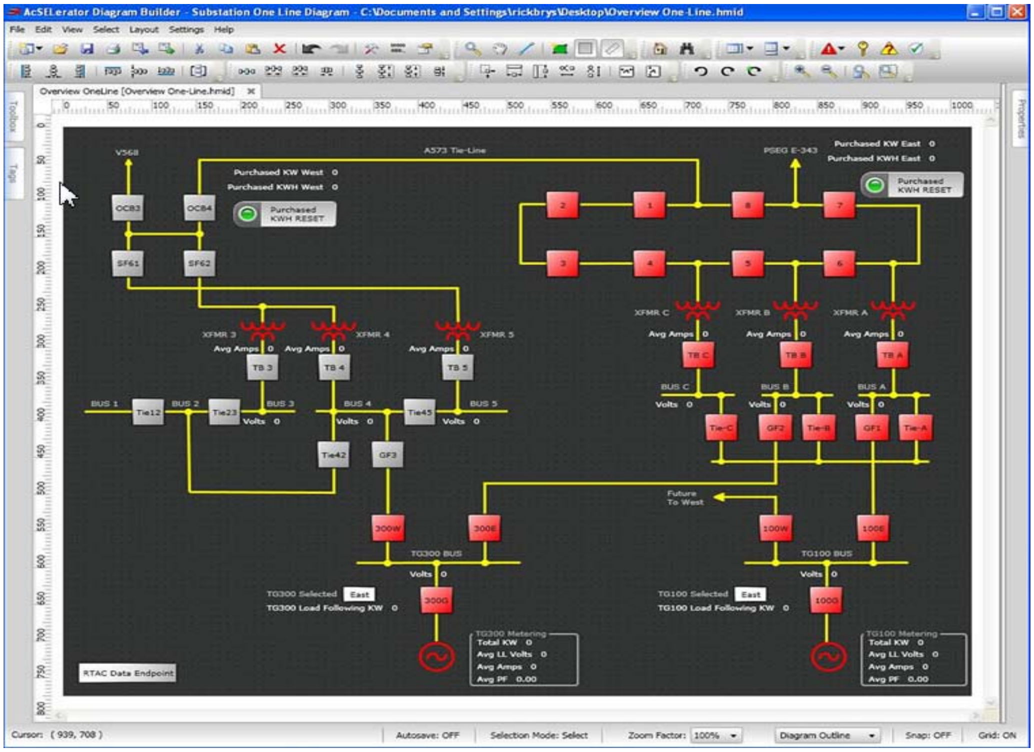


Figure 6 - Schweitzer Engineering SEL-3530 Real-Time Automation Controller

This device will:

- Connect all station IED’s together, enabling local/remote device control through a Human Machine Interface (HMI)
- Provide standard data management
- Perform logic functions for system automation
- Provide remote access, with security to FFPC and authorized regional stakeholders
- Provide single point engineering access to connected IED’s

The following control schematic is a sample control application using this device, which is essentially what FFPC is planning to deploy.



5.4.3.18.g. 2018 - Transformer Station DC System Monitoring & Remote Annunciation

The controls of Fort Frances MTS DC Systems are also of 1970's vintage and do not offer modern day remote alarming or annunciation of component failures. The loss of DC supply inhibits the ability of station protection to operate normally. For example, FFPC would lose all recloser functionality on its feeders under this scenario. FFPC is planning to implement remote monitoring and alarming on its DC protection systems to ensure that any component failures are brought to FFPC's attention immediately. This functionality will improve the safety and reliability of the transformer station and distribution system as a whole.

5.4.3.18.h. Cost Optimization

FFPC has retained third-party expert advice from Siemen's Canada to assist FFPC in identifying, prioritizing and quantifying necessary renewable generation enabling improvements to accommodate the connection of renewable energy generation facilities. FFPC plans to smooth out expenditures over a seven year horizon for rate stability purposes and as such, annual planned expenditures are at or below FFPC's annual capital investment materiality threshold of $50,000. FFPC believes that this approach aligns with the OEB's objective to "pacing and prioritization of capital investments to promote predictability in rates and affordability for customer."

The installation of transformer station protection equipment requires the expertise of third-party service providers, as this expertise is not available in the Fort Frances area. FFPC has to rely on external service providers to commute to Fort Frances to perform this type of specialized work. FFPC has taken measures to minimize the overall cost of these planned expenditures by coordinating the installation of renewable generation enabling improvements following regularly scheduled annual maintenance work that is also outsourced to the same external service provider. This will reduce duplication of travelling, mobilization and demobilization costs. Without this synergy FFPC's installation expenses would be approximately 20% higher.

5.4.3.19 Investments Involving Smart Grid

FFPC currently does not have any planned investments specific to only achieving Smart Grid objectives; however, other planned investments such as the previously discussed Renewable Generation Enabling Improvements achieve many of Smart Grid objectives as per the Minister's Directive and subsequent OEB Supplemental Report on Smart Grid.

The concept of what a Smart Grid is and what functionality it entails, is dependent on its application and is therefore specific to every distributor. In the case of FFPC, a Smart Grid should be tailored to FFPC's relatively small service territory located in the harsh climate of the Canadian Shield. Design criteria should be based on system characteristics including distribution feeder dimensions and topography, as well as consideration of transformer station functionality.

Due to the fact that FFPC's distribution feeders are relatively short and that FFPC currently does have any large scale generators connected to them, there is no immediate need for the addition of automated feeder switches or enhanced functionality outside of the "FFMTS" transformer station.

FFPC's definition of a smart grid within the Fort Frances MTS Transformer station includes:

- Fully automated system to maintain power flow under all possible circumstances (under automated supervisory control)
- Automatic annunciation of problems, feeder trips etc., to FFPC personnel
- Remote operation and monitoring of all devices within the transformer station by FFPC or other authorized regional stakeholders
- Local and remote real time metering and logging of data for station mains and feeders
- Data acquisition and storage of basic metering functions for historical trending
- Fault data storage for trending and analysis

FFPC can facilitate all of this functionality by deploying the seven phases of investments as per the previously discussed Renewable Generation Enabling Investments.

According to this plan in 2017 FFPC will be installing the SEL RTAC SEL-3530 Real-Time Automation Controller, or equivalent, which will be the main device to enable the implementation of the "Smart Grid".

This device will:

- Connect all station IED's together, enabling local/remote device control through a Human Machine Interface (HMI)
- Provide standard data management
- Perform logic functions for system automation
- Provide remote access, with security to FFPC and authorized regional stakeholders
- Provide single point engineering access to connected IED's

5.4.3.20 Demonstration Projects

At this time FFPC does not have any planned expenditures towards grid demonstration projects, smart grid studies and planning studies or smart grid employee education and training.

5.4.3.21 Consultations with Regionally Interconnected Distributors and Transmitters

FFPC does not have any regionally interconnected distributors (host or embedded) and is transmission connected to Hydro One Network Inc (HONI). FFPC has been and will continue to consult with Hydro One Networks Inc (HONI) regarding distribution system planning efforts.

Prior to the revised Chapter 5 Consolidated Distribution System Plan Filing Requirements coming into effect, FFPC was providing HONI with annual submissions regarding planned transformer station power outages, load forecasts, and renewable generation connection information. FFPC has been working closely with HONI to coordinate planning efforts to minimize customer interruptions.

FFPC is also copied on all relevant planning notices that the Town of Fort Frances Municipal Planning Office receives. This gives FFPC the opportunity to coordinate planning at the municipality level. For example, FFPC is notified of all new construction requests, which gives FFPC the opportunity to advise the applicants of all service connection related requirements, as well as passing on any other relevant information such as CDM opportunities (New Home Construction Initiative). FFPC has also been involved with the development of the municipal Strategic and Sustainability Plan developments.

FFPC has also worked very closely with other Northern LDC's (The Northwest Group) including Thunder Bay Hydro, Kenora Hydro, Sioux Lookout Hydro and Atikokan Hydro, to deploy common systems and tools where practically possible. For example, the Northwest group deployed a common Elster Energy Axis Smart Metering system. The common solution allows for standardization of hardware, software, security aspects, the sharing of resources and the exchange of data on a common platform.

Refer to section 5.2.2 for discussion regarding Coordinated Planning with Third Parties, as well as Regional Planning Efforts.

5.4.4 Capital expenditure summary

5.4.4.1 FFPC 2014 to 2018 Detailed Capital Project Summary

FFPC has developed a detailed five year capital investment plan based on the outputs of its asset management and capital planning processes. The following tables summarize all capital activities planned over the 2014 to 2018 planning horizon, based on investment need driver information available at the time of preparing this DS Plan. FFPC acknowledges that the investment plan may be subject to considerable change due to unforeseen circumstances.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	General Plant	14-14-007	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		14-14-007	Building Heater Replacements	$3,000	Transformer Station heater replacements	1808	Non-System Physical Plant	G5 - Station Buildings
		14-14-007	Cable Reel Stands	$2,000	Install cable reel stands at Operations Centre	1908	System Cap / Maint Support	G3 - Administrative Buildings
		14-14-007	Replace Shelving	$2,000	Upgrade stores area shelving at Operations Centre	1908	Non-System Physical Plant	G3 - Administrative Buildings
		14-14-007	Meter Room Flooring	$2,500	Misc. meter room improvements - replace flooring and fixtures	1908	Non-System Physical Plant	G3 - Administrative Buildings
		14-14-007	Office A/C	$1,000	Install air conditioning in lunch room	1908	Non-System Physical Plant	G3 - Administrative Buildings
		14-14-007	Admin Area Renovation	$3,500	Misc. Main Office renovations - Reception area	1908	Non-System Physical Plant	G3 - Administrative Buildings
		14-14-007	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		14-14-007	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		14-14-007	Operations Centre Copier	$4,000	Replace Operations Centre end-of-life multimedia centre	1920	Non-System Physical Plant	G1 - Office Equipment
		14-14-007	Computer Hardware	$5,000	Director laptop computers to support real-time communication and paperless information distribution.	1920	Non-System Physical Plant	G6 - Computer Equipment
		14-14-007	AMI MAS Server Replacement	$4,000	Replace end-of-life AMI system Master Application Server.	1920	Non-System Physical Plant	G6 - Computer Equipment
		14-14-007	AutoCad License	$2,000	Upgrade AutoCad drafting software for technical blue print management	1611	Non-System Physical Plant	G6 - Computer Equipment
		14-14-007	MS Office Productivity Package	$2,000	Director MS office productivity package to support real-time communication and paperless information distribution.	1611	Non-System Physical Plant	G6 - Computer Equipment
		14-14-007	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
		14-14-007	Label Printer - Asset Labeling	$2,500	Asset labeler for asset identification initiative (GIS).	1940	Business Operation Eff	G7 - Equipment
		14-14-007	Transformer Safe Transport Kit	$3,000	Transformer safe transport kit to mitigate risk of environmental spill from handling increased volume of failing transformers.	1940	Obj - Safety	G7 - Equipment
		14-18-005	Replace 1978 Fort Garry Industries Cable Reel Trailer	$50,000	Replace end-of-life cable stringing and tensioning trailer.	1930	Non-System Physical Plant	G2 - Vehicles
Total				$96,500				
2014	System Access	14-14-006	LTLT Elimination Pole Lines (88 Pri Spans)	$294,681	Overhead distribution feeder pole line expansions to connect to LTLT customers	1830	Mandated Service Obligations	1 - Fully Dressed Wood Poles
		14-14-006	LTLT Elimination Conductor	$9,180	Primary conductor for LTLT pole line extensions	1835	Mandated Service Obligations	8 - OH Conductors
		14-14-006	LTLT Elimination Directional Bore & Conduit	$27,000	Directional bore underneath CNR right-of-way and install conduit for feeder expansion to connect to LTLT customer.	1840	Mandated Service Obligations	40 - Ducts
		14-14-006	LTLT Elimination Pri UG Conductor	$2,298	Install UG primary conductor in duct (across CNR right-of-way), to extend feeder to connect to LTLT customer.	1845	Mandated Service Obligations	29 - Primary TR XLPE Cables in Duct
		14-14-006	LTLT Elimination Transformers	$38,580	Install new transformer to supply LTLT customers from expanded feeders	1850	Mandated Service Obligations	9 - OH Transformers
		14-18-004	Transformer T1 Protection	$25,000	REG Investment - Transformer Station power transformer T1 control and relaying upgrade.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays
		14-18-004	Transformer T2 Protection	$25,000	REG Investment - Transformer Station power transformer T2 control and relaying upgrade.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays
Total				$421,739				
2014	System Renewal	14-14-007	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		14-14-007	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct

								Buried
		14-14-007	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		14-14-007	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life CT & PT metering settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		14-14-007	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
		14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$11,036	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	3 Phase Pad Mounted Tx	$25,106	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$47,546	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pole Mounted Tx Spares	$11,960	Replace end-of-life critical spare transformers	1850	EOL - Failure	9 - OH Transformers
		14-18-003	Non-Profit Housing - 400 Blk Sixth St W - S118A To AT15	$4,642	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Sixth St Non-Profit Housing	$1,598	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Rainy Crest	$10,010	Replace end-of-life primary underground cables to nursing home.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
Total				$253,576				
2014	System Service	14-14-007	Primary Insulator Replacements	$10,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		14-14-007	Air Break Switches Insulator Replacements	$4,500	Air break switch primary insulator replacements as per inspection findings	1835	Obj - Reliability	4 - OH Line Switch
		14-14-007	Robert Moore Air Break Switch Relocation	$28,000	Remove, replace and relocate air break switch from School Yard	1835	Obj - Safety	4 - OH Line Switch
		14-14-007	Mobile Work Tablets	$2,500	Purchase mobile work tablets for transition to electronic inspection forms and for line crew on-site access to technical documentation.	1920	Other Performance/Functionality	G6 - Computer Equipment
		14-14-007	Elster Tx Primary Data Logger and Meter	$3,500	Primary meter for transformer setting, to support identification of theft of power and transformer loading profile development.	1945	Obj - Safety	G7 - Equipment
Total				$48,500				
2014 Total Capital Budget				**$820,316**				

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2015	General Plant	14-18-005	Replace 1999 Ford Pickup	$38,000	Replace end-of-life crew service/support vehicle.	1930	Non-System Physical Plant	G2 - Vehicles
		15-15-009	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		15-15-009	Build Outdoor Transformer Shelter	$6,000	Install weather shelter for transformer yard storage area.	1908	System Cap / Maint Support	G3 - Administrative Buildings
		15-15-009	Replace Shop Rollup Door	$12,000	Replace operations centre rollup garage door.	1908	System Cap / Maint Support	G3 - Administrative Buildings
		15-15-009	Reg & Finance Area Renovations	$3,500	Misc. Main Office renovations - Finance Area	1908	Non-System Physical Plant	G3 - Administrative Buildings
		15-15-009	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		15-15-009	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		15-15-009	PC Replacement	$5,000	Replace end-of-life computers at the Main Office.	1920	Non-System Physical Plant	G6 - Computer Equipment
		15-15-009	Computer Hardware	$1,000	Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
		15-15-009	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
Total				$75,500				
2015	System Access	14-18-004	Station Data Acquisition System	$20,000	REG Investment - install data acquisition system to connect to station IED's (intelligent electronic devices).	1531	Mandated Service Obligations	43 - Remote SCADA
		14-18-004	Station Communication Network Installation	$20,000	REG Investment - Install local area network at TS to enable connection of IED's and access to operating data.	1531	Mandated Service Obligations	G8 - Communication
Total				$40,000				
2015	System Renewal	14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$135,682	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$72,234	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pole Mounted Tx Spares	$32,660	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-003	1557 Colonization Rd W U/G	$8,609	Replace end-of-life primary underground cable servicing residential area	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	UG Feeder Cable Condition Testing & Rejuvenation Pilot	$28,000	Rejuvenate end-of-life primary underground feeder cables - pilot silicone injection technology project.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		15-15-009	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		15-15-009	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried

		15-15-009	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		15-15-009	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		15-15-009	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
Total				$418,863				
2015	System Service	15-15-008	Transformer Fire Barrier	$62,000	Install fire and blast barrier between power transformer T1 and T2.	1808	Obj - Reliability	G5 - Station Buildings
		15-15-009	Backup Generator Switch / Install	$4,500	Install transfer switch and panel for connection of emergency backup generation to supply station lighting and DC battery bank chargers.	1808	Obj - Reliability	G5 - Station Buildings
		15-15-009	Generator	$5,500	Transformer Station backup generator for emergency lighting and DC system charging.	1808	Obj - Reliability	G5 - Station Buildings
		15-15-009	Primary Insulator Replacements	$5,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		15-15-009	OH Secondary Bus Replacements	$10,000	Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		15-15-009	Mass Customer Contact System	$15,000	Install and commission mass customer contact system to enable contacting customers regarding important event such as power interruptions.	1955	Customer Preference	G8 - Communication
		15-16-010	Financial Information System Phase 1	$40,000	Purchase and commission Financial Information System to enable data exports, enhanced reporting and data analysis for planning activities.	1611	Business Operation Eff	G6 - Computer Equipment
Total				$142,000				
2015 Total Capital Budget				**$676,363**				

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2016	General Plant	14-18-005	Replace 2003 Ford 4x4 Half Ton	$40,000	Replace end-of-life crew service/support vehicle.	1930	Non-System Physical Plant	G2 - Vehicles
		16-16-012	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		16-16-012	Interior Lighting Retrofit	$3,000	Transformer Station T12 lighting replacements	1808	Business Operation Eff	G5 - Station Buildings
		16-16-012	Yard Landscaping	$3,000	Landscape yard at Operations Centre - Install flower beds and general yard improvements	1908	System Cap / Maint Support	G3 - Administrative Buildings
		16-16-012	Cable Reel Shelter	$6,000	Install shelter over outdoor cable reel storage area	1908	System Cap / Maint Support	G3 - Administrative Buildings
		16-16-012	Office Carpeting	$2,500	Replace Main Office carpets.	1908	Non-System Physical Plant	G3 - Administrative Buildings
		16-16-012	Executive Area Renovations	$3,500	Misc. Main Office renovations - Board Room	1908	Non-System Physical Plant	G3 - Administrative Buildings
		16-16-012	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		16-16-012	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		16-16-012	Computer Hardware	$1,000	Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
		16-16-012	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
		16-16-012	Main Office Telephone Data Logger	$7,000	Purchase and commission Main Office telephone system data logger, to support telephone accessibility related RRR reporting.	1955	Business Operation Eff	G8 - Communication
Total				$76,000				
2016	System Access	14-18-004	Station OCB Protection	$20,000	REG Investment - Upgrade station independent breaker controls and protection.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays
Total				$20,000				
2016	System Renewal	14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$49,680	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	3 Phase Pad Mounted Tx	$66,319	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$37,031	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pole Mounted Tx Spares	$31,050	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-003	Westfort Apartments	$2,457	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct

		14-18-003	Green Manor Apartments	$2,542	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Rose Manor Apartments	$1,574	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		16-16-011	1947 OCB Replacements	$150,000	Replace end-of-life station independent breaker at Transformer Station.	1815	EOL - Failure Risk	17 - Station Independent Breakers
		16-16-012	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		16-16-012	T1 Battery Charger	$22,000	Replace end-of-life battery charger for Transformer Station T1 DC system.	1825	EOL - High Performance Risk	15 - Station DC System
		16-16-012	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
		16-16-012	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		16-16-012	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		16-16-012	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
Total				$504,331				
2016	System Service	15-16-010	Financial Information System Phase 2	$20,000	Integrate payroll and purchasing into FIS system.	1611	Business Operation Eff	G6 - Computer Equipment
		16-16-012	115 kV Sky Structure Insulator Replacements	$25,000	Replace Transformer Station primary insulators on sky structure.	1815	Obj - Reliability	23 - Steel Structure
		16-16-012	Primary Insulator Replacements	$5,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		16-16-012	OH Secondary Bus Replacements	$10,000	Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
Total				$60,000				
2016 Total Capital Budget				$660,331				

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2017	General Plant	17-17-013	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		17-17-013	Technical Station Renovations	$3,000	Transformer Station technical station renovations	1808	System Cap / Maint Support	G5 - Station Buildings
		17-17-013	Training Room Carpeting	$2,500	Replace carpeting in the training room located at the Operation Centre.	1908	Non-System Physical Plant	G3 - Administrative Buildings
		17-17-013	Door Replacements	$2,000	Operations Centre door replacements.	1908	Non-System Physical Plant	G3 - Administrative Buildings
		17-17-013	Technical Workstation Replacement	$3,500	Misc. Main Office renovations - Technical Office	1908	Non-System Physical Plant	G3 - Administrative Buildings
		17-17-013	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		17-17-013	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		17-17-013	Media Centre (Photo Copier)	$11,000	Replace the Main Office end-of-life media centre.	1920	Non-System Physical Plant	G1 - Office Equipment
		17-17-013	Computer Hardware	$1,000	Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
		17-17-013	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
Total				$33,000				
2017	System Access	14-18-004	Station Supervisory Control	$45,000	REG Investment - Install station controller and commission station supervisory control (monitor operating conditions and perform appropriate control actions currently performed manually).	1531	Mandated Service Obligations	43 - Remote SCADA
Total				$45,000				
2017	System Renewal	14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$123,932	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	3 Phase Pad Mounted Tx	$40,213	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$118,209	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pad Mounted Tx Spares	$15,525	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx Spares	$11,500	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-003	Rainbow Motel	$917	Replace end-of-life primary underground cables to multi-residential business complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Armstrong Apartments	$659	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct

		14-18-003	Shevlin Towers West	$1,667	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Shevlin Towers East	$1,672	Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Feeder UG Cable Refurbishment Phase 1	$75,000	Rejuvenate end-of-life primary underground feeder cables. Attempt to sustain cables until Transformer Station as whole is at its end-of-life in 2034, at which time cables become obsolete.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		17-17-013	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		17-17-013	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
		17-17-013	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		17-17-013	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		17-17-013	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
Total				$530,971				
2017	System Service	17-17-013	Primary Insulator Replacements	$5,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		17-17-013	OH Secondary Bus Replacements	$10,000	Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		17-17-013	Elster "Access Detect" (OMS)	$43,000	Purchase and commission Outage Management System, to enable proactive outage alerts and localized customer interaction.	1611	Customer Preference	G6 - Computer Equipment
Total				$58,000				
2017 Total Capital Budget				**$666,971**				

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2018	General Plant	14-18-005	Replace Chipper Trailer	$25,000	Replace end-of-life chipper trailer to support vegetation management maintenance program.	1930	Non-System Physical Plant	G2 - Vehicles
		14-18-005	Replace 2004 Altec Double Bucket Truck	$250,000	Replace end-of-life double bucket truck, to support maintenance, capital and operational activities.	1930	System Cap / Maint Support	G2 - Vehicles
		18-18-014	Misc Building Improvements	$2,000	Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
		18-18-014	Bathroom Renovation	$2,000	Transformer Station bathroom renovations	1808	System Cap / Maint Support	G5 - Station Buildings
		18-18-014	Window Replacements	$6,000	Replace Operations Centre windows.	1908	Non-System Physical Plant	G3 - Administrative Buildings
		18-18-014	Main Office Bathroom Renovations	$3,500	Misc. Main Office renovations - Bathroom	1908	Non-System Physical Plant	G3 - Administrative Buildings
		18-18-014	Misc. Main Office furniture replacements	$2,000	Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		18-18-014	Misc. Operations Centre furniture replacements	$1,000	Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
		18-18-014	Computer Hardware	$1,000	Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
		18-18-014	Small Tools	$5,000	Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
		18-18-014	Phone System Upgrade	$13,000	Replace end-of-life Meridian phone system at the Main Office.	1955	Non-System Physical Plant	G8 - Communication
Total				$310,500				
2018	System Access	14-18-004	Station DC System Monitoring & Remote Annunciation	$12,000	REG Investment - Install supervisory control over auxiliary station components including DC systems.	1531	Mandated Service Obligations	43 - Remote SCADA
Total				$12,000				
2018	System Renewal	14-18-001	Primary Poles Replacements	$100,460	Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Secondary Pole Replacements	$24,110	Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
		14-18-001	Unplanned Poles Replacements	$5,358	Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
		14-18-002	1 Phase Pad Mounted Tx	$48,430	Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
		14-18-002	Pole Mounted Tx	$115,053	Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-002	Pole Mounted Tx Spares	$14,375	Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
		14-18-003	Strachan pl. switch S22-B	$9,874	Replace end-of-life primary underground cables in multi-residential area.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	Riverview Cemetery	$5,741	Replace end-of-life primary underground cables to public municipal building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		14-18-003	CIBC	$575	Replace end-of-life primary underground cables to priority business customer.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct

		14-18-003	Feeder UG Cable Refurbishment Phase 2	$25,000	Rejuvenate end-of-life primary underground feeder cables. Attempt to sustain cables until Transformer Station as whole is at its end-of-life in 2034, at which time cables become obsolete.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
		18-18-014	DC System Battery Cell Replacement	$2,000	Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
		18-18-014	UG Service Replacement	$2,000	Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
		18-18-014	OH Service Replacement	$2,000	Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
		18-18-014	CT/PT and Cabinet Replacements	$2,500	Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
		18-18-014	Meter Replacements	$3,250	Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
Total				$360,724				
2018	System Service	18-18-014	Primary Insulator Replacements	$5,000	Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
		18-18-014	OH Secondary Bus Replacements	$10,000	Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
Total				$15,000				
2018 Total Capital Budget				**$698,224**				

5.4.4.2 Table 2-AB Capital Expenditure Summary

As per the Section 5.4.4 filing requirements, the following summary table in accordance to "Table 2-Capital Expenditure Summary", and summarizes FFPC's capital expenditures by investment category for the period 2006 through 2018. The original table can be found under the "Exhibit 2 Appendices" worksheet, under Tab "App.2-AB_Capital_Expenditures". "Explanatory notes on variances are not provided as this is FFPC's first DS Plan under the new filing requirements, and as such "Planned to Actual" balances are not available.

CATEGORY	Historical Period (previous plan[1] & actual)														
	2006			2007			2008			2009			2010		
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var
	$ '000		%	$ '000		%	$ '000		%	$ '000		%	$ '000		%
System Access		-	--		-	--		-	--		-	--		-	--
System Renewal		191	--		130	--		154	--		153	--		166	--
System Service		43	--		43	--		16	--		6	--		80	--
General Plant		100	--		21	--		17	--		118	--		277	--
TOTAL EXPENDITURE	-	335	--	-	194	--	-	187	--	-	278	--	-	523	--
System O&M		$ 248	--		$ 281	--		$ 305	--		$ 325	--		$ 376	--

CATEGORY	Historical Period (previous plan[1] & actual)									Forecast Period (planned)				
	2011			2012			2013			2014	2015	2016	2017	2018
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual[2]	Var					
	$ '000		%	$ '000		%	$ '000		%	$ '000				
System Access		3	--		41	--		37	--	422	40	20	45	12
System Renewal		133	--		165	--		150	--	254	419	504	531	361
System Service		1	--		-	--		55	--	49	142	60	58	15
General Plant		9	--		16	--		157	--	97	76	76	33	311
TOTAL EXPENDITURE	-	145	--	-	222	--	-	399	--	820	676	660	667	698
System O&M		$ 365	--		$ 591	--		$ 423	--	$ 675	$ 722	$ 777	$ 839	$ 894

Notes to the Table:

1. Historical "previous plan" data is not required unless a plan has previously been filed
2. Indicate the number of months of 'actual' data included in the last year of the Historical Period (normally a 'bridge' year):

5.4.5 Justifying Capital Expenditures

With the recent development and implementation of formalized asset management and capital planning processes, FFPC has taken a new approach to identifying, prioritizing and categorizing system renewal projects driven by assets reaching the end of their useful service life. FFPC also subjects its General Plant assets to these processes, to determine which assets require replacement or refurbishments, just like distribution system assets. In the past, distribution system renewal projects were typically performed on a Region or Zone Basis, such as "Scott Street Pole Replacements"; however, with availability of intricate asset specific dimensional and condition data, FFPC has transitioned to an asset class investment approach based on the results of the asset management and capital planning processes. Using this approach, FFPC limits replacements to the "worst in class" assets and does not replace assets that are in the same "zone" which may still have significant useful life remaining.

For example; FFPC now has an annual capital project (class) entitled "Primary Underground Cable Replacements", which is based on the itemized primary cable runs contained within FFPC's GIS system. For 2014, FFPC's asset management process identified that the primary cable runs "Rainy Crest Nursing Home", "Sixth Street Non-profit Housing Complex A and B" have a high risk of failure and that the impact of failure is high, as all three cable runs supply large housing complexes. Based on GIS dimensional data and asset specific costing tables, FFPC has established a budgeted replacement cost of $16,250.56. The budget amount is based on:

Rainy Crest Nursing Home - 87.12 Meters of 3 Phase UG Service @ $114.90 / Meter = $10,010

Sixth St. Non-Profit Housing A - 34.77 Meters 1 Phase UG Service @ $45.96 / Meter = $1,598

Sixth St. Non-Profit Housing B - 101.01 Meters 1 Phase UG Service @ $45.96 / Meter = $4,642

Total 2014 Budget for "Primary UG Cable Replacements" = $16,250

Cost data is based on the actual average cost of underground cable replacements performed in recent history.

FFPC has taken this approach for all significant asset classes that are populated in the GIS system including: Fully Dressed Wood Poles; OH Line Switches; OH Conductors; OH Transformers; Primary TR XLPE Cables in Duct; Secondary Cables Direct Buried; Single Phase Pad-Mounted Transformers; Three Phase Pad-Mounted Transformers; Trucks & Buckets; Smart Meters; Data Collectors; and Wholesale Energy Meters.

Transformer station assets are made up of a relatively small number of high cost assets such as Power Transformers and Station Metal Clad Switchgear. System renewal investments are typically "lumpy", as they are very periodic in nature and not conducive to being spread over longer periods of time. FFPC has also grouped system renewal transformer station related capital projects by asset class.

5.4.5.1 Overall plan

FFPC developed this DS Plan with a focus on achieving the performance outcomes established for electricity distributors under the Renewed Regulatory Framework for Electricity, in regards to Customer Focus, Operational Effectiveness, Public Policy Responsiveness, and Financial Performance.

5.4.5.1.a. Customer Focus:

FFPC is dedicated to providing services in a manner that responds to customer preferences. During the summer of 2013, FFPC conducted an extensive customer satisfaction survey, which was instrumental in gauging satisfaction, identifying improvement opportunities and assessing future customer needs. The feedback gathered has helped to shape our capital expenditures and to devote operational resources over the planning period, to align service offerings with the needs of our customer base. Customer clearly identified that they:

1. Are overall very satisfied with the reliability of electricity supplied and with the services provided by FFPC.
2. Feel the most important electricity-related issue facing them is the overall cost of electricity.
3. Would like FFPC to have the ability of contacting them directly, regarding important events such as power interruptions.
4. Would like FFPC to transition to true calendar based monthly billing.
5. Would like a choice of receiving paper of electronic bills.
6. Would like access to monthly billing information.
7. Are very interested in learning more about how they can conserve electricity.

In response to the needs and requests identified, FFPC will be transitioning to true monthly billing, offering a choice of electronic or paper billing, as well as granting access to consumption and billing data in 2014. FFPC also plans to invest in a mass customer contact system, as well as in an outage management system. These investments will enable FFPC to improve its ability to manage outages, as well as improve FFPC's ability to communicate directly with customers regarding important events such as outages. With the help of this technology, customer communication will be conducted in an efficient and effective manner. A new "Technical Customer Services Representative" position is also planned to be included in FFPC's organizational structure, to focus on continued customer and stakeholder engagement activities, as well as to support the annual execution of newly developed asset management and capital planning processes. FFPC also plans to utilize the position to conduct customer education campaigns in local schools, at tradeshows, town hall meetings as well as through standard media outlets. As a result of FFPC's customer engagement activities, $58,000 has been dedicated towards capital expenditures to address customer needs, which represents 1.6% of all planned capital expenditures over the 2014 to 2018 planning period. In addition to this, FFPC will be devoting significant staff resources towards the implementation of the above mentioned projects.

5.4.5.1.b. Operational Effectiveness

FFPC has a long history of utilizing technology and employee innovation to improve on its operational efficiency and effectiveness. The newly developed asset management and capital planning processes, which have been built on the foundation of a first class GIS system, are instrumental in enabling FFPC to realize sustainable long term saving through improved asset lifecycle management, long term planning capabilities and data driven decision making. Over the 2014 to 2018 planning horizon, FFPC estimates that it will realize $455,757 is cost savings through its improved asset oversight, enabling good planning. The savings are expected to be achieved without negatively impacting system reliability or quality related objectives. Of the $3,522,205 in total planned capital expenditures, $2,775,966 or 78.8 %, are related to managing the lifecycle of assets. This underscores the importance and value of the newly developed GIS based asset management and capital planning processes. FFPC is also planning to invest an additional $72,500, towards achieving more effective financial oversight of its operation, through the deployment of a Financial Information System. The additional business operational efficiency investments represent 2.1% of the total planned capital expenditures. FFPC believes that its strategy and this DS Plan will deliver value for money, to all of FFPC's customers.

5.4.5.1.c. Public Policy Responsiveness

FFPC is committed to delivering on its mandated service obligations. At the time of preparing this DS Plan, the following mandated service obligations significantly impacted the plan: the Elimination of Long Term Load Transfers by June 30th, 2014; to support the Connection of Renewable Generation; to facilitate the implementation of a Smart Grid; and to achieve the mandated CDM Targets through the delivery of CDM Programs.

FFPC has dedicated $371,739 towards the mandated elimination of Long Term Load Transfer arrangements through expansion of its distribution feeders. The expansions will resolve the long standing issue and will actually improve FFPC's ability to accommodate large scale Renewable Generation Facilities, unlock access to approximately 25% of FFPC's undeveloped distribution service territory, promote the overall economic well being of the community by encouraging growth, as well as enable the benefits of the 1905 Historic Power Agreement to be distributed to the LTLT customers.

Over the last few years, FFPC conducted a system wide analysis to assess the capability of connecting renewable generation onto its distribution feeders, as well as directly to its greater than 50 kV transformer station. Practical constraints were identified that greatly limit the overall generation capacity that FFPC's distribution system can accommodate. FFPC has developed a seven year plan towards the implementation of Renewable Enabling Improvements, that will increase the potential renewable generation capacity from 1.3 MW to 10.8 MW. All renewable enabling improvements are towards controls and protections upgrade at FFPC's greater than 50 kV transformer station "Fort Frances MTS". The station upgrades will also allow for individual feeder performance monitoring, from which operating constraints are set. Constraints are currently set to error on the side of caution as no feeder monitoring is in place. The OPA has confirmed that FFPC's plan is aligned with regional needs developments. FFPC has planned $229,673 in renewable enabling improvements, of which $167,000

(4.7% of total capital expenditures) is planned over the 2014 to 2018 planning period. FFPC has previously incurred $62,673 throughout 2012 and 2013 in renewable enabling improvement expenditures, for which it will also be seeking recovery.

FFPC currently does not have any planned investments specific to only achieving Smart Grid objectives; however, other planned investments such as the Renewable Generation Enabling Improvements achieve many of Smart Grid objectives. The proposed transformer station improvements will support Smart Grid objectives under the Power System Flexibility, Customer Control and Adaptive Infrastructure categories. The improvements will also allow for the sharing of information with regional stakeholders.

5.4.5.1.d. Financial Performance

FFPC operates under a rate minimization philosophy with the objective of balancing investment needs, with providing customers with a safe and reliable supply of electricity at the lowest possible rates. FFPC has taken a "just-in-time" asset replacement approach, under which assets will be replaced on a proactive manner as they approach their high probability of failure zone in their lifecycle, as established by FFPC's asset management and capital planning processes. FFPC's strategy is to pace investments according to the rate at which its asset base is deteriorating, so as to maintain long term perpetual viability. This ensures that the asset base as a whole is not driven to failure (end-of-life), at which time enormous reinvestment would be required. The DS Plan has been built on this premise, and as such the investments contained within it are essential to maintain FFPC's long term viability. FFPC's asset management and capital planning processes are instrumental in ensuring that savings from operational effectiveness are sustainable. FFPC has a good track record of wise spending, and has kept its cost base to a bare minimum in the interest of ratepayers. Over the period 2006 to 2012 (2005 is base year), the average annual percentage OM&A increase of the electrical distribution industry in Ontario that was required to meet changing business demands was 29.7% (based on OEB Yearbooks). Over this period, FFPC's average annual percentage OM&A increase was 21.9%. If FFPC would have kept pace with OM&A expenditures relative to the demands of industry, FFPC's customer would have incurred $581,303 in additional expense. The savings are largely attributed to FFPC's approach of adjusting its business needs on a reactive basis, upon the numerous industry changes that occurred between 2005 and 2012 reaching their "steady state". FFPC credits its staff and service providers for enduring significantly intensified short term workloads, which were necessary to implement the multitude of sector changes. The current level of effort exerted by FFPC's staff is not sustainable, and as such FFPC is realigning its revenue requirement to fund additional resources (the addition of a Technical Customer Service Representative to staff, as well as more necessary services from third party service providers including Human Resources, Legal and IT expertise). To help offset funding additional resources, FFPC is projecting to realize $455,757 in sustainable cost savings over the 2014 to 2018 planning period, without negatively impacting the reliability or efficiency of its distribution system. The savings are attributed to the implementation of the newly developed asset management and capital planning processes. The processes have given FFPC improved oversight of its entire asset base managed, at the individual asset level, thereby enabling precise data driven decision making and long range planning. Improved decision making will result in optimizing investment needs to support the right investments at the right time.

5.4.5.1.e. FFPC 2014 to 2018 Capital Project Summary

FFPC has devised a new numbering and grouping system for its capital projects, to reflect the multiyear nature of many material projects. The naming convention is “XX-YY-ZZZ” where “XX” denotes the last two digits of the project start year, “YY” denotes that last two digits of the project end year, and “ZZZ” denotes the sequential progression of unique projects, beginning at 001. Each project number is referred to as a “Parent ID”, under which various logical activities may occur. The activities are broken down by the asset class into which expenditures are recorded under. All unique capital projects that exceed FFPC’s materiality threshold of $50K are assigned a “Parent ID”, and small capital projects that do not exceed the materiality threshold are grouped into a “Miscellaneous Small Capital Projects” by year, which is also assigned a “Parent ID”.

5.4.5.2 Material Investments

FFPC’s materiality threshold for is $50,000.

5.4.5.2.a. Capital Project Summary by Parent ID

The following table summarizes all planned capital expenditures by Project Parent ID:

Project Parent ID	Capital Project Name	2014	2015	2016	2017	2018	2014 - 2018 Total
14-18-001	Fully Dressed Wood Pole Replacement Program	$129,928	$129,928	$129,928	$129,928	$129,928	$649,638
14-18-002	Overhead & Pad-Mounted Transformer Replacement Program	$95,648	$240,576	$184,080	$309,379	$177,858	$1,007,541
14-18-003	Primary UG Cable Replacement and Rejuvenation Program	$16,251	$36,609	$6,573	$79,915	$41,189	$180,537
14-18-004	Over 50 kV Transformer Station - Renewable Enabling Improvements	$50,000	$40,000	$20,000	$45,000	$12,000	$167,000
14-18-005	Fleet Vehicle Replacement Program	$50,000	$38,000	$40,000	$0	$275,000	$403,000
14-14-006	Elimination of Long Term Load Transfers	$371,739	$0	$0	$0	$0	$371,739
14-14-007	2014 Misc. Small Capital Project	$106,750	$0	$0	$0	$0	$106,750
15-15-008	Transformer Station - Power Transformer Fire Barrier	$0	$62,000	$0	$0	$0	$62,000
15-15-009	2015 Misc. Small Capital Project	$0	$89,250	$0	$0	$0	$89,250
15-16-010	Financial Information System Integration	$0	$40,000	$20,000	$0	$0	$60,000
16-16-011	Transformer Station - Independent Breaker Replacement	$0	$0	$150,000	$0	$0	$150,000
16-16-012	2016 Misc. Small Capital Project	$0	$0	$109,750	$0	$0	$109,750
17-17-013	2017 Misc. Small Capital Project	$0	$0	$0	$102,750	$0	$102,750
18-18-014	2018 Misc. Small Capital Project	$0	$0	$0	$0	$62,250	$62,250
Total	**Total Projected Annual Capital Budget**	**$820,316**	**$676,363**	**$660,331**	**$666,971**	**$698,224**	**$3,522,205**

5.4.5.2.a.i. 14-18-001 (System Renewal): Fully Dressed Wood Poles Replacement Program

Investment Category: System Renewal		**Project Start Date:** Jan.1, 2014
Project Title: Fully Dressed Wood Poles Replacement Program		**Project End Date:** Dec. 31, 2018
Asset Category(s): Fully Dressed Wood Pole		**Project Driver(s)**: End-of-Life, Risk of Failure & Failure
USoA Account: 1830 - Poles, Tower & Fixtures	**Tot. 2014-2018 Cap. Cost:** $649,638 **Tot. 2014-2018 O&M Cost:** $0	**Ave Annual Cap. Cost:** $129,928

A. General information on the Project/Activity

FFPC's asset management process annually identifies wood poles that are at the end of their useful service life based on an age, inspection and condition testing analysis. The process targets individual poles that have a high risk of failure as opposed to conventional approaches that target all poles within a region or zone, such as a block or street. FFPC's asset management process has identified, and will continue to identify, poles that are reaching or have reached the end of their useful service life over the 2014 to 2018 planning horizon. The pace at which wood poles reach their end of useful service life is a function of their deterioration based largely on age and operating conditions that they are subjected to. FFPC will annually select the worst thirty (30) primary poles and twelve (12) secondary poles that are most likely to fail due to deterioration. One additional primary pole and secondary pole replacement have also been allocated annually, for unplanned circumstances which may arise due to sudden failures caused by external influences such as motor vehicles, (snow ploughs / tractor trailer hit and runs) or pole fires. Deteriorated wood poles pose a serious threat to customer and employee safety, as well as they undermine distribution system reliability and structural integrity. The planned number of replacements is closely aligned with the optimum annual replacement rate of 40 poles per year, which assumes an evenly distributed population based on a Typical Useful Service Life of forty-five (45) years. Over the last five years, FFPC's annual pole condition testing identified an average of 42.4 poles per year that were deemed to have reached or exceeded the end of their useful service life. Premature failures have also occurred frequently over the course of history due to manufacturing flaws in the wood treatment process. As such, FFPC is experiencing slightly higher than anticipated levels of condition test failures. Poles that are being installed on a go forward basis are expected to last forty-five years. This investment is viewed as a core business reinvestment and as such is treated as non-discretionary. The following table summarizes the planned activities, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	System Renewal	14-18-001	Primary Poles Replacements	$100,460		Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2014	System Renewal	14-18-001	Secondary Pole Replacements	$24,110		Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2014	System Renewal	14-18-001	Unplanned Poles Replacements	$5,358		Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
2015	System Renewal	14-18-001	Primary Poles Replacements	$100,460		Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2015	System Renewal	14-18-001	Secondary Pole Replacements	$24,110		Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2015	System Renewal	14-18-001	Unplanned Poles Replacements	$5,358		Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
2016	System Renewal	14-18-001	Primary Poles Replacements	$100,460		Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2016	System Renewal	14-18-001	Secondary Pole Replacements	$24,110		Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2016	System Renewal	14-18-001	Unplanned Poles Replacements	$5,358		Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
2017	System Renewal	14-18-001	Primary Poles Replacements	$100,460		Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2017	System Renewal	14-18-001	Secondary Pole Replacements	$24,110		Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2017	System Renewal	14-18-001	Unplanned Poles Replacements	$5,358		Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles
2018	System Renewal	14-18-001	Primary Poles Replacements	$100,460		Replacement of end-of-life primary poles as determined by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2018	System Renewal	14-18-001	Secondary Pole Replacements	$24,110		Replacement of end-of-life secondary wood poles as identified by asset management process.	1830	EOL - Failure Risk	1 - Fully Dressed Wood Poles
2018	System Renewal	14-18-001	Unplanned Poles Replacements	$5,358		Unplanned pole replacements from sudden failure caused by external influence	1830	EOL - Failure	1 - Fully Dressed Wood Poles

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

FFPC's newly developed asset management process by nature targets individual poles that are most likely to fail (Step 4). As such, poles are not changed simply because they are in a zone that is being rebuilt due to many assets within the zone coming to the end of their useful service life. FFPC is able to travel to any point along its distribution system within a short time frame, which is conducive to selectively targeting replacements. This approach is also very efficient as it targets the weakest links throughout FFPC's entire service territory, thereby strengthening the integrity of the distribution system as a whole. In reality, a system is only as strong as its weakest link. FFPC's strategy is also to replace End-of-Life poles under planned and coordinated conditions, as opposed to under emergency or afterhours conditions, which add unnecessary risk and expense. Capital reinvestments into wood poles are essential to sustain FFPC's ability to safely, efficiently, reliably and cost-effectively distribute electricity to its customers. When wood poles are replaced, pole hardware inspections are performed on major components to assess whether or not they are suitable for reuse. Typically hardware such as metal stand-off brackets are suitable for reuse, as they are expected to outlast two lifecycles of the wood poles to which they are affixed.

2. Safety

This investment will eliminate potential safety hazards to both the general public and FFPC employees. The replacements will also reduce the likelihood of sustaining storm related damage, which often pose safety hazards to the general public and employees.

3. Cyber-security, Privacy

Not Applicable

4. Co-ordination, Interoperability

FFPC constructs its wood pole framing according to USF Construction Standards, which are commonly used amongst LDC's throughout Ontario. Approximately two-thirds of all distributors construct their plant to USF Standards. When replacing poles, FFPC is also mindful of the future needs of other stakeholders including Third Party Attachers.

5. Economic Development

Essentially all material will be purchased through local or regional suppliers, who utilize many Ontario manufacturers. FFPC's labour force and fleet vehicles will be utilized to complete the replacements. Additional support services as required will be supplied by local service providers, such as vacuum excavation or trenching. This project will benefit both the local and provincial economy.

6. Environmental Benefits

FFPC is committed to conducting its business in an environmentally responsible manner. This project will reduce the overall risk of environmental incidents occurring as a direct result of wood pole failures. FFPC's reuse of pole line hardware practices also minimize the amount of waste that is generated.

C. Category-specific requirements for each project/activity

System Renewal: FFPC's Fully Dressed Wood Pole replacement project is categorized as System Renewal. Over the course of history FFPC has reinvested into wood pole replacements at a fairly uniform annual rate, and as such, the age profile is relatively evenly distributed. FFPC has adopted the expectation that wood poles will achieve a useful service life of forty-five years as per the TUL values established in the "Kinectrics Report". This is an aggressive target, as wood poles are subjected to the harsh climate of Northern Ontario which accelerates deterioration. As previously mentioned, FFPC has also experienced premature pole failures due to improper manufacturing treatment processes, which have resulted in elevated replacement rates. Catastrophic pole failures have a high probability of impacting a significant number of customers in all classes, as they have the potential of disrupting the service of entire feeder sections. Maintaining the structural integrity of wood poles is also crucial to support public and employee safety, as well as the overall reliability of the distributions system. Wood poles fail when the mechanical stress they are subjected to is greater than their structural integrity, which are often put to the test during events of extreme weather. Failures often occur during storms or under extreme weather conditions such as high winds or snow loads. The probability of suffering storm damage and associated interruptions from high winds are greatly reduced as the weakest links conducive to failure are eliminated.

This investment will therefore support maintaining current distribution system performance levels, ensuring that they will continue to meet or exceed regulatory requirements and customer expectations. Furthermore, this investment will benefit all customers across all rate classes. The quantity and selection summary of pole replacements is based on FFPC's asset management process which revealed the following relative to 2014:

Fully Dressed Wood Poles Profile		Fully Dressed Wood Poles Lifecycle Budget Analysis	
1776	Quantity	41.4	10 Year Historic Replacement/Installation Rate (Units/Year)
45	UL (Adopted)	220	Quantity Reaching Adjusted End of Life Over Forecast Period
21.8	Average Age of Population	$649,638	Total Capital Replacement Cost over Forecast Period
39.47	Ideal Equalized Annual Replacement Rate (Units/Yr)	$30,000	Total Capital Refurbishment Cost over Forecast Period
48.4%	% UL Consumed	44.00	Average Replacements Per Year
59.5%	2019 % UL Consumed with no Reinvestment	$135,928	Average Annual Cost Per Year
		$130,017	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$649,638	2014 - 2018 Total Allocated Capital Replacement Amount
		$30,000	2014 - 2018 Total Allocated Capital Refurbishment Amount

Replacement costs are based on current costs and are not adjusted to reflect inflation. FFPC's estimated replacement cost is $3,348 for primary poles and $2,009 for secondary poles. FFPC has budgeted the following over the forecast period:

Budget Year	Primary Poles	Secondary Poles	Unplanned Quantity	Annual Replacement Cost
2014	30	12	2	$ 129,928
2015	30	12	2	$ 129,928
2016	30	12	2	$ 129,928
2017	30	12	2	$ 129,928
2018	30	12	2	$ 129,928

5.4.5.2.a.ii. 14-18-002 (System Renewal): Overhead & Pad-Mounted Transformer Replacement Program

Investment Category: System Renewal		**Project Start Date:** Jan.1, 2014
Project Title: Overhead & Pad-Mounted Transformer Replacement Program		**Project End Date:** Dec. 31, 2018
Asset Category(s): OH & UG Transformers		**Project Driver(s)**: End-of-Life
USoA Account: 1850 - Line Transformers	**Tot. 2014 - 2018 Cap. Cost:** $1,007,541 **Tot. 2014 - 2018 O&MA Costs:** $0	**Ave Annual Cap. Cost:** $201,508.20

A. General information on the Project/Activity

FFPC's asset management process has identified overhead and pad-mounted transformers that will be at the end of their useful service life based on risk analysis utilizing age, inspection and available condition test results, over the 2014 to 2018 planning period. The process targets individual transformers that have a high risk of failure and prioritizes replacements based the impact of failure. The age distribution of overhead transformers is not evenly distributed, as the bulk of all overhead transformers were installed during a ten-year distribution system rebuild and voltage conversion window. FFPC's newly developed asset management process has identified that one-hundred-sixteen (116) overhead, and twenty-one (21) pad-mounted transformers will either reach or surpass their UL value of forty five (40) years, as established in the "Kinectrics Report", over the 2014 to 2018 planning period. This number represents approximately 18% of all transformers owned. FFPC is facing somewhat of a "tidal wave" affect, as essentially half of its overhead transformer fleet will either reach or surpass a forty (40) year UL over the next ten (10) years. As such, FFPC is predicting a large increase in failures and is planning on intensifying its capital replacement program. FFPC's most recent equipment failure analysis identified that transformer failures are the number cause of customer interruptions related to equipment failure. Over the next five (5) years, more transformers will reach their UL than have been purchased over the last twenty (20) years. The replacement strategy is to begin replacing high risk transformers with significant impact of failure, and to attempt to smooth the asset population by utilizing FFPC's asset management process. It is also important to note that an additional 250 transformers will reach their UL over the next five year planning period of 2019 to 2023. This underscores the importance that the transformer replacement program be significantly intensified, as per the outputs of the asset management process. FFPC is currently working on developing a tool to analyze transformer loading across its entire asset base, which will further enhance prioritizing replacements. This investment is viewed as a core business reinvestment and as such is treated as non-discretionary. The following table summarizes the planned activities, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	System Renewal	14-18-002	1 Phase Pad Mounted Tx	$11,036		Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2014	System Renewal	14-18-002	3 Phase Pad Mounted Tx	$25,106		Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2014	System Renewal	14-18-002	Pole Mounted Tx	$47,546		Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
2014	System Renewal	14-18-002	Pole Mounted Tx Spares	$11,960		Replace end-of-life critical spare transformers	1850	EOL - Failure	9 - OH Transformers
2015	System Renewal	14-18-002	1 Phase Pad Mounted Tx	$135,682		Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2015	System Renewal	14-18-002	Pole Mounted Tx	$72,234		Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
2015	System Renewal	14-18-002	Pole Mounted Tx Spares	$32,660		Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
2016	System Renewal	14-18-002	1 Phase Pad Mounted Tx	$49,680		Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2016	System Renewal	14-18-002	3 Phase Pad Mounted Tx	$66,319		Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2016	System Renewal	14-18-002	Pole Mounted Tx	$37,031		Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
2016	System Renewal	14-18-002	Pole Mounted Tx Spares	$31,050		Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
2017	System Renewal	14-18-002	1 Phase Pad Mounted Tx	$123,932		Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2017	System Renewal	14-18-002	3 Phase Pad Mounted Tx	$40,213		Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2017	System Renewal	14-18-002	Pole Mounted Tx	$118,209		Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
2017	System Renewal	14-18-002	Pad Mounted Tx Spares	$15,525		Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2017	System Renewal	14-18-002	Pole Mounted Tx Spares	$11,500		Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers
2018	System Renewal	14-18-002	1 Phase Pad Mounted Tx	$48,430		Replace end-of-life pad mounted transformers	1850	EOL - Failure Risk	34 - Pad-Mounted Transformers
2018	System Renewal	14-18-002	Pole Mounted Tx	$115,053		Replace end-of-life pole mounted transformers	1850	EOL - Failure Risk	9 - OH Transformers
2018	System Renewal	14-18-002	Pole Mounted Tx Spares	$14,375		Replace end-of-life critical spare transformers	1850	EOL - Failure Risk	9 - OH Transformers

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

The main trigger for this project is assets reaching the end of their useful service life posing a high risk of failure. FFPC's most recent equipment failure analysis identified that transformer failures are the number cause of customer interruptions related to equipment failure. FFPC's asset management process by nature targets individual transformers that are most likely to fail (Step 4). As such, transformers are not changed simply because they are in a zone that is being rebuilt due to many assets within a zone coming to the end of their useful service life. FFPC is able to travel to any point along its distribution system within a short time frame, which is a key factor to this strategy. This approach is very efficient as it targets the weakest links throughout FFPC's entire service territory, thereby strengthening the integrity of the distribution system as a whole. FFPC's strategy is also to replace transformers under planned and coordinated conditions, as opposed to under emergency or afterhours conditions, which add unnecessary risk and expense. Capital reinvestments into transformers are essential to sustain FFPC's ability to safely, efficiently, reliably and cost-effectively distribute electricity to its customers. FFPC has aligned the lifecycles of pad-mounted transformer foundations, such that the foundations are changed at an eighty (80) year interval that corresponds to two forty (40) year lifecycles of pad-mounted transformers. As such, FFPC is not planning on replacing any underground foundations during the planning period, as it is not necessary. This has significantly reduced the replacement cost of pad-mounted transformers, as well as it will minimize customer interruptions.

2. Safety

This investment will eliminate potential safety hazards to both the general public and FFPC employees.

3. Cyber-security, Privacy

Not Applicable

4. Co-ordination, Interoperability

FFPC constructs its transformer settings according to USF Construction Standards, which are commonly used amongst LDC's throughout Ontario. FFPC offers its customers standard voltage offerings that have allowed FFPC to also standardize its transformer fleet.

5. Economic Development

Essentially all material will be purchased from Ontario manufacturers through local or regional suppliers. FFPC's labour force and fleet vehicles will be utilized to complete the project. Additional support services will be supplied by local service providers, such as vacuum excavations and trenching. This project will benefit both the local and provincial economy.

6. **Environmental Benefits**

FFPC is committed to conducting its business in an environmentally responsible manner. This project will reduce the overall risk of possible environmental incidents associated with transformer failures.

C. Category-specific requirements for each project/activity

System Renewal: FFPC's Overhead and Pad-Mounted Transformer Replacement project is categorized as System Renewal. Due to the relatively narrow window during which FFPC's entire distribution system rebuild and voltage conversion occurred, the age distribution of transformers is not evenly distributed but heavily skewed. FFPC has adopted that transformers will achieve a useful service life of forty years, as per the TUL values established in the "Kinectrics Report". The newly developed asset management process has identified that a disproportionately large percentage (46%) of all transformers will reach or surpass their UL over the next ten years. The evaluation has given FFPC the foresight to intensify its transformer replacement program beginning in 2014, to control projected failure rates, as well as to smooth capital expenditures necessary to replace the assets. As previously mentioned, transformer foundations have been assigned an eighty (80) year lifecycle and as such, FFPC's asset management plan has not identified any necessary replacements over the planning horizon. Planned replacements are prioritized by risk of failure and the associated impact of failure. For example, the regional La Verendrye Hospital is serviced by a transformer that will be at the end of its useful life in 2014, and given the high impact of failure it is planned for replacement in 2014. FFPC is currently developing transformer loading profiles based on its GIS system and the smart meter data available from the AMI system. This asset management system process improvement will assist in assessing risk of failure, from which AEOL projections are derived. The quantity and selection summary of transformer replacements is based on FFPC's asset management process, which revealed the following relative to 2014:

Pole Mounted Transformers Profile		Pole Mounted Transformers Lifecycle Budget Analysis	
629	Quantity	1.8	10 Year Historic Replacement/Installation Rate (Units/Year)
40	UL (Adopted)	116	Quantity Reaching Adjusted End of Life Over Forecast Period
28.8	Average Age of Population	$491,617	Total Capital Replacement Cost over Forecast Period
15.73	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
72.0%	% UL Consumed	23.20	Average Replacements Per Year
84.5%	2019 % UL Consumed with no Reinvestment	$98,323	Average Annual Cost Per Year
		$68,782	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$491,617	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

Single Phase Pad Mounted Transformers Profile		Single Phase Pad Mounted Transformers Lifecycle Budget Analysis	
215	Quantity	0.8	10 Year Historic Replacement/Installation Rate (Units/Year)
40	UL (Adopted)	35	Quantity Reaching Adjusted End of Life Over Forecast Period
27.7	Average Age of Population	$368,761	Total Capital Replacement Cost over Forecast Period
5.38	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
69.3%	% UL Consumed	7.00	Average Replacements Per Year
81.8%	2019 % UL Consumed with no Reinvestment	$73,752	Average Annual Cost Per Year
		$55,474	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$368,761	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

Three Phase Pad Mounted Transformers Profile		Three Phase Pad Mounted Transformers Lifecycle Budget Analysis	
38	Quantity	1.3	10 Year Historic Replacement/Installation Rate (Units/Year)
40	UL (Adopted)	7	Quantity Reaching Adjusted End of Life Over Forecast Period
20.1	Average Age of Population	$147,163	Total Capital Replacement Cost over Forecast Period
0.95	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
50.1%	% UL Consumed	1.40	Average Replacements Per Year
62.6%	2019 % UL Consumed with no Reinvestment	$29,433	Average Annual Cost Per Year
		$20,201	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$147,163	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

It is important to note that FFPC's long range objective is to smooth the age distribution of asset categories to a target of 50% UL Consumed. As per the above tables, it is important to note that the Pole and Single Phase Pad-Mounted Transformer populations only have 28.0% and 30.7% of useful life remaining.

FFPC Replacement costs are based on current costs and are not adjusted to reflect inflation. FFPC's estimated replacement costs are based on the following tables:

Single Phase Pad-Mounted Transformer Replacement Cost	
Tx KVA	Total Cost
15	$ 9,036
25	$ 9,536
37	$ 9,786
50	$ 10,036
75	$ 11,036
100	$ 11,536
150	$ 14,536
167	$ 15,536
333	$ 17,536

Three Phase Pad-Mounted Transformer Replacement Cost	
Tx KVA	Total Cost
112	$ 21,106
150	$ 21,606
225	$ 22,106
300	$ 22,606
350	$ 23,106
500	$ 25,106

Single Phase Pole Mounted Transformer Replacement Cost	
Tx KVA	Total Cost
5	$ 2,815
10	$ 3,015
15	$ 3,215
25	$ 3,415
37	$ 3,915
50	$ 4,415
75	$ 5,915
100	$ 6,415
167	$ 10,415

FFPC has budgeted replacements based on the following asset counts:

Budget Year	Pole Mounted Transformers	Pole Mounted Transformer Replacement Cost	1 Phase Pad-Mounted Transformers	1 Phase Pad-Mounted Transformer Replacement Cost	3 Phase Pad-Mounted Transformers	3 Phase Pad-Mounted Transformer Replacement Cost	Total Quantity	Total Cost
2014	13	$59,506	1	$11,036	1	$25,106	15	$95,648
2015	24	$104,893	12	$135,682	0	$0	36	$240,575
2016	12	$68,081	5	$49,680	3	$66,318	20	$184,080
2017	31	$129,708	12	$123,932	3	$55,737	46	$309,378
2018	36	$129,427	5	$48,430	0	$0	41	$177,857
Total	116	$491,617	35	$368,760	7	$147,162	158	$1,007,541

5.4.5.2.a.iii. 14-18-003 (System Renewal): Primary UG Cable Replacement and Rejuvenation Program

Investment Category: System Renewal		**Project Start Date:** Jan.1, 2014
Project Title: Primary UG Cable Replacement and Rejuvenation Program		**Project End Date:** Dec. 31, 2018
Asset Category(s): Primary TR XLPE Cables in Duct		**Project Driver(s)**: End-of-Life, Risk of Failure
USoA Account: 1845 - UG Conductor and Devices	**Tot. 2014 - 2018 Cap. Cost:** \$180,537 **Tot. 2014 - 2018 O&MA Costs:** \$0	**Ave Annual Cap. Cost:** \$36,107

A. General information on the Project/Activity

FFPC's asset management process annually identifies primary underground TR XLPE cable runs that are at the end of their useful service life based on an age, inspection and condition testing analysis. The process targets individual cable runs that have a high risk of failure. The pace at which the conductors reach the end of their useful service life is a function of their age, physical environment and operating conditions, such as electrical loading. As a direct result of FFPC's entire distribution system being rebuilt over a short period of time, followed by an economic boom, a large portion of underground primary conductors are of the same vintage. As such, FFPC faces an increasing volume of cables that are reaching the end of their useful service life. Due to the extremely cold and long winters, primary underground cables can practically only be replaced from the end of May to the end of October, which is roughly during half of the calendar year. As such, FFPC's strategy has been to replace primary underground cables on a proactive basis, when they have a high probability of failure. Cable replacements are prioritized based on their impact of failure. FFPC is also planning on trialing silicone injection cable rejuvenation on its longer cable runs that are housed in concrete encased ducts. If FFPC is able to extend their life by approximately 20 years through silicone injection, the projected end of life would coincide with the end of life of the greater than 50 kV transformer station in 2034, at which time the cable runs will become obsolete. The following table summarizes the planned activities, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	System Renewal	14-18-003	Non-Profit Housing - 400 Blk Sixth St W - S118A To AT15	$4,642		Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2014	System Renewal	14-18-003	Sixth St Non-Profit Housing	$1,598		Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2014	System Renewal	14-18-003	Rainy Crest	$10,010		Replace end-of-life primary underground cables to nursing home.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2015	System Renewal	14-18-003	1557 Colonization Rd W U/G	$8,609		Replace end-of-life primary underground cable servicing residential area	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2015	System Renewal	14-18-003	UG Feeder Cable Condition Testing & Rejuvenation Pilot	$28,000		Rejuvenate end-of-life primary underground feeder cables - pilot silicone injection technology project.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2016	System Renewal	14-18-003	Westfort Apartments	$2,457		Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2016	System Renewal	14-18-003	Green Manor Apartments	$2,542		Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2016	System Renewal	14-18-003	Rose Manor Apartments	$1,574		Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2017	System Renewal	14-18-003	Rainbow Motel	$917		Replace end-of-life primary underground cables to multi-residential business complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2017	System Renewal	14-18-003	Armstrong Apartments	$659		Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2017	System Renewal	14-18-003	Shevlin Towers West	$1,667		Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2017	System Renewal	14-18-003	Shevlin Towers East	$1,672		Replace end-of-life primary underground cables to multi-residential building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2017	System Renewal	14-18-003	Feeder UG Cable Refurbishment Phase 1	$75,000		Rejuvenate end-of-life primary underground feeder cables. Attempt to sustain cables until Transformer Station as whole is at its end-of-life in 2034, at which time cables become obsolete.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2018	System Renewal	14-18-003	Strachan Place - from switch S22-B	$9,874		Replace end-of-life primary underground cables in multi-residential area.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2018	System Renewal	14-18-003	Riverview Cemetery	$5,741		Replace end-of-life primary underground cables to public municipal building complex.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2018	System Renewal	14-18-003	CIBC	$575		Replace end-of-life primary underground cables to priority business customer.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct
2018	System Renewal	14-18-003	Feeder UG Cable Refurbishment Phase 2	$25,000		Rejuvenate end-of-life primary underground feeder cables. Attempt to sustain cables until Transformer Station as whole is at its end-of-life in 2034, at which time cables become obsolete.	1845	EOL - Failure Risk	29 - Primary TR XLPE Cables in Duct

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

The main trigger of this project and its activities is assets reaching the end of their useful service life, posing a high risk of failure. FFPC's asset management process by nature targets individual assets (cable runs) that are most likely to fail (Step 4). As such, cables are not changed simply because they are in a zone that is being rebuilt due to many assets within a zone coming to the end of their useful service life. The lifecycles of underground cable ducts have been adjusted to align with two lifecycles of the cables that they house. As such, underground ducts are planned for replacements every 80 years. As previously mentioned, FFPC is planning on trialing silicone injection technology on larger conductor runs which are concrete encased, to extend their service life until 2034 at which time the cables will become obsolete. The planned cable replacements and rejuvenations are not expected to require underground ducting to be replaced, and as such the cost of the replacement is kept to a minimum. This project will benefit the overall reliability of the distribution system at the feeder level, as many of the cable runs are utilized to connect distribution feeders to the distribution station. As such, the investment will be of benefit to all customers, and is deemed non-discretionary as it underpins overall distribution system reliability and performance.

2. Safety

Not applicable.

3. Cyber-security, Privacy

Not Applicable

4. Co-ordination, Interoperability

Not Applicable.

5. Economic Development

Essentially all material will be sourced through local or regional suppliers. FFPC's labour force and fleet vehicles will be utilized to complete the project. This project will benefit both the local and provincial economy.

6. Environmental Benefits

FFPC is committed to conducting its business in an environmentally responsible manner. This project will reduce the overall risk of environmental incidents occurring as a direct result of underground cable failures.

C. Category-specific requirements for each project/activity

System Renewal: FFPC's Primary UG Cable Replacement and Rejuvenation project is categorized as System Renewal. Due to the relatively narrow window during which FFPC's entire distribution system rebuild and voltage conversion occurred, followed by an economic boom, the age distribution of the cables is not evenly distributed but heavily skewed. FFPC has adopted that underground Primary TR XLPE Cables in Duct will achieve a useful service life of forty years, as per the TUL values established in the "Kinectrics Report". The newly developed asset management process has identified that a disproportionately large percentage (73.5%) of all underground primary conductor runs will reach or surpass their UL over the next twenty years. The evaluation has given FFPC the foresight to intensify its replacement and refurbishing program beginning in 2014, to control projected failure rates, as well as to smooth capital expenditures necessary to replace the assets. Planned replacements are prioritized by risk of failure and the associated impact of failure. FFPC is currently developing transformer loading profiles based on its GIS system and smart meter data available from the AMI system. The transformer loading profiles can be utilized to indicate conductor loading as well. This asset management system process improvement will assist in assessing risk of failure, from which AEOL projections are derived. The quantity and selection summary of cable replacements is based on FFPC's asset management process, which revealed the following relative to 2014:

Total Cable Length of U/G Primary TR XLPE Cables In Duct Profile		**Total Cable Length UG Primary TR XLPE Budget Analysis**	
30724	Quantity (Meters)	412	10 Year Historic Replacement/Installation Rate (Units/Year)
40	UL (Adopted)	8750	Quantity Reaching Adjusted End of Life Over Forecast Period
27.1	Average Age of Population	$294,020	Total Capital Replacement Cost over Forecast Period
768.10	Ideal Equalized Annual Replacement Rate (Meters/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
67.7%	% UL Consumed	1750.06	Average Replacements Per Year
80.2%	2019 % UL Consumed with no Reinvestment	$58,804	Average Annual Cost Per Year
		$23,292	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$80,537	2014 - 2018 Total Allocated Capital Replacement Amount
		$100,000	2014 - 2018 Total Allocated Capital Refurbishment Amount

5.4.5.2.a.iv. 14-18-004 (System Access): Over 50 kV Transformer Station - Renewable Enabling Improvements

<table>
<tr><td colspan="2">Investment Category: System Access</td><td>Project Start Date: Jan.1, 2014</td></tr>
<tr><td colspan="2">Project Title: Over 50 kV Transformer Station - Renewable Enabling Improvements</td><td>Project End Date: Dec. 31, 2018</td></tr>
<tr><td colspan="2">Asset Category(s): Digital & Numeric Relays, Remote SCADA, Communication</td><td>Project Driver(s): Mandated Service Obligations,</td></tr>
<tr><td>USoA Account: 1531 - Renewable Connection Capital Deferral Account</td><td>Tot. 2014 - 2018 Cap. Cost: $167,000
Tot. 2014 - 2018 O&MA Costs: $15,700</td><td>Ave Annual Cap. Cost: $33,400</td></tr>
</table>

A. General information on the Project/Activity

FFPC is planning to modernize the 1970's protection and control system of its greater than 50 kV Transformer Station "Fort Frances MTS". FFPC's most notable limitations towards accommodating renewable generation are the lack of insight into individual feeder loading from which generation connection constraints are established, as well as the inability to accommodate reverse power flows at any level at the station. The final objective of this multiyear project will be for the transformer station to be able to accommodate reverse power flow, as well as the deployment of a fully operational Remote SCADA system. The improvements will allow FFPC to monitor the performance of core station components, as well as of individual feeders, which will support several Smart Grid Mandate objectives. The improved protection and station oversight will also significantly increase the connection capacity for renewable generation. It is important to note that FFPC is also seeking the recovery of two prior year capital investments, totaling $62,673, for the completion of phases one and two of the conversion project. The following table summarizes the planned activities, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group:

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	System Access	14-18-004	Transformer T1 Protection	$25,000	$2,500	REG Investment - Transformer Station power transformer T1 control and relaying upgrade.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays
2014	System Access	14-18-004	Transformer T2 Protection	$25,000	$2,500	REG Investment - Transformer Station power transformer T2 control and relaying upgrade.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays
2015	System Access	14-18-004	Station Data Acquisition System	$20,000	$2,000	REG Investment - install data acquisition system to connect to station IED's (intelligent electronic devices).	1531	Mandated Service Obligations	43 - Remote SCADA
2015	System Access	14-18-004	Station Communication Network Installation	$20,000	$2,000	REG Investment - Install local area network at TS to enable connection of IED's and access to operating data.	1531	Mandated Service Obligations	G8 - Communication
2016	System Access	14-18-004	Station OCB Protection	$20,000	$2,000	REG Investment - Upgrade station independent breaker controls and protection.	1531	Mandated Service Obligations	21 - Digital & Numeric Relays
2017	System Access	14-18-004	Station Supervisory Control	$45,000	$3,500	REG Investment - Install station controller and commission station supervisory control (monitor operating conditions and perform appropriate control actions currently performed manually).	1531	Mandated Service Obligations	43 - Remote SCADA
2018	System Access	14-18-004	Station DC System Monitoring & Remote Annunciation	$12,000	$1,200	REG Investment - Install supervisory control over auxiliary station components including DC systems.	1531	Mandated Service Obligations	43 - Remote SCADA

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

The planned investments are triggered by the mandate to facilitate the connection of renewable generation. Secondary drivers include the accomplishment of many Smart Grid Mandate objectives under the Customer Control, Power System Flexibility and Adaptive Infrastructure categories. This investment will satisfy priorities 2 and 3 of FFPC's capital Investment Priorities which are: ensuring compliance to regulatory and legal obligations; and meeting the needs and preference of customers. As such, this project is ranked higher than the majority of capital investments that are planned for replacing, sustaining or retiring assets that are at the end of their useful service life, as determined by the asset management process.

2. Safety

This investment will ensure that the transformer station "Fort Frances MTS" can safely continue to accommodate the increasing demand for renewable generation connections, which will result in reverse power flow operating conditions in the near future.

3. Cyber-security, Privacy

FFPC will ensure that its communication network and the IED's on it, are configured according to best industry practices and in compliance to corporate security and privacy policies.

4. Co-ordination, Interoperability

The equipment selected to modernize the transformer station protection and controls is commonly used throughout North America. Supervisory control system and IED data will be made available for interested stakeholders, such as Regional Transmitters or the IESO, through industry standard communication protocols and platforms.

5. Economic Development

Essentially all material will be purchased through local or regional suppliers. Local and regional labour forces will also be used to install and configure the communication network and IED's. This project will support Ontario's economic growth and job creation.

6. Environmental Benefits

This investment will increase the connection capacity of renewable generation to FFPC's distribution system.

C. Category-specific requirements for each project/activity

System Access: FFPC plans to smooth out expenditures over a seven year horizon for rate stability purposes, and as such annual planned expenditures are at or below FFPC's annual capital investment materiality threshold of $50,000. FFPC believes that this approach aligns with the OEB's objective of "pacing and prioritizing capital investments to promote predictability in rates and affordability for customers." The installation of transformer station protection equipment requires the expertise of third-party service providers, as this expertise is not available in the Fort Frances area. FFPC has to rely on external service providers to commute to Fort Frances to perform this type of specialized work. FFPC has taken measures to minimize the overall cost of these planned expenditures, by coordinating the installation of renewable generation enabling improvements to follow regularly scheduled annual maintenance work that is also outsourced to the same external service provider. This will reduce duplication of travelling, mobilization and demobilization costs. Without this synergy FFPC's installation expenses would be approximately 20% higher. In the event that a large scale generator was to request connecting to FFPC's distribution system, the investments would have to be intensified over a much shorter timeframe to accommodate the generation facility. The letter of comment received by the OPA supports FFPC's strategy of pacing investments. Since the receipt of the letter, FFPC was contacted directly by the OPA to advise of 10 MW of increased renewable generation capacity being allocated to Northwestern Ontario. As such, FFPC anticipates receiving increased volumes of renewable generation connection applications. Based on the 2011 to 2013 generator connections, FFPC is projecting to connect an additional 312 kW of photovoltaic generation capacity over the planning horizon. In addition to this, FFPC has received expressions of interest from several OPA Relocation Program applicants with a total generation capacity of 360 kW. At the time of submission, 20kW of this capacity is nearing completion of construction. Refer to section 5.4.3 for a detailed analysis of FFPC's ability and plan to accommodate renewable generation connections.

5.4.5.2.a.v. 14-18-005 (General Plant): Fleet Vehicle Replacement Program

<table>
<tr><td colspan="2">Investment Category: General Plant</td><td>Project Start Date: Jan.1, 2014</td></tr>
<tr><td colspan="2">Project Title: Fleet Vehicle Replacement Program</td><td>Project End Date: Dec. 31, 2018</td></tr>
<tr><td colspan="2">Asset Category(s): Vehicles</td><td>Project Driver(s): Maint. & Capital Support, Non System Physical Plant</td></tr>
<tr><td>USoA Account: 1930 - Transportation Equip.</td><td>Tot. 2014 - 2018 Cap. Cost: $403,000
Tot. 2014 - 2018 O&MA Costs: $0</td><td>Ave Annual Cap. Cost: $80,600</td></tr>
</table>

A. General information on the Project/Activity

FFPC's asset management process governs the life of distribution plant assets, as well as fleet vehicles (transportation equipment). Over the 2014 to 2018 planning horizon the asset management process has identified that a Double Bucket Truck, two service vehicles, a reel stringing & tensioning trailer, as well as a chipper trailer will reach or surpass their Maximum Useful service life as established in the Kinectrics Report. FFPC has adopted a maximum target life expectancy of fifteen (15) years for trucks & buckets, and twenty (20) years for trailers. Support vehicles are crucial in allowing employees to work safely and efficiently. Maintaining a reliable fleet is very important to business efficiency, as FFPC does not have fleet vehicle redundancy. Without fleet vehicle redundancy, a vehicle breakdown could result in considerable job site delays. FFPC's fleet vehicle replacements have been planned around core distribution plant asset replacements to smooth annual capital budget requirements. The following table summarizes the planned activities, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group:

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	General Plant	14-18-005	Replace 1978 Fort Garry Industries Cable Reel Trailer	$50,000		Replace end-of-life cable stringing and tensioning trailer.	1930	Non-System Physical Plant	G2 - Vehicles
2015	General Plant	14-18-005	Replace 1999 Ford Pickup	$38,000		Replace end-of-life crew service/support vehicle.	1930	Non-System Physical Plant	G2 - Vehicles
2016	General Plant	14-18-005	Replace 2003 Ford 4x4 Half Ton	$40,000		Replace end-of-life crew service/support vehicle.	1930	Non-System Physical Plant	G2 - Vehicles
2018	General Plant	14-18-005	Replace Chipper Trailer	$25,000		Replace end-of-life chipper trailer to support vegetation management maintenance program.	1930	Non-System Physical Plant	G2 - Vehicles
2018	General Plant	14-18-005	Replace 2004 Altec Double Bucket Truck	$250,000		Replace end-of-life double bucket truck, to support maintenance, capital and operational activities.	1930	System Cap / Maint Support	G2 - Vehicles

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

FFPC's newly developed asset management process and capital planning process have triggered planning for these fleet vehicle replacements, as they are approaching the end of their useful service life. It is worth noting that FFPC's fleet vehicles are replaced according the Maximum useful life criteria established by the Kinectrics Report, representing best industry practices. Fleet vehicle replacements are planned around core distribution system asset replacements, in order to smooth annual budget requirements. Maintaining a healthy vehicle fleet supports public and employee safety, and ensures that capital, maintenance and operational jobs are conducted efficiently.

2. Safety

Replacing aging fleet vehicles supports the overall safety of employees and the general public.

3. Cyber-security, Privacy

Not Applicable

4. Co-ordination, Interoperability

FFPC's fleet vehicles are suitable for facilitating distribution line-work on both FFPC's distribution system and on that owned by neighbouring distributors. As such, FFPC's fleet vehicles are available for emergency mutual assistance support to all neighbouring distributors.

5. Economic Development

Fleet vehicles are sourced mainly through Ontario suppliers, who often utilize Ontario manufacturers. Any necessary repairs or maintenance work to fleet vehicles is performed locally. As such, this investment will support the local and provincial economy.

6. Environmental Benefits

The replacement of aging fleet vehicles will reduce overall gas emissions, as new vehicle designs offer improved emission control systems.

C. Category-specific requirements for each project/activity

General Plant: FFPC's electrical distribution operation would be crippled without the assistance of fleet vehicles. Traditional work practices involved manual climbing of poles, and handling of pole line hardware. A comparison could be made to office business efficiency with the removal of computers. Fleet vehicles allow employees to utilize more efficient and safe work practices when constructing, maintaining or operating distribution systems. FFPC views fleet vehicles as essential tools that allow employees to work in a safe and efficient manner. All fleet vehicles are carefully selected to ensure that they meet the needs of the local distribution environment, such as operating under extreme cold and snow covered conditions. All customers across all customer classes will benefit from these investments. As at 2014, FFPC's targeted % Maximum Useful Life (MUL) consumed for the Trucks and Buckets population is 53.3% and 130% for Trailers. If FFPC were not to replace the fleet vehicles, by 2019 the % MUL consumed for the Trucks and Buckets population would escalate to 86.7%. As such, the investment is aligned with sustaining the lifecycle of FFPC's fleet vehicles. The quantity and selection summary of vehicle replacements is based on FFPC's asset management process, which revealed the following relative to 2014:

Trucks & Buckets Profile		**Trucks & Buckets Lifecycle Analysis**	
7	Quantity	0.4	10 Year Historic Replacement/Installation Rate (Units/Year)
15	UL (Adopted)	3	Quantity Reaching Adjusted End of Life Over Forecast Period
8.0	Average Age of Population	$328,000	Total Capital Replacement Cost over Forecast Period
0.47	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
53.3%	% UL Consumed	0.60	Average Replacements Per Year
86.7%	2019 % UL Consumed with no Reinvestment	$65,600	Average Annual Cost Per Year
		$53,400	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$328,000	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

Trailers Profile		**Trailers Lifecycle Budget Analysis**	
2	Quantity	0.0	10 Year Historic Replacement/Installation Rate (Units/Year)
20	UL (Adopted)	2	Quantity Reaching Adjusted End of Life Over Forecast Period
26.0	Average Age of Population	$75,000	Total Capital Replacement Cost over Forecast Period
0.10	Ideal Equalized Annual Replacement Rate (Units/Yr)	$0	Total Capital Refurbishment Cost over Forecast Period
130.0 %	% UL Consumed	0.40	Average Replacements Per Year
155.0 %	2019 % UL Consumed with no Reinvestment	$15,000	Average Annual Cost Per Year
		$3,750	Ave. Annual Reinvestment Need Based on FFPC Adopted UL
		$75,000	2014 - 2018 Total Allocated Capital Replacement Amount
		$0	2014 - 2018 Total Allocated Capital Refurbishment Amount

5.4.5.2.a.vi. 14-14-006 (System Access): Elimination of Long Term Load Transfers

Investment Category: System Access		**Project Start Date:** Jan.1, 2014
Project Title: Elimination of Long Term Load Transfers		**Project End Date:** Dec. 31, 2014
Asset Category(s): Fully Dressed Wood Poles, OH Conductor, OH Transformers, Primary TR XLPE Cables in Duct, Ducts		**Project Driver(s)**: Mandated Service Obligations
USoA Account: 1830, 1835, 1840, 1845, 1850	**Tot. 2014 - 2018 Cap. Cost:** $371,739 **Tot. 2014 - 2018 O&MA Cost:** $18,587	USoA Cost Allocation: 1830 - $294,681; 1835 - $9,180; 1840 - $27,000; 1845 - $2,298; 1850 - $38,580

A. General information on the Project/Activity

FFPC is the "Geographic Distributor" of fourteen (14) customers that are located in three pockets along the edge of municipal boundaries that define FFPC's licensed distribution service territory. Section 6.5.4 of the DSC requires that the Geographic Distributor shall either:

a. negotiate with a physical distributor that provides load transfer services so that the physical distributor will be responsible for providing distribution services to the customer directly, including application for changes to the licensed service areas of each distributor; or
b. expand the geographic distributor's distribution system to connect the load transfer customer and service that customer directly.

FFPC's licensed distribution service territory is relatively compact and the LTLT customers are all located in areas very conducive for future municipal expansion, as well as for hosting renewable generation. As such, FFPC is planning to expand its distribution feeders in the three locations, to be able to service the customers directly. The estimated total expansion cost is $371,739 and annual O&M costs are estimated to increase by $18,587. The expansions will also allow FFPC to be able to distribute the benefits of a 1905 Historic Power Agreement to the LTLT customers. The benefits currently cannot be distributed to LTLT customers, as the Physical Distributor (Hydro One Networks Inc.) is metering and billing them. The distribution system expansions will eliminate these long standing issues. It is also worth noting that FFPC has been formally approached four (4) of the LTLT customers over the last year alone, requesting that they be connected to FFPC's distribution system. The following table summarizes the planned activities, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group:

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	System Access	14-14-006	LTLT Elimination Pole Lines (88 Pri Spans)	$294,681	$14,734	Overhead distribution feeder pole line expansions to connect to LTLT customers	1830	Mandated Service Obligations	1 - Fully Dressed Wood Poles
2014	System Access	14-14-006	LTLT Elimination Conductor	$9,180	$459	Primary conductor for LTLT pole line extensions	1835	Mandated Service Obligations	8 - OH Conductors
2014	System Access	14-14-006	LTLT Elimination Directional Bore & Conduit	$27,000	$1,350	Directional bore underneath CNR right-of-way and install conduit for feeder expansion to connect to LTLT customer.	1840	Mandated Service Obligations	40 - Ducts
2014	System Access	14-14-006	LTLT Elimination Pri UG Conductor	$2,298	$115	Install UG primary conductor in duct (across CNR right-of-way), to extend feeder to connect to LTLT customer.	1845	Mandated Service Obligations	29 - Primary TR XLPE Cables in Duct
2014	System Access	14-14-006	LTLT Elimination Transformers	$38,580	$1,929	Install new transformer to supply LTLT customers from expanded feeders	1850	Mandated Service Obligations	9 - OH Transformers

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

As previously mentioned the main trigger for this project is Section 6.5.4 of the DSC; however, this project will resolve a long standing customer service and jurisdictional issue. This investment will satisfy priorities 2 and 3 of FFPC's capital investment priorities which are: ensuring compliance to regulatory and legal obligations; and meeting the needs and preference of customers. As such, this project is ranked higher than the majority of capital investments that are planned for replacing, sustaining or retiring assets that are at the end of their useful service life. This project will also give FFPC's young line crew the opportunity to undertake system expansion and voltage conversion work that has not been conducted since the end of the local economic boom in the late 1980's. The distribution system expansion will also support future municipal load growth, as all three feeder expansions are situated in areas conducive for municipal expansion. The nature of one of the three expansion locations will involve crossing a CN Railroad right-of-way, which will unlock electrical utility access to approximately 15.4% of FFPC's licensed distribution service territory that is currently not developed. All three expansions combined will unlock access to approximately 25.4% of FFPC's service territory that is not developed. As Fort Frances is also very conducive to hosting photovoltaic renewable generation, the feeder expansions offer considerable improved access for potential renewable generation facilities.

2. Safety

FFPC is committed to ensuring that the distribution feeder expansions are performed in a safe manner, and that general public as well as employees are not subjected to undue hazards.

3. Cyber-security, Privacy

Not Applicable

4. Co-ordination, Interoperability

FFPC constructs its distribution feeders to USF Construction Standards, which are commonly used amongst most LDC's throughout Ontario.

5. Economic Development

Essentially all material will be purchased from Ontario manufacturers through local or regional suppliers. FFPC's labour force and fleet vehicles will be utilized to complete the project. Additional support services will be supplied by local service providers, such as vacuum excavations and trenching. The distribution feeder expansions will also unlock considerable access to electrical supply, to encourage municipal and renewable generation growth. This project will benefit both the local and provincial economy.

6. Environmental Benefits

This project will support facilitating renewable generation by providing improved access to distribution feeders along municipal properties conducive to hosting such generation. FFPC is committed to conducting its business in an environmentally responsible manner. This project will not negatively impact the well being of the environment.

C. Category-specific requirements for each project/activity

System Access: This project is driven by the requirements of Section 6.5.4 of the DSC. FFPC is awaiting OEB approval of this capital expansion project and will commence construction upon receiving it. FFPC is targeting completing the feeder expansions by December 31, 2014. Several affected LTLT customers have approached FFPC over the last year to personally request being connected to FFPC's distribution system. Twelve (12) of the fourteen (14) LTLT customers are located along an East-West roadway (Frog Creek Road) that acts as a North - South boundary of FFPC's licensed service territory from the outlying service territory serviced by HONI. A large section of the connecting north-south roadway (McIrvine Road) located within FFPC's service territory is not electrically serviced by any distribution feeders. As such, FFPC is proposing to extend its distribution feeder along the north-south roadway (McIrvine Road) to service the unserviced portion of the roadway, as well as to connect to the LTLT customers located at the end of it. Many properties adjacent to the unserviced portion of McIrvine Road are well suited for residential or commercial use, including hosting renewable generation facilities. The expansion will also offer direct access to FFPC's Transformer Station, enabling the connection of large scale renewable generation in the expanded service area. Most of the Physical Distributor's (HONI's) assets will still be required to service customers outside of FFPC's licensed service territory, as they are located along the north side of Frog Creek Road, including the Fort Frances Regional Airport. The expansion will support the well being of the local community by potentially attracting new residents and businesses to the newly serviced areas. Another benefit of this project will be that an alternate supply of electricity will in close proximity to the Fort Frances Airport, in the event of an emergency.

5.4.5.2.a.vii. 14-14-007 (Various): 2014 Misc. Small Capital Projects

<table>
<tr><td colspan="2">Investment Category: Various</td><td>Project Start Date: Jan.1, 2014</td></tr>
<tr><td colspan="2">Project Title: 2014 Misc. Small Capital Projects</td><td>Project End Date: Dec. 31, 2014</td></tr>
<tr><td colspan="2">Asset Category(s): Various</td><td>Project Driver(s): Various</td></tr>
<tr><td>USoA Account: Various</td><td>Tot. 2014 - 2018 Cap. Cost:
$106,750
Tot. 2014 - 2018 O&MA Cost:
$750</td><td>USoA Cost Allocation: Various</td></tr>
</table>

A. General information on the Project/Activity

FFPC's asset management process annually identifies assets that are at the end of their useful service life based on an age, inspection and condition testing analyses. Most of the small capital projects listed below are driven by the need of sustaining the lifecycle of existing assets owned. Non lifecycle related investments are driven by FFPC's capital planning process, to accomplish other business objectives such as improving business efficiency or meeting customer expectations. The following table summarizes the planned small capital activities for 2014, as well as their Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2014	General Plant	14-14-007	Misc Building Improvements	$2,000		Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
2014	General Plant	14-14-007	Building Heater Replacements	$3,000		Transformer Station heater replacements	1808	Non-System Physical Plant	G5 - Station Buildings
2014	General Plant	14-14-007	Cable Reel Stands	$2,000		Install cable reel stands at Operations Centre	1908	System Cap / Maint Support	G3 - Administrative Buildings
2014	General Plant	14-14-007	Replace Shelving	$2,000		Upgrade stores area shelving at Operations Centre	1908	Non-System Physical Plant	G3 - Administrative Buildings
2014	General Plant	14-14-007	Meter Room Flooring	$2,500		Misc. meter room improvements - replace flooring and fixtures	1908	Non-System Physical Plant	G3 - Administrative Buildings
2014	General Plant	14-14-007	Office A/C	$1,000		Install air conditioning in lunch room	1908	Non-System Physical Plant	G3 - Administrative Buildings
2014	General Plant	14-14-007	Admin Area Renovation	$3,500		Misc. Main Office renovations - Reception area	1908	Non-System Physical Plant	G3 - Administrative Buildings
2014	General Plant	14-14-007	Misc. Main Office furniture replacements	$2,000		Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2014	General Plant	14-14-007	Misc. Operations Centre furniture replacements	$1,000		Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2014	General Plant	14-14-007	Operations Centre Copier	$4,000		Replace Operations Centre end-of-life multimedia centre	1920	Non-System Physical Plant	G1 - Office Equipment
2014	General Plant	14-14-007	Computer Hardware	$5,000		Director laptop computers to support real-time communication and paperless information distribution.	1920	Non-System Physical Plant	G6 - Computer Equipment
2014	General Plant	14-14-007	AMI MAS Server Replacement	$4,000		Replace end-of-life AMI system Master Application Server.	1920	Non-System Physical Plant	G6 - Computer Equipment
2014	General Plant	14-14-007	AutoCad License	$2,000	$400	Upgrade AutoCad drafting software for technical blue print management	1611	Non-System Physical Plant	G6 - Computer Equipment
2014	General Plant	14-14-007	MS Office Productivity Package	$2,000		Director MS office productivity package to support real-time communication and paperless information distribution.	1611	Non-System Physical Plant	G6 - Computer Equipment
2014	General Plant	14-14-007	Small Tools	$5,000		Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
2014	General Plant	14-14-007	Label Printer - Asset Labeling	$2,500		Asset labeler for asset identification initiative (GIS).	1940	Business Operation Eff	G7 - Equipment
2014	General Plant	14-14-007	Transformer Safe Transport Kit	$3,000		Transformer safe transport kit to mitigate risk of environmental spill from handling increased volume of failing transformers.	1940	Obj - Safety	G7 - Equipment
2014	System Renewal	14-14-007	DC System Battery Cell Replacement	$2,000		Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
2014	System Renewal	14-14-007	UG Service Replacement	$2,000		Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
2014	System Renewal	14-14-007	OH Service Replacement	$2,000		Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
2014	System Renewal	14-14-007	CT/PT and Cabinet Replacements	$2,500		Replace end-of-life CT & PT metering settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)

2014	System Renewal	14-14-007	Meter Replacements	$3,250		Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
2014	System Service	14-14-007	Primary Insulator Replacements	$10,000		Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
2014	System Service	14-14-007	Air Break Switches Insulator Replacements	$4,500		Air break switch primary insulator replacements as per inspection findings	1835	Obj - Reliability	4 - OH Line Switch
2014	System Service	14-14-007	Robert Moore Air Break Switch Relocation	$28,000		Remove, replace and relocate air break switch from School Yard	1835	Obj - Safety	4 - OH Line Switch
2014	System Service	14-14-007	Mobile Work Tablets	$2,500		Purchase mobile work tablets for transition to electronic inspection forms and for line crew on-site access to technical documentation.	1920	Other Performance/Functionality	G6 - Computer Equipment
2014	System Service	14-14-007	Elster Tx Primary Data Logger and Meter	$3,500	$350	Primary meter for transformer setting, to support identification of theft of power and transformer loading profile development.	1945	Obj - Safety	G7 - Equipment

5.4.5.2.a.viii. 15-15-008 (System Service): Transformer Station - Power Transformer Fire Barrier

Investment Category: System Service		**Project Start Date:** Jan.1, 2015
Project Title: Transformer Station - Power Transformer Fire Barrier		**Project End Date:** Dec. 31, 2015
Asset Category(s): Station Buildings		**Project Driver(s)**: Business Objective - Reliability
USoA Account: 1808	**Tot. 2014 - 2018 Cap. Cost:** $62,000 **Tot. 2014 - 2018 O&MA Cost:** $0	USoA Cost Allocation: 1808 - $62,000

A. General information on the Project/Activity

FFPC has two power transformers at its greater than 50 kV transformer station "Fort Frances MTS" which are in close proximity to one another. Recent discussions with its insurance carrier, as well as with the local pulp and paper mill, have identified that the transformers have the potential of causing structural damage to one another in the event of a catastrophic failure, such as a fire. The main concerns are with containing a potential transformer fire, as well as containing propelled airborne debris. It has been recommended that a custom fire and blast retaining structure be built to isolate the units from one another. Although the probability of a critical failure is very low, the resulting impact of failure is very high, as a loss of both power transformers would not allow FFPC to supply its customer base with electricity. The following table summarizes the planned activity, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group:

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2015	System Service	15-15-008	Transformer Fire Barrier	$62,000		Install fire and blast barrier between power transformer T1 and T2.	1808	Obj - Reliability	G5 - Station Buildings

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

The main trigger of this project is to ensure that the overall long term reliability of FFPC's electrical distribution system maintained. This project was identified through in step 5 of FFPC's asset management process, and received top priority for 2015 due to its potential impact on reliability which could affect customer and employee safety.

2. Safety

This project improves the protection of FFPC's transformer station equipment, which are relied upon to support the health, safety and well being of all customers and employees.

3. Cyber-security, Privacy

Not Applicable

4. Co-ordination, Interoperability

A prototype of this installation is located at the local pulp and paper mill in Fort Frances. FFPC plans to implement essentially the same solution to resolve the potential reliability hazard.

5. Economic Development

FFPC will rely on local material suppliers and contractors to construct the custom fire and blast retaining structure. This project will support both the local and provincial economy.

6. Environmental Benefits

This project is designed to contain a catastrophic failure of an oil filled power transformer. The nature of the project is to minimize the impact associated with a potential failure to its surroundings, which include the environment.

C. Category-specific requirements for each project/activity

System Service: The benefit of this project to customers is that it greatly reduces the probability of a catastrophic equipment failure from impacting the reliability of electricity distributed to them. The investment is essentially an insurance measure in support of the reliability of FFPC's distribution system as a whole. The nature of this project does not involve the deployment of advanced technology. The planning and coordinating of this project is estimated to take up to six months, which aligns its practical implementation with the summer of 2015. The construction of a fire and blast retaining structure is by far the lowest cost solution to isolate the power transformers from one another. It is not practical to relocate the units, or to alter the arrangement of existing equipment in the transformer station yard. As previously mentioned, this investment is a due diligence investment to reduce the probability of suffering extensive damage to transformer station property, plant and equipment.

5.4.5.2.a.ix. 15-15-009 (Various): 2015 Misc. Small Capital Projects

Investment Category: Various		**Project Start Date:** Jan.1, 2015
Project Title: 2015 Misc. Small Capital Projects		**Project End Date:** Dec. 31, 2015
Asset Category(s): Various		**Project Driver(s)**: Various
USoA Account: Various	**Tot. 2014 - 2018 Cap. Cost:** $89,250 **Tot. 2014 - 2018 O&MA Cost:** $3,000	USoA Cost Allocation: Various

A. General information on the Project/Activity

FFPC's asset management process annually identifies assets that are at the end of their useful service life based on an age, inspection and condition testing analysis. Most of the small capital projects listed below are driven by the need of sustaining the lifecycle of existing assets owned. Non lifecycle related investments are driven by FFPC's capital planning process, to accomplish other business objectives such as improving business efficiency or meeting customer expectations. The following table summarizes the planned small capital activities for 2015, as well as their Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2015	General Plant	15-15-009	Misc Building Improvements	$2,000		Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
2015	General Plant	15-15-009	Build Outdoor Transformer Shelter	$6,000		Install weather shelter for transformer yard storage area.	1908	System Cap / Maint Support	G3 - Administrative Buildings
2015	General Plant	15-15-009	Replace Shop Rollup Door	$12,000		Replace operations centre rollup garage door.	1908	System Cap / Maint Support	G3 - Administrative Buildings
2015	General Plant	15-15-009	Reg & Finance Area Renovations	$3,500		Misc. Main Office renovations - Finance Area	1908	Non-System Physical Plant	G3 - Administrative Buildings
2015	General Plant	15-15-009	Misc. Main Office furniture replacements	$2,000		Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2015	General Plant	15-15-009	Misc. Operations Centre furniture replacements	$1,000		Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2015	General Plant	15-15-009	PC Replacement	$5,000		Replace end-of-life computers at the Main Office.	1920	Non-System Physical Plant	G6 - Computer Equipment
2015	General Plant	15-15-009	Computer Hardware	$1,000		Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
2015	General Plant	15-15-009	Small Tools	$5,000		Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
2015	System Renewal	15-15-009	DC System Battery Cell Replacement	$2,000		Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
2015	System Renewal	15-15-009	UG Service Replacement	$2,000		Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
2015	System Renewal	15-15-009	OH Service Replacement	$2,000		Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
2015	System Renewal	15-15-009	CT/PT and Cabinet Replacements	$2,500		Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
2015	System Renewal	15-15-009	Meter Replacements	$3,250		Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
2015	System Service	15-15-009	Backup Generator Switch / Install	$4,500		Install transfer switch and panel for connectability to emergency backup generation to supply station lighting and DC battery bank chargers.	1808	Obj - Reliability	G5 - Station Buildings
2015	System Service	15-15-009	Generator	$5,500		Transformer Station backup generator for emergency lighting and DC system charging.	1808	Obj - Reliability	G5 - Station Buildings
2015	System Service	15-15-009	Primary Insulator Replacements	$5,000		Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
2015	System Service	15-15-009	OH Secondary Bus Replacements	$10,000		Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
2015	System Service	15-15-009	Mass Customer Contact System	$15,000	$3,000	Install and commission mass customer contact system to enable contacting customers regarding important event such as power interruptions.	1955	Customer Preference	G8 - Communication

5.4.5.2.a.x. 15-16-010 (System Service): Financial Information System Integration

Investment Category: System Service		**Project Start Date:** Jan.1, 2015
Project Title: Financial Information System Integration		**Project End Date:** Dec. 31, 2015
Asset Category(s): Computer Equipment (Software)		**Project Driver(s)**: Business Objective - Business Efficiency
USoA Account: 1611	**Tot. 2014 - 2018 Cap. Cost:** $60,000 **Tot. 2014 - 2018 O&MA Cost:** $10,000	USoA Cost Allocation: 1611 - $60,000

A. General information on the Project/Activity

FFPC in planning on improving its business efficiency through the acquisition and integration of a modern day Financial Information System (FIS), such as Microsoft Great Planes. The existing system utilized is very limited in functionality and as such does not offer flexible reporting, exporting of data electronically, enhanced data analyses or graphical plotting of data. Financial data is currently transposed from the system into spreadsheets and other support tools manually, from paper printouts requiring the data to be rekeying. A second phase of the project is planned to integrate purchasing and payroll functions into the system. Project costs are mainly attributed to the purchase of the software tool, as well as towards setup, commissioning and integration to support systems. The following table summarizes the planned activities, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group:

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2015	System Service	15-16-010	Financial Information System Phase 1	$40,000	$6,000	Purchase and commission Financial Information System to enable data exports, enhanced reporting and data analysis for planning activities.	1611	Business Operation Eff	G6 - Computer Equipment
2016	System Service	15-16-010	Financial Information System Phase 2	$20,000	$4,000	Integrate payroll and purchasing into FIS system.	1611	Business Operation Eff	G6 - Computer Equipment

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

The implementation of a Financial Information System will greatly improve financial oversight, enhance financial planning, automate manual calculation processes, reduce manual rekeying of data into support systems, and simplify core business tasks such as processing of the 1905 Historic Power Agreement, calculating of amortization schedules, preparation of financial reports and RRR reporting. As a small utility, FFPC relies on the integration of good tools to maximize employee efficiency and productivity. The deployment of good tools will ultimately allow FFPC to maintain a minimalistic staff complement, without undermining the long term viability of its business. A modern day financial system offers interoperability with other core business systems, such as the GIS system. FFPC plans on integrating the system with its GIS system, as well as on expanding its scope to encompass the management of purchasing and payroll related functions. FFPC is projecting to have the necessary internal resources available to champion the project implementation throughout 2015 and 2016. FFPC's strategy is to utilize internal staff to minimize implementation costs, as well as to ensure that the system deployed is tailored to FFPC's business needs.

2. Safety

Not Applicable.

3. Cyber-security, Privacy

FFPC recently participated and two IT system audits that were conducted to assess levels of security, as well as to identify opportunities for security improvements. FFPC is committed to ensuring that its IT systems are protected according to internal policies and industry best practices.

4. Co-ordination, Interoperability

The Financial System sought, must have the ability to accommodate electronic information exchange with other core business systems, so as to facilitate IT system interoperability. FFPC will ensure that data can be shared easily as required by both internal and external stakeholders.

5. Economic Development

FFPC will attempt to rely on local or regional software vendors to supply the software. This project is projected to support both the local and provincial economy, as local and provincial resources are required for the project deployment.

6. Environmental Benefits

This project will support FFPC's efforts to shift from paper based work flows to electric information exchanges. As such, FFPC expects its dependency on paper to be significantly reduced.

C. Category-specific requirements for each project/activity

System Service: This project is driven by FFPC'S objective of continually improving its business processes. FFPC's current financial system is very antiquated and lacks modern day functionality such as flexible reporting, electronic export of data into support systems, enhanced data analyses, and graphical plotting of data. Financial data is currently transposed from the system into spreadsheets and other support tools which have to be manually administered. The new system will improve FFPC's ability to mirror the USoA accounting structure, as well as allow for flexible account mapping and reporting to meet the needs of various stakeholders. For example, account groupings for OEB RRR filing purposes are different from account groupings for audited financial statement development purposes. This project targets improving employee efficiency by reducing the need of manual rekeying of financial information into support tools, due to the lack of functionality. This will free up considerable staff time which can then be devoted to more value added tasks. The tool will also support FFPC's asset management and capital planning processes, in that it will support improved decision making by presenting supporting financial information in a more meaningful and intuitive manner. It is estimated that the tool will conservatively increase productivity by 1.5 employee work hour per working day, which translates into approximately $15,000 in increased annual productivity. In regards to cyber security, the system will be deployed onto FFPC's existing network, which is protected according to IT best practices. FFPC is committed to ensuring that its information systems are protected according to internal policies, which are aligned with industry best practices.

5.4.5.2.a.xi. 16-16-011 (System Renewal): Over 50 kV Tx Station - Station Independent Breaker Replacement

<table>
<tr><td colspan="2">Investment Category: System Renewal</td><td>Project Start Date: Jan.1, 2016</td></tr>
<tr><td colspan="2">Project Title: Over 50 kV Transformer Station - Station Independent Breaker Replacement</td><td>Project End Date: Dec. 31, 2016</td></tr>
<tr><td colspan="2">Asset Category(s): Station Independent Breakers</td><td>Project Driver(s): End of Service Life - Failure Risk</td></tr>
<tr><td>USoA Account: 1815 Transformer Station Equipment - Normally Primary above 50 kV</td><td>Tot. 2014 - 2018 Cap. Cost: $150,000
Tot. 2014 - 2018 O&MA Cost: $0</td><td>USoA Cost Allocation: 1815 - $150,000</td></tr>
</table>

A. General information on the Project/Activity

FFPC owns and operates a greater than 50 kV transformer station “Fort Frances MTS”. The newly developed asset management process has identified the stations main Oil Filled Circuit Breaker (OCB) has surpassed its Maximum Useful Life of 65 years, as established in the Kinectrics Report. As the breaker is responsible for protecting the entire station in the event of a critical failure (fault), it has a high impact of failure. Condition tests indicate that the unit is operating at an acceptable level; however, expert advice obtained from Siemen’s Canada recommends that the device be replaced by 2016. The following table summarizes the planned activity, by Capital Budget Year, Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group:

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2016	System Renewal	16-16-011	1947 OCB Replacements	$150,000		Replace end-of-life station independent breaker at Transformer Station.	1815	EOL - Failure Risk	17 - Station Independent Breakers

B. Evaluation criteria and information requirements for each Project/Activity

1. Efficiency, Customer Value, Reliability

The main trigger for this project is the output of step 4 of FFPC's asset management, which revealed the unit has surpassed its maximum suggested service life, as established by the "Kinectrics Report". The device is not conducive to running to failure, as that would compromise the protection of the entire transformer station. As the device ensures the overall safety of transformer station property, plant, equipment and personnel, it has been assigned the highest replacement priority for 2016 capital projects. The investment will support FFPC's ability to safely, reliably and efficiently distribute electricity to all of its customers. As such, all customers in all customer classes will benefit from this investment.

2. Safety

This investment ensures that the safety of transformer station property, plant, equipment and personnel are maintained.

3. Cyber-security, Privacy

Not Applicable

4. Co-ordination, Interoperability

Coordinating the breaker replacement will involve joint planning with the regional transmitter HONI, as well as with IESO. All regional stakeholders will be involved in the replacement planning process to ensure proper interoperability.

5. Economic Development

This investment will utilize local and regional labour, as well as all material will be sourced through local or regional suppliers. As such, this project will benefit both the local and provincial economy.

6. Environmental Benefits

This project will reduce the risk of environmental incidents associated with equipment failures at the transformer station.

C. Category-specific requirements for each project/activity

System Renewal: The OCB's are not conducive to running to failure as their failure compromises the overall well being of the transformer station it is designed to protect. FFPC's asset management process has revealed that the unit has surpassed its maximum useful life of 65 years, and therefore poses a high risk of failure. Expert advice obtained from Siemens Canada suggests that the unit be replaced by 2016, and as such FFPC has planned accordingly. The device has the potential of impacting the performance of FFPC's entire distribution system and is therefore by nature very important. Planning for the replacement is expected to require at least one year, as the planning process involves coordination with the regional transmitter, as well as with the IESO.

5.4.5.2.a.xii. 16-16-012 (Various): 2016 Misc. Small Capital Projects

<table>
<tr><td colspan="2">Investment Category: Various</td><td>Project Start Date: Jan.1, 2016</td></tr>
<tr><td colspan="2">Project Title: 2016 Misc. Small Capital Projects</td><td>Project End Date: Dec. 31, 2016</td></tr>
<tr><td colspan="2">Asset Category(s): Various</td><td>Project Driver(s): Various</td></tr>
<tr><td>USoA Account: Various</td><td>Tot. 2014 - 2018 Cap. Cost:
$109,750
Tot. 2014 - 2018 O&MA Cost:
$1,050</td><td>USoA Cost Allocation: Various</td></tr>
</table>

A. General information on the Project/Activity

FFPC's asset management process annually identifies assets that are at the end of their useful service life based on an age, inspection and condition testing analysis. Most of the small capital projects listed below are driven by the need of sustaining the lifecycle of existing assets owned. Non lifecycle related investments are driven by FFPC's capital planning process, to accomplish other business objectives such as improving business efficiency or meeting customer expectations. The following table summarizes the planned small capital activities for 2016, as well as their Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2016	General Plant	16-16-012	Misc Building Improvements	$2,000		Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
2016	General Plant	16-16-012	Interior Lighting Retrofit	$3,000		Transformer Station T12 lighting replacements	1808	Business Operation Eff	G5 - Station Buildings
2016	General Plant	16-16-012	Yard Landscaping	$3,000		Landscape yard at Operations Centre - Install flower beds and general yard improvements	1908	System Cap / Maint Support	G3 - Administrative Buildings
2016	General Plant	16-16-012	Cable Reel Shelter	$6,000		Install shelter over outdoor cable reel storage area	1908	System Cap / Maint Support	G3 - Administrative Buildings
2016	General Plant	16-16-012	Office Carpeting	$2,500		Replace Main Office carpets.	1908	Non-System Physical Plant	G3 - Administrative Buildings
2016	General Plant	16-16-012	Executive Area Renovations	$3,500		Misc. Main Office renovations - Board Room	1908	Non-System Physical Plant	G3 - Administrative Buildings
2016	General Plant	16-16-012	Misc. Main Office furniture replacements	$2,000		Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2016	General Plant	16-16-012	Misc. Operations Centre furniture replacements	$1,000		Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2016	General Plant	16-16-012	Computer Hardware	$1,000		Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
2016	General Plant	16-16-012	Small Tools	$5,000		Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
2016	General Plant	16-16-012	Main Office Telephone Data Logger	$7,000	$1,050	Purchase and commission Main Office telephone system data logger, to support telephone accessibility related RRR reporting.	1955	Business Operation Eff	G8 - Communication
2016	System Renewal	16-16-012	DC System Battery Cell Replacement	$2,000		Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
2016	System Renewal	16-16-012	T1 Battery Charger	$22,000		Replace end-of-life battery charger for Transformer Station T1 DC system.	1825	EOL - High Performance Risk	15 - Station DC System
2016	System Renewal	16-16-012	UG Service Replacement	$2,000		Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
2016	System Renewal	16-16-012	OH Service Replacement	$2,000		Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
2016	System Renewal	16-16-012	CT/PT and Cabinet Replacements	$2,500		Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
2016	System Renewal	16-16-012	Meter Replacements	$3,250		Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
2016	System Service	16-16-012	115 kV Sky Structure Insulator Replacements	$25,000		Replace Transformer Station primary insulators on sky structure.	1815	Obj - Reliability	23 - Steel Structure
2016	System Service	16-16-012	Primary Insulator Replacements	$5,000		Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
2016	System Service	16-16-012	OH Secondary Bus Replacements	$10,000		Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors

5.4.5.2.a.xiii. 17-17-013 (Various): 2017 Misc. Small Capital Projects

<table>
<tr><td colspan="2">Investment Category: Various</td><td>Project Start Date: Jan.1, 2017</td></tr>
<tr><td colspan="2">Project Title: 2017 Misc. Small Capital Projects</td><td>Project End Date: Dec. 31, 2017</td></tr>
<tr><td colspan="2">Asset Category(s): Various</td><td>Project Driver(s): Various</td></tr>
<tr><td>USoA Account: Various</td><td>Tot. 2014 - 2018 Cap. Cost:
$102,750
Tot. 2014 - 2018 O&MA Cost:
$4,300</td><td>USoA Cost Allocation: Various</td></tr>
</table>

A. General information on the Project/Activity

FFPC's asset management process annually identifies assets that are at the end of their useful service life based on an age, inspection and condition testing analysis. Most of the small capital projects listed below are driven by the need of sustaining the lifecycle of existing assets owned. Non lifecycle related investments are driven by FFPC's capital planning process, to accomplish other business objectives such as improving business efficiency or meeting customer expectations. The following table summarizes the planned small capital activities for 2017, as well as their Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2017	General Plant	17-17-013	Misc Building Improvements	$2,000		Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
2017	General Plant	17-17-013	Technical Station Renovations	$3,000		Transformer Station technical station renovations	1808	System Cap / Maint Support	G5 - Station Buildings
2017	General Plant	17-17-013	Training Room Carpeting	$2,500		Replace carpeting in the training room located at the Operation Centre.	1908	Non-System Physical Plant	G3 - Administrative Buildings
2017	General Plant	17-17-013	Door Replacements	$2,000		Operations Centre door replacements.	1908	Non-System Physical Plant	G3 - Administrative Buildings
2017	General Plant	17-17-013	Technical Workstation Replacement	$3,500		Misc. Main Office renovations - Technical Office	1908	Non-System Physical Plant	G3 - Administrative Buildings
2017	General Plant	17-17-013	Misc. Main Office furniture replacements	$2,000		Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2017	General Plant	17-17-013	Misc. Operations Centre furniture replacements	$1,000		Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2017	General Plant	17-17-013	Media Centre (Photo Copier)	$11,000		Replace the Main Office end-of-life media centre.	1920	Non-System Physical Plant	G1 - Office Equipment
2017	General Plant	17-17-013	Computer Hardware	$1,000		Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
2017	General Plant	17-17-013	Small Tools	$5,000		Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
2017	System Renewal	17-17-013	DC System Battery Cell Replacement	$2,000		Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
2017	System Renewal	17-17-013	UG Service Replacement	$2,000		Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
2017	System Renewal	17-17-013	OH Service Replacement	$2,000		Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
2017	System Renewal	17-17-013	CT/PT and Cabinet Replacements	$2,500		Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
2017	System Renewal	17-17-013	Meter Replacements	$3,250		Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
2017	System Service	17-17-013	Primary Insulator Replacements	$5,000		Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
2017	System Service	17-17-013	OH Secondary Bus Replacements	$10,000		Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
2017	System Service	17-17-013	Elster "Access Detect" (OMS)	$43,000	$4,300	Purchase and commission Outage Management System, to enable proactive outage alerts and localized customer interaction.	1611	Customer Preference	G6 - Computer Equipment

5.4.5.2.a.xiv. 18-18-014 (Various): 2018 Misc. Small Capital Projects

Investment Category: Various		**Project Start Date:** Jan.1, 2018
Project Title: 2018 Misc. Small Capital Projects		**Project End Date:** Dec. 31, 2018
Asset Category(s): Various		**Project Driver(s):** Various
USoA Account: Various	**Tot. 2014 - 2018 Cap. Cost:** $62,250 **Tot. 2014 - 2018 O&MA Cost:** $1,300	USoA Cost Allocation: Various

A. General information on the Project/Activity

FFPC's asset management process annually identifies assets that are at the end of their useful service life based on an age, inspection and condition testing analysis. Most of the small capital projects listed below are driven by the need of sustaining the lifecycle of existing assets owned. Non lifecycle related investments are driven by FFPC's capital planning process, to accomplish other business objectives such as improving business efficiency or meeting customer expectations. The following table summarizes the planned small capital activities for 2018, as well as their Investment Category, Parent Project ID, Project Activity Name, Capital Cost, OM&A Cost, Investment Description, USoA Account, Primary Investment Driver and Kinectrics Asset Group.

Capital Budget Year	Investment Category	Parent Project ID	Project Activity Name	Capital Cost	OM&A Cost	Investment Description	USoA Account	Primary Investment Driver	Kinectrics Asset Group
2018	General Plant	18-18-014	Misc Building Improvements	$2,000		Miscellaneous Transformer Station building improvements	1808	System Cap / Maint Support	G5 - Station Buildings
2018	General Plant	18-18-014	Bathroom Renovation	$2,000		Transformer Station bathroom renovations	1808	System Cap / Maint Support	G5 - Station Buildings
2018	General Plant	18-18-014	Window Replacements	$6,000		Replace Operations Centre windows.	1908	Non-System Physical Plant	G3 - Administrative Buildings
2018	General Plant	18-18-014	Main Office Bathroom Renovations	$3,500		Misc. Main Office renovations - Bathroom	1908	Non-System Physical Plant	G3 - Administrative Buildings
2018	General Plant	18-18-014	Misc. Main Office furniture replacements	$2,000		Misc. Main Office furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2018	General Plant	18-18-014	Misc. Operations Centre furniture replacements	$1,000		Misc. Operations Centre furniture replacements	1915	Non-System Physical Plant	G1 - Office Equipment
2018	General Plant	18-18-014	Computer Hardware	$1,000		Replace misc. end-of-life computer hardware.	1920	Non-System Physical Plant	G6 - Computer Equipment
2018	General Plant	18-18-014	Small Tools	$5,000		Misc. small tool replacements	1940	System Cap / Maint Support	G7 - Equipment
2018	General Plant	18-18-014	Phone System Upgrade	$13,000	$1,300	Replace end-of-life Meridian phone system at the Main Office.	1955	Non-System Physical Plant	G8 - Communication
2018	System Renewal	18-18-014	DC System Battery Cell Replacement	$2,000		Transformer Station DC battery bank end-of-life cell replacements	1825	EOL - High Performance Risk	15 - Station DC System
2018	System Renewal	18-18-014	UG Service Replacement	$2,000		Replace end-of-life direct buried secondary conductors	1855	EOL - Failure Risk	31 - Secondary Cables Direct Buried
2018	System Renewal	18-18-014	OH Service Replacement	$2,000		Replace deteriorated overhead services based on inspection findings	1855	EOL - Failure Risk	8 - OH Conductors
2018	System Renewal	18-18-014	CT/PT and Cabinet Replacements	$2,500		Replace end-of-life meter CT & PT meter settings	1860	EOL - Failure Risk	G12 - Current & Potential Transformer (CT & PT)
2018	System Renewal	18-18-014	Meter Replacements	$3,250		Replace failed smart meters	1860	EOL - Failure	G13 - Smart Meters
2018	System Service	18-18-014	Primary Insulator Replacements	$5,000		Primary insulator replacements as per inspection findings	1835	Obj - Reliability	8 - OH Conductors
2018	System Service	18-18-014	OH Secondary Bus Replacements	$10,000		Replace deteriorated secondary bus as per inspection findings	1835	Obj - Reliability	8 - OH Conductors

Appendix 1: OPA Letter of Comment: FFPC Distribution System Plan

OPA Letter of Comment:

Fort Frances Power Corporation

Distribution System Plan

August 30, 2013

ONTARIO POWER AUTHORITY

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 ("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 REG investments; and
- whether the REG investments proposed in the DS Plan are consistent with any Regional Infrastructure Plan.

Fort Frances Power Corporation – Distribution System Plan

On July 12, 2013, the OPA received a Distribution System Plan ("Plan") from Fort Frances Power Corporation ("FFPC") containing information that complies with the Board's Chapter 5 - Consolidated Distribution System Plan Filing Requirements. The OPA has reviewed the Plan of FFPC and has provided its comments below.

OPA FIT/microFIT Applications Received

On pages 12 - 13 of its Plan, FFPC indicates that currently it has connected 7 microFIT projects, totalling 61 kW in capacity. As well, one additional microFIT application of 10 kW has been built but is currently not operational because it failed the OPA's contract acceptance requirements. FFPC indicates that it understands this project may resume production under a new contract in the near future. FFPC has also connected 1 FIT application with total capacity of 100 kW.

According to OPA's information as of August 20, 2013, the OPA has received and offered contracts to 7 microFIT applications, totalling 61 kW. The OPA has also received and offered a contract to 1 FIT application with a capacity of 100 kW.

The OPA notes that on page 11 of the Plan, FFPC has received several inquiries from large scale generator applications but that no formal applications were submitted to FFPC. On June 12, 2013, the OPA received a directive from the Minister of Energy which states that the OPA shall discontinue Large

Ontario Power Authority
120 Adelaide Street West, Ste. 1600, Toronto, Ontario M5H 1T1 Tel 416 967-7474 Fax 416 967-1947 1-800-797-9604 Toll Free
info@powerauthority.on.ca www.powerauthority.on.ca

FIT Project applications submitted prior to the date of this direction which have yet to receive a FIT contract. As a result of this change to the FIT Program Rules, the OPA will be discontinuing any large FIT applications that it has received for connection in FFPC's distribution service territory.

The OPA finds that FFPC's Plan is consistent with the OPA's information regarding renewable energy generation applications to date. The OPA has initiated a discussion with FFPC, based on a request found on page 15 of their Plan, in order to provide guidance on the subject of microFIT and FIT project relocations. The OPA intends to update FFPC with new information on relocations in its service territory as it becomes available to facilitate FFPC's ability to plan for and accommodate connections for these generation projects.

Consultation / Participation in Planning Meetings; Coordination with Distributors / Transmitters / Others; Consistency with Regional Plans

At this time, neither a Regional Infrastructure Plan, nor an Integrated Regional Resource Plan ("IRRP"), has been completed for the FFPC service territory. FFPC indicates that it has experienced, and expects to continue to experience in the near future, reductions in demand and in the volume of electricity delivered through its single supply point due to distributed generation, conservation and demand management, and the state of the local economy. Although FFPC has not identified any renewable generation enabling capital expansion expenditures, FFPC has planned renewable generation enabling expenditures all of which are to improve its Fort Frances MTS in order to modernize the station, and align its functionality with the government's smart grid development policy. As well, options for expansions are provided in its Plan, should a large scale generator want to connect to either its distribution system or transformer station. FFPC has indicated that its fully owned and operated transformer station Fort Frances MTS, is still robust and capable of offering full redundancy in the case where one of its two power transformers must be taken out of service.

The current situation in Northwestern Ontario where FFPC is situated, is that the there is very limited remaining transmission capacity to accommodate additional renewable energy generation at this time. Although there is a plan to expand the East-West Tie Line transmission link to the Northwest, providing the potential opportunity to accommodate new renewable energy generation in the region, the project is not anticipated to be in-service until 2017/2018. FFPC's Plan to modify its station protection and controls over a seven year period to provide additional distribution capacity, is consistent with the schedule of potential transmission improvements in the region.

Page 29 of their Plan describes FFPC's high level of coordination with other LDCs and entities in the Northwest. The OPA has also worked closely with FFPC to share system and station capacity information. Although a Regional Plan is not currently being developed as mentioned above, the OPA will continue to work closely with FFPC to determine how additional renewable energy generation facilities can be accommodated within FFPC's service territory as they become known.

The OPA appreciates the opportunity to comment on the information provided as part of the Fort Frances Power Corporation Distribution System Plan.

Ontario Power Authority
120 Adelaide Street West, Ste. 1600, Toronto, Ontario M5H 1T1 Tel 416 967-7474 Fax 416 967-1947 1-800-797-9604 Toll Free
info@powerauthority.on.ca www.powerauthority.on.ca

Appendix 2: HONI Planning Status Letter

Hydro One Network Inc.
483 Bay Street
15th Floor, South Tower
Toronto, ON M5G 2P5
www.HydroOne.com

Tel: (416) 345-5420
Fax: (416) 345-4141
ajay.garg@HydroOne.com

October 11, 2013

Mr. Joerg Ruppenstein
President & CEO
Fort Frances Power Corp.
P.O. Box 38
320 Portage Avenue
Fort Frances, Ontario, P9A 3P9

Dear Mr. Ruppenstein**:**

Subject: Regional Planning Status

In reference to your request for a regional planning status letter, please note that your Local Distribution Company (LDC) belongs to the Northwest Region, which is in Group 1. A map showing details with respect to the 21 Regions/Groups and list of LDCs in each Region is attached in Appendix A and B respectively.

As you may be aware, the Ontario Power Authority (OPA) has been conducting resource and transmission planning in the Northwest region in the past few years. They have identified need for transmission system reinforcements in the region such as the expansion of the East-West Tie and reinforcement of the transmission system north of Dryden. They have also identified options for augmenting the resources in the region following the closure of the coal-fired generating plants in the Northwest.

The report of the OEB's Planning Process Working Group has noted "that not all regions of Ontario are the same and that the Regional Planning processes will need to be flexible to accommodate those differences." The Northwest Region was identified to be "different from the other regions due to, among other reasons, the uncertainties related to changing resources and industrial loads, which may require consideration of a broader range of scenarios, expanded list of participants and means of grouping studies". At this time, Hydro One is in an early stage of discussions with the OPA with regard to the process to follow in carrying regional planning in the Northwest taking into account the OEB endorsed regional planning process, the changes in the Codes and licenses, the unique nature of the Northwest Region and the planning work that has already begun and in progress by the OPA in the region. We will endeavor to keep you informed and seek your input on this matter in the near future.

In the meantime, this letter is to confirm that the formal regional planning process has not been initiated nor has a Regional Infrastructure Plan (RIP) been developed for the sub-region within the Northwest Region affecting the Fort Frances Power Corp. I am expecting that the regional planning for the Northwest Region will be initiated in the 1st quarter of 2014. Hydro One will formally notify your organization in advance, along with other stakeholders, prior to launching the regional planning process.

Hydro One Network Inc.
483 Bay Street
15th Floor, South Tower
Toronto, ON M5G 2P5
www.HydroOne.com

Tel: (416) 345-5420
Fax: (416) 345-4141
ajay.garg@HydroOne.com

The new planning process provides flexibility, during the transition period to the new process, and will ensure that both distribution and transmission planning continue to address any short-term needs. Hydro One looks forward to working with Fort Frances Power Corp. in executing the new regional planning process.

If you have any further questions, please feel free to contact me.

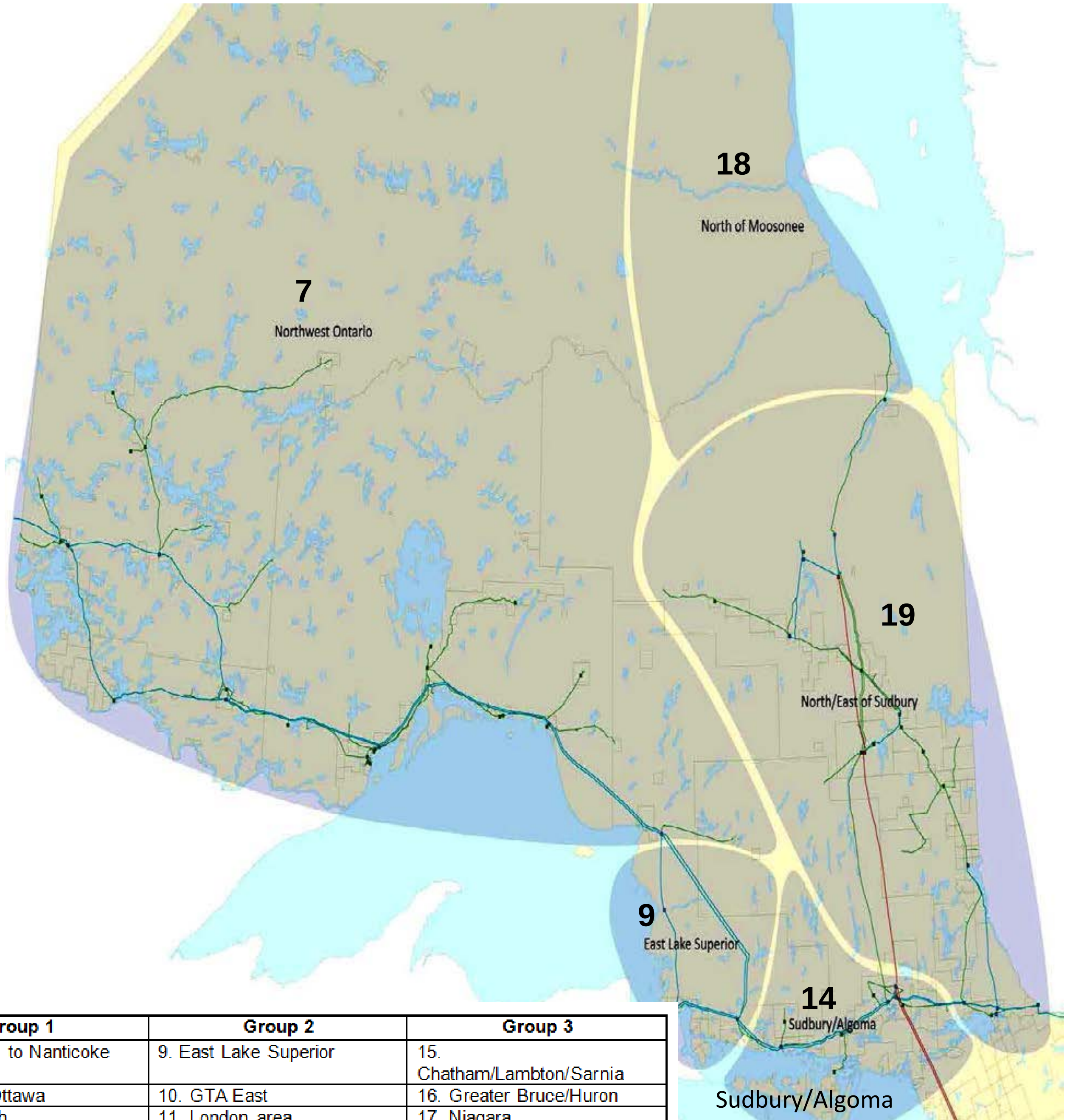
Sincerely,

Ajay Garg, |Manager - Regional Planning and Transmission Load Connections|
Hydro One Networks Inc.

Cc:
Brad Colden, Manager – Customer Business Relations
Bob Chow, Director – Transmission Integration, OPA

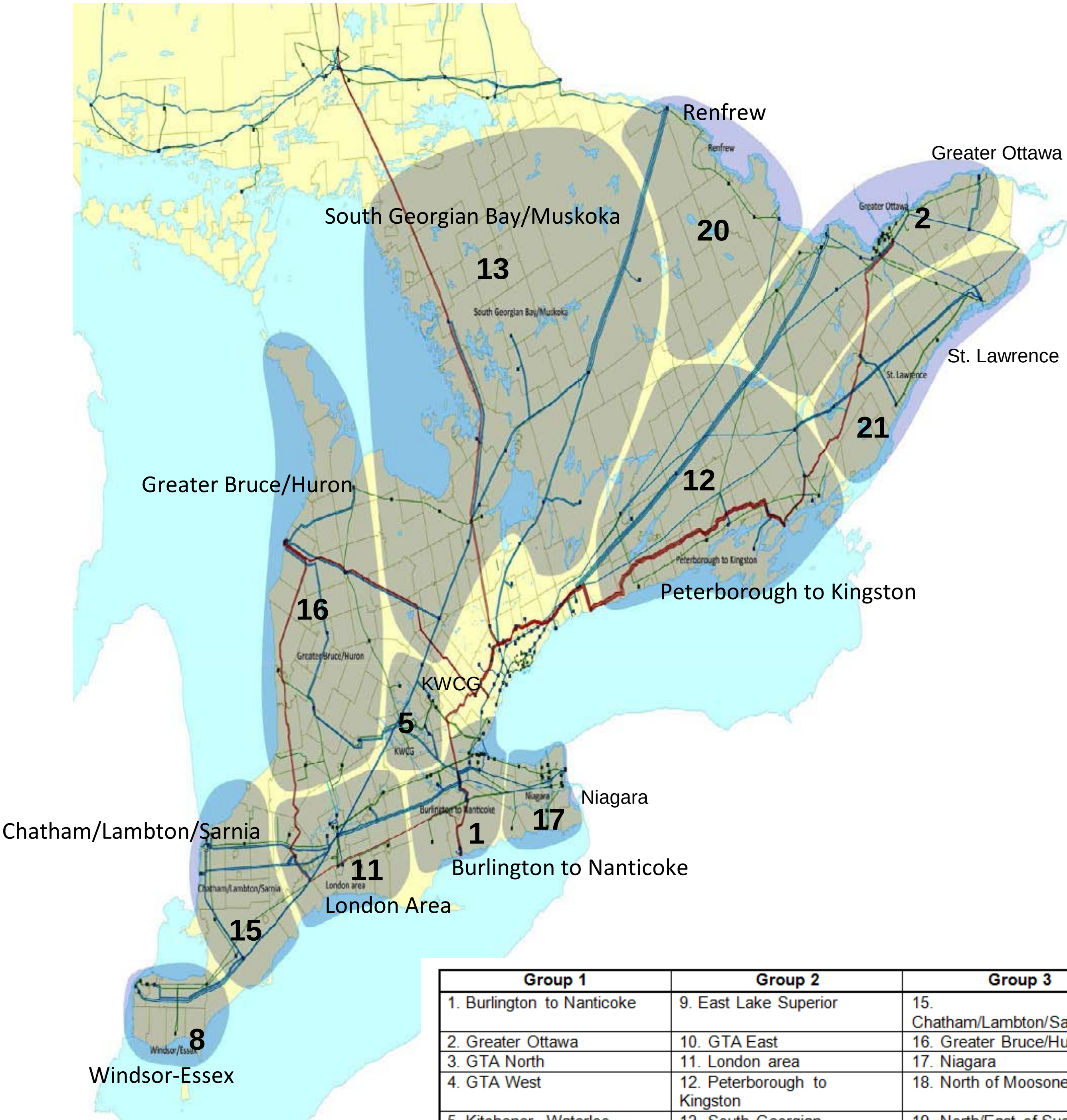
Appendix A: Map of Ontario's Planning Regions

Northern Ontario



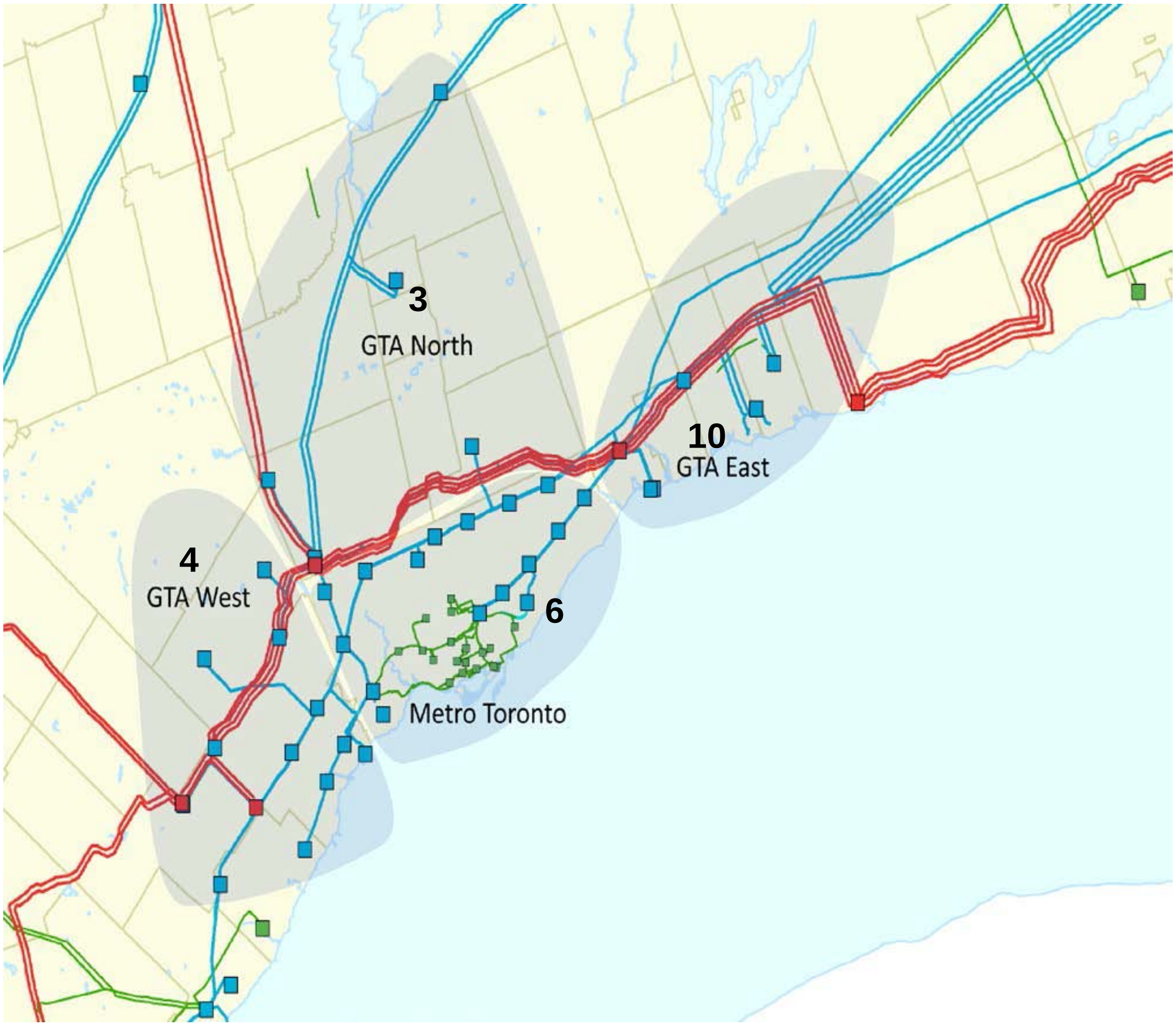
Group 1	Group 2	Group 3
1. Burlington to Nanticoke	9. East Lake Superior	15. Chatham/Lambton/Sarnia
2. Greater Ottawa	10. GTA East	16. Greater Bruce/Huron
3. GTA North	11. London area	17. Niagara
4. GTA West	12. Peterborough to Kingston	18. North of Moosonee
5. Kitchener- Waterloo-Cambridge-Guelph ("KWCG")	13. South Georgian Bay/Muskoka	19. North/East of Sudbury
6. Metro Toronto	14. Sudbury/Algoma	20. Renfrew
7. Northwest Ontario		21. St. Lawrence
8. Windsor-Essex		

Southern Ontario



Group 1	Group 2	Group 3
1. Burlington to Nanticoke	9. East Lake Superior	15. Chatham/Lambton/Sarnia
2. Greater Ottawa	10. GTA East	16. Greater Bruce/Huron
3. GTA North	11. London area	17. Niagara
4. GTA West	12. Peterborough to Kingston	18. North of Moosonee
5. Kitchener- Waterloo-Cambridge-Guelph ("KWCG")	13. South Georgian Bay/Muskoka	19. North/East of Sudbury
6. Metro Toronto	14. Sudbury/Algoma	20. Renfrew
7. Northwest Ontario		21. St. Lawrence
8. Windsor-Essex		

Greater Toronto Area (GTA)



Group 1	Group 2	Group 3
1. Burlington to Nanticoke	9. East Lake Superior	15. Chatham/Lambton/Sarnia
2. Greater Ottawa	10. GTA East	16. Greater Bruce/Huron
3. GTA North	11. London area	17. Niagara
4. GTA West	12. Peterborough to Kingston	18. North of Moosonee
5. Kitchener- Waterloo-Cambridge-Guelph (“KWCG”)	13. South Georgian Bay/Muskoka	19. North/East of Sudbury
6. Metro Toronto	14. Sudbury/Algoma	20. Renfrew
7. Northwest Ontario		21. St. Lawrence
8. Windsor-Essex		

Appendix B: List of LDCs for Each Region

[Hydro One as Upstream Transmitter]

Region	LDCs
1. Burlington to Nanticoke	• Brant County Power Inc. • Brantford Power Inc. • Burlington Hydro Inc. • Haldimand County Hydro Inc. • Horizon Utilities Corporation • Hydro One Networks Inc. • Norfolk Power Distribution Inc. • Oakville Hydro Electricity Distribution Inc.
2. Greater Ottawa	• Hydro 2000 Inc. • Hydro Hawkesbury Inc. • Hydro One Networks Inc. • Hydro Ottawa Limited • Ottawa River Power Corporation • Renfrew Hydro Inc.
3. GTA North	• Enersource Hydro Mississauga Inc. • Hydro One Brampton Networks Inc. • Hydro One Networks Inc. • Newmarket-Tay Power Distribution Ltd. • PowerStream Inc. • PowerStream Inc. [Barrie] • Toronto Hydro Electric System Limited • Veridian Connections Inc.
4. GTA West	• Burlington Hydro Inc. • Enersource Hydro Mississauga Inc. • Halton Hills Hydro Inc. • Hydro One Brampton Networks Inc. • Hydro One Networks Inc. • Milton Hydro Distribution Inc. • Oakville Hydro Electricity Distribution Inc.

5. Kitchener- Waterloo-Cambridge-Guelph ("KWCG")	• Cambridge and North Dumfries Hydro Inc. • Centre Wellington Hydro Ltd. • Guelph Hydro Electric System - Rockwood Division • Guelph Hydro Electric Systems Inc. • Halton Hills Hydro Inc. • Hydro One Networks Inc. • Kitchener-Wilmot Hydro Inc. • Milton Hydro Distribution Inc. • Waterloo North Hydro Inc. • Wellington North Power Inc.
6. Metro Toronto	• Enersource Hydro Mississauga Inc. • Hydro One Networks Inc. • PowerStream Inc. • Toronto Hydro Electric System Limited • Veridian Connections Inc.
7. Northwest Ontario	• Atikokan Hydro Inc. • Chapleau Public Utilities Corporation • Fort Frances Power Corporation • Hydro One Networks Inc. • Kenora Hydro Electric Corporation Ltd. • Sioux Lookout Hydro Inc. • Thunder Bay Hydro Electricity Distribution Inc.
8. Windsor-Essex	• E.L.K. Energy Inc. • Entegrus Power Lines Inc. [Chatham-Kent] • EnWin Utilities Ltd. • Essex Powerlines Corporation • Hydro One Networks Inc.
9. East Lake Superior	N/A →This region is not within Hydro One's territory

10. GTA East	• Hydro One Networks Inc. • Oshawa PUC Networks Inc. • Veridian Connections Inc. • Whitby Hydro Electric Corporation
11. London area	• Entegrus Power Lines Inc. [Middlesex] • Erie Thames Power Lines Corporation • Hydro One Networks Inc. • London Hydro Inc. • Norfolk Power Distribution Inc. • St. Thomas Energy Inc. • Tillsonburg Hydro Inc. • Woodstock Hydro Services Inc.
12. Peterborough to Kingston	• Eastern Ontario Power Inc. • Hydro One Networks Inc. • Kingston Hydro Corporation • Lakefront Utilities Inc. • Peterborough Distribution Inc. • Veridian Connections Inc.
13. South Georgian Bay/Muskoka	• Collingwood PowerStream Utility Services Corp. (COLLUS PowerStream Corp.) • Hydro One Networks Inc. • Innisfil Hydro Distribution Systems Limited • Lakeland Power Distribution Ltd. • Midland Power Utility Corporation • Orangeville Hydro Limited • Orillia Power Distribution Corporation • Parry Sound Power Corp. • Powerstream Inc. [Barrie] • Tay Power • Veridian Connections Inc. • Veridian-Gravenhurst Hydro Electric Inc. • Wasaga Distribution Inc.

14. Sudbury/Algoma	• Espanola Regional Hydro Distribution Corp. • Greater Sudbury Hydro Inc. • Hydro One Networks Inc.
15. Chatham/Lambton/Sarnia	• Bluewater Power Distribution Corporation • Entegrus Power Lines Inc. [Chatham-Kent] • Hydro One Networks Inc.
16. Greater Bruce/Huron	• Entegrus Power Lines Inc. [Middlesex] • Erie Thames Power Lines Corporation • Festival Hydro Inc. • Hydro One Networks Inc. • Wellington North Power Inc. • West Coast Huron Energy Inc. • Westario Power Inc.
17. Niagara	• Canadian Niagara Power Inc. [Port Colborne] • Grimsby Power Inc. • Haldimand County Hydro Inc*. • Horizon Utilities Corporation • Hydro One Networks Inc. • Niagara Peninsula Energy Inc. • Niagara-On-The-Lake Hydro Inc. • Welland Hydro-Electric System Corp. *Changes to the May 17, 2013 OEB Planning Process Working Group Report.
18. North of Moosonee	N/A →This region is not within Hydro One's territory
19. North/East of Sudbury	• Greater Sudbury Hydro Inc. • Hearst Power Distribution Company Limited • Hydro One Networks Inc. • North Bay Hydro Distribution Ltd. • Northern Ontario Wires Inc.

20. Renfrew	• Hydro One Networks Inc. • Ottawa River Power Corporation • Renfrew Hydro Inc.
21. St. Lawrence	• Cooperative Hydro Embrun Inc. • Hydro One Networks Inc. • Rideau St. Lawrence Distribution Inc.

Appendix 3: FFPC 2013 Customer Satisfaction Survey

FFPC

FORT FRANCES POWER CORPORATION

Fort Frances Power Corporation

2013 Customer Satisfaction Survey

Filed with FFPC's 2014 Cost of Service Rate Application

Case Number EB-2013-0130

Submitted December 20, 2013

Management Response

Approach:

In July of 2013, FFPC conducted a customer satisfaction survey. All customers were given the opportunity to comment on FFPC's performance, to voice concerns and to indicate customer preferences with respect to present and future service offerings. FFPC was pleased with the results of the survey that was based on 345 out of a total possible 3733 responses. Customers were limited to one survey per customer. FFPC essentially heard from 9.2% of its entire customer base, enabling a high degree of confidence from a statistical view perspective.

Overall Customer Satisfaction:

Customers are overall very satisfied with the services provided by FFPC as indicated by the average score of 9.0 out of 10, where 10 is extremely satisfied. It is worth noting that only one customer response, out of 345 received, indicated a degree of dissatisfaction.

Reliability of Electricity Supplied:

Customers are overall very satisfied with the reliability of electricity supplied as indicated by an average score of 9.5 out of 10, where 10 is extremely satisfied. Management recommends continuing with its current practices towards maintaining electrical distribution system reliability.

Conservation Program Offerings:

Customers are moderately satisfied with the portfolio of conservation programs that are being offered, as indicated by an average score of 7.8 out of 10, where 10 is extremely satisfied. Conservation program offerings appear to be an opportunity for improvement. Management recommends that the feasibility of pursuing the expansion of CDM program offerings to target "Northern Needs" be investigated. Northern residents have a large potential for CDM program offering that address heat load requirements, their heating demand is considerably higher due to extremely cold winters and moderate summers. Northern consumers consume significantly more energy with respect to heating demand, as opposed to cooling requirements.

Communicating Planned Outages:

Customers are overall satisfied with how FFPC communicates planned outages as indicated by an average score of 8.8 out of 10, where 10 is extremely satisfied. Management recommends continuing with its current practice of announcing planned outages.

Satisfaction with Unplanned Outages:

Overall customers are very satisfied with how FFPC responds to power outages overall, with the amount of time taken to restore power and with FFPC's ability to respond to questions as indicated by average scores of 9.3, 9.1 and 8.0 respectively, where 10 is extremely satisfied. Customers are moderately satisfied with FFPC's communication of when power will be restored and with FFPC's communication of why an outage occurred, as indicated by average scores of 7.7 and 7.6 respectively, where 10 is extremely satisfied. Management recommends that although customers are moderately to very satisfied, an opportunity exists to improve customer communication.

Customer Experience with Power Outages:

The average FFPC customer reported outage length was 25 minutes (0.42 Hours). This statistic indicates exceptional performance when comparing the results to other publication such as the 2010 Pollara Report, which indicates an average outage length of 167.4 Minutes (2.79 Hours) reported by Ontarians. Management recommends that FFPC maintain its current practices towards electrical distribution system reliability.

Customer Perception of Causes of Power Outages:

FFPC finds that its customers are very aware as to the causes of power outages. More than half of the respondents indicated known causes of outages. Customers identified the following causes of outages: Storms or Adverse Weather, Planned Maintenance Work, Lightning, Equipment Failure, Animal Contact and Other (mostly car accidents). A cause to note is "Animal Contact". As a point of interest, around 2005 the number one cause of FFPC's outages was "Squirrel Contacts". FFPC has since implemented an animal contact guarding system on its transformers that has significantly reduced the number of related outages.

Impact of Outages to Customers:

Overall FFPC customers reported that in their experience power outages have had minimal impact on them. Only 1.2 % of respondents reported major concerns or inconveniences. The most common major concern was that sump pumps stopped working which could result in basement flooding, in the event that power outages coincide with heavy rain falls. It is worth noting that 42.6% of respondent indicated "None or No Impact". Most common Minimum Impact responses dealt with having to reset clocks or not being able watch TV. Most common Moderate concerns were related to not being able to cook meals, as well as not being able to open garage doors.

Customer Expectations - Unplanned Outages:

FFPC's customers reported expecting on average 2.9 power outages in a typical year, and to be without power for a total of 4.4 hours per year. Management notes that these customer expectations have been used to establish FFPC's customer driven reliability targets. In other words, FFPC is committed to achieving electrical distribution system reliability performance levels that meet or exceed customer expectations of experiencing fewer than 2.9 outages per year lasting no longer than 4.4 hours in total.

Customer Needs - Electric Vehicles:

FFPC's customers reported a relatively low desire of purchasing electric vehicles within the next five years. Only 2% of respondents indicated that they plan on purchasing an electric vehicle within the next five years. Fort Frances currently offers electric vehicle owners one formal fuelling station. Given the low level of interest in electric vehicles, FFPC does not plan to undertake related activities or expenditures during the period 2014 to 2018.

Customer Needs - Renewable Generation:

FFPC's customers reported a relatively low desire of installing small scale generation in their home within the next five years. Overall 3.8% of respondents indicated that they plan to install small scale generation in their home within the next five years. If 3.8% of customers were to install a medium sized microFIT installation of 5 kW each, FFPC would be connecting approximately 710 kW of generation capacity over the 2014 to 2018 planning period. This is approximately twice as much as the actual uptake that FFPC has experienced to date. FFPC management recommends proceeding with its planned Renewable Enabling Improvements at its transformer station, to alleviate current connection constraints, which are expected to be encountered in the near future. Management also recommends maintaining its current level of service offerings with respect to renewable generation over the next five years. For details regarding FFPC's ability to accommodate renewable generation please refer to Section 5.4.3 of FFPC's 2014 to 2018 DS Plan.

Customer Needs - Energy Storage Systems:

FFPC's customers report a relatively low desire of installing energy storage systems in their home within the next five years. Overall 2.9% of respondents indicated that they are planning to install an energy storage system in their home over the next five years. FFPC management does not foresee any major change in its business needs in order to be able to accommodate a low level of energy storage systems. Management recommends evaluating the technical requirements of accommodating energy storage systems, as to date FFPC does not have any practical experience with these systems.

Customer Needs - New Service Offerings:

FFPC asked its consumers whether or not they felt that several new service offerings are expenses that would be of value to their needs. FFPC was somewhat surprised with the results which state that:

1 - 56.2% of customers felt that accessing their consumption data and billing information through the internet is an expense that would not be of value to their needs. This compares to 34.5% of customers that felt the expense would be of value to their needs. The low level of support can be explained by the fact that a significant portion of FFPC's customer base is elderly, many whom do not know how to operate computers or many modern day electronics. FFPC acknowledges that the objective of enabling consumer access to consumption data in an electronic format is a regularity objective under the Renewed Regulatory Framework for Electricity and as such FFPC will proceed with its implementation.

2 - 56.2% of customers felt that the ability for FFPC to contact customers automatically, either by telephone or email, to alert them of events such as power outages is an expense that would be of value to their needs. This compares to 34.2% of customers who felt that the expense would not be of value to their needs.

3 - 46.1% of customers felt that offering a choice of receiving a paper bill or an electronic bill is an expense that would be of value to their needs. This compares to 45.2% of customers who felt that the expense would not be of value to their needs. FFPC management acknowledges that a large portion of FFPC's customer base is elderly, many of which do not know how to operate computers or modern day electronics. As such, FFPC will proceed with implementing electronic billing as an option, as well as continue to offer paper bills to accommodate customer needs.

4 - 50.7% felt that transitioning the billing process such that customers are billed on their true calendar month consumption would benefit them. This compares to 30.4% of customer who felt that this transition would not be of benefit to them.

Based on these results FFPC will implement the following new service offerings as part of its 2014 to 2018 five-year plan.

1 - Mass customer contact system (outage notification etc).
2 - Transition to true calendar monthly billing
3 - Offering Electronic Billing
4 - Online access to consumption and billing data.
5 - Maintain distribution system reliability and performance by replacing end of life assets, in accordance to FFPC’s asset management and capital planning processes

Customer Identified Energy or Electricity Related Issues:

FFPC's customers are in tune with the electrical distribution sector and with current industry issues. The top three energy or electricity-related issues facing them and the community were identified to be:

1 - Cost of Electricity
2 - Losing the 1905 Historic Power Agreement
3 - LDC Amalgamations

FFPC Management is committed to minimizing consumer costs by exercising wise spending, as well as it is committed to up-keeping the 1905 Historic Power Agreement on behalf of its customers and community, for whom we exist. FFPC is also committed to operating as a viable and cost effective distributor.

Customer Suggestions for Improvements:

FFPC is very proud with the results of the question "Are there any specific things that FFPC could improve on to serve you better. 48.1% of all responses indicated "None" and 31.9% indicated "Don't Know". Of the relatively small proportion of suggested improvements representing a total of 13.6% of respondents, the most popular improvement suggestions were: 6.4% - Rate Reductions, 3.8% Access to Billing Data, 2.3% - transitioning to true calendar month billing, 2.0% Announcing Outages and 2.0% - Educating Consumers.

FFPC Management notes that it will be addressing many of the areas of improvement in the near future as per the following:

% Responses	Improvement	FFPC Course of Action
6.4%	Rate Reduction	Wise Spending through improved asset management and planning practices
3.8%	Access To Billing Data	FFPC will be implementing customer access to billing data
2.3%	Transition to Monthly Billing	FFPC will be transitioning to true calendar monthly billing
2.0%	Announcing Outages	FFPC will be investing in a mass customer contact technology
2.0%	Educating Consumers	FFPC will conduct consumer education campaigns
0.9%	Expand Business Scope	FFPC will evaluate the feasibility of this
0.9%	Length of Power Outages	FFPC is committed to minimizing power outages
0.6%	Other	N/A
0.3%	Arrears Payment Options	FFPC is committed to continually improving its customer care
0.3%	Budget Billing	FFPC is committed to continually improving its customer care
0.3%	Customer Care	FFPC is committed to continually improving its customer care
0.3%	Upgrade Infrastructure	FFPC is committed to up keeping its infrastructure

Consumer Education - Customer Topics of Interest:

FFPC is committed to improving its communication with customers, and a good illustration of this is FFPC's commitment to customer education campaigns. As per customer feedback FFPC will be launching consumer education campaigns beginning in 2014 that focus on consumer preference in the order of:

% Responses	Most Popular Topics of Interest
14.7%	Conservation
13.2%	Renewable Generation
12.7%	Smart Meters
11.1%	Smart Grid
9.8%	Understanding You Bill
8.7%	Demand Management
0.3%	Time-of-Use Rates
0.5%	Other

FFPC will be educating its customers utilizing Town Hall Meetings, trade shows and standard advertising outlets such as newspapers and bill inserts. FFPC is also planning on adding a new position of "Technical Customer Service Representative" to its organization. The position will primarily be responsible for engaging customers and to deliver customer preference related projects and services.

General Comments Received:

FFPC is also very proud of the general comments received. Almost half of customers who completed the survey provided general comments. Of the comments received, 71% were compliments towards FFPC such as:

> "Thank you for providing low cost electricity."
>
> "FFPC has always been very helpful at answering any questions in the past that I have had. They (the employees) have and do a great job. FFPC is an asset to this community."
>
> "I have lived at the same address for almost 51 years, and I cannot remember one negative problem with FFPC."
>
> "I think you are providing a quality, affordable product and service."

Summary:

FFPC is very pleased with the customer feedback received. FFPC will integrate the results obtained in this survey into its current and future planning activities, such as the Distribution System Plan. FFPC is committed to ensuring that its service offerings and priorities are aligned with the needs and priorities of its customers.

FFPC 2013 Customer Survey Score Card

		Scoring Legend			FFPC Score		
		Scoring Range From 1 to 10					
		Not At All Satisfied	Neither Satisfied or Dissatisfied	Extremely Satisfied	Average	Median	Mode
1	Overall, how satisfied are you with the services provided by the Fort Frances Power Corporation (FFPC)?	1	5	10	9.0	10.0	10.0
2	How satisfied are you with the reliability of the electricity supplied to you overall?	1	5	10	9.5	10.0	10.0
3	How satisfied are you with the portfolio of conservation programs that are currently offered to you?	1	5	10	7.8	10.0	10.0
4	How satisfied are you with how FFPC communicates planned outages to you?	1	5	10	8.8	10.0	10.0
5	Now thinking specifically about unplanned outages, how satisfied are you with FFPC:						
	a. Responding to power outages, overall?	1	5	10	9.3	10.0	10.0
	b. Amount of time taken to restore power?	1	5	10	9.1	10.0	10.0
	c. Ability to respond to questions?	1	5	10	8.0	10.0	10.0
	d. Communication when power will be restored?	1	5	10	7.7	9.5	10.0
	e. Communication why an outage occurred?	1	5	10	7.6	10.0	10.0

			FFPC Score		
6	Thinking of recent power outages that you have experienced:	Answer in Minutes	Average Minutes	Median Minutes	Mode Minutes
	a. On average, for how many minutes do power outages last?	X Minutes	25.0	15.0	30.0

b. To the best of your knowledge what caused these outages?

Perceived Cause of Recent Outages	
49.3%	% Don't Know
22.3%	% Storms / Adverse Weather
9.7%	% Planned Maintenance Work
6.8%	% Lightning
4.7%	% Equipment Failure
3.7%	% Animal Contact
3.4%	% Other
100.0%	Total

c. What impact, if any, did these power outages have on you or your family?

Most Common Answers:
Minimal: Reset Clocks, No TV
Moderate - Not Able to Cook, Garage Door Would not open
Major - Fear of sump pump not working

Impact of recent outages	
22.3%	% Don't Know
42.6%	% None
27.8%	% Minimal Inconvenience
6.1%	% Moderate Inconvenience
1.2%	% Major Inconvenience
100.0%	Total

		Scoring Legend Scoring Range from 1 to 10		FFPC Score		
7	Thinking again about your experience with power outages, how concerned were you about the following:	Not At All Concerned	Extremely Concerned	Average	Median	Mode
	a. How long food would last?	1	10	3.9	1.0	1.0
	b. The temperature of your home?	1	10	4.3	2.0	1.0
	c. Ability to attend events?	1	10	2.4	1.0	1.0
	d. Childrens' and family's safety?	1	10	3.9	1.0	1.0
	e. Security of your home?	1	10	3.3	1.0	1.0

		Scoring Legend	FFPC Score		
		Number of Instances	Average	Median	Mode
8	How many unplanned power outages do you expect to happen at your home in a typical year?	X Unplanned Outages	2.9	2.0	2.0

		Scoring Legend	FFPC Score		
		Number of Hours	Average Hours	Median Hours	Mode Hours
9	How many hours in a year do you expect to be without electricity?	X Hours	4.4	3.0	1.0

		Scoring Legend	FFPC Score		
		Yes / No (or Don't Know)	% Yes	% No	% Don't Know
10	In the next five years, is your household planning to purchase an electric car?	Answer Yes or No	2.0%	84.3%	13.6%
11	In the next five years, is your household planning on installing a small scale renewable generation system (such as solar) for your home?	Answer Yes or No	3.8%	81.4%	14.8%
12	In the next five years, is your household planning on installing an energy storage system	Answer Yes or No	2.9%	82.9%	14.2%

13	FFPC is currently evaluating a solution that will allow our customers to access their electricity consumption data and billing information through the internet. Is this an expense that would be of value to your needs?	Answer Yes or No	34.5%	56.2%	9.3%
14	FFPC is evaluating investing in a 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?	Answer Yes or No	56.2%	34.2%	9.6%
15	FFPC is evaluating offering customers a choice of receiving a paper bill or an electronic bill via email or through web access. Is this an expense that would be of value to your needs?	Answer Yes or No	46.1%	45.2%	8.7%
16	FFPC is evaluating changing its billing process such that customers will be billed on their true monthly consumption (from the first day of the month to the last day of the month). Would this transition be of benefit to you?	Answer Yes or No	50.7%	30.4%	18.8%
17	What would you say is the most important energy or electricity-related issue facing the community of Fort Frances today?				

Most Important Issues Identified by Customers

34.8%	*% Don't Know*
32.2%	% Cost of Electricity
10.1%	% Losing Historic Power Agreement
	% LDC
8.2%	Amalgamation
2.9%	% Conservation
2.9%	% Other
2.7%	% Reliability
2.4%	% Renewable Generation
	% Time-of-Use
2.4%	Rates
1.3%	% Upgrading Infrastructure
100.0%	Total

18	Are there any specific things that FFPC could improve on to serve you better?	**Most Common Suggestions For Improvements**	
		31.9%	*% Don't Know*
		48.1%	% None
		6.4%	% Rate Reduction
		3.8%	% Access To Billing Data
		2.3%	% Transition to Monthly Billing
		2.0%	% Announcing Outages
		2.0%	% Educating Consumers
		0.9%	% Expand Business Scope
		0.9%	% Length of Power Outages
		0.6%	% Other
		0.3%	% Arrears Payment Options
		0.3%	% Budget Billing
		0.3%	% Customer Care
		0.3%	% Upgrade Infrastructure
		100.0%	Total
19	FFPC is looking to launch several consumer education campaigns, are there any specific topics that you would like to know more about such as Conservation, Demand Management, Smart Grid, Renewable Generation, Smart Meter, Understanding Your bill etc?	**Most Requested Topics for Consumer Education**	
		28.9%	% None
		14.7%	% Conservation
		13.2%	% Renewable Generation
		12.7%	% Smart Meters
		11.1%	% Smart Grid
		9.8%	% Understanding Your Bill
		8.7%	% Demand Management
		0.5%	% Other
		0.3%	% TOU Rates
		100.0%	Total
20	We would appreciate any general comments:	**Most Common Comments Received**	

General Comment	
1.7%	% General Comment (Not FFPC Specific)
0.9%	% Comment - Access billing data / online Billing
2.6%	

Complaints	
0.3%	% Complaint - Survey is money not well spent
0.3%	% Complaint - Deposit policy
1.4%	% Complaint - Time-of-Use Rates
0.6%	% Complaint - When will DRC be paid off?
2.6%	

Compliments to FFPC	
0.9%	% Compliment - Appreciated survey
0.3%	% Compliment - Billing Information
34.5%	% Compliment - Good Job, Great Utility, etc.
35.7%	

Voicing Concerns	
0.3%	% Concern - Availability of Future Supply
1.2%	% Concern - Elderly having to use computers
1.2%	% Concern - LDC Amalgamating
0.9%	% Concern - Losing Historic Power Agreement
3.5%	

No Response Provided	
51.6%	% None
51.6%	

Customer Requests	
0.3%	% Request - Keep rates low
0.3%	% Request - Offer more CDM incentives

0.3%	% Request - Reduce delivery charge
1.4%	% Request for information
2.3%	

Customer Suggestions For Improvements

0.3%	% Suggested Improvement - Customer Relations
0.3%	% Suggested Improvement - Length of Outages
0.3%	% Suggested Improvement - Survey Access
0.3%	% Suggested Improvement - Survey Format
0.6%	% Suggested Improvement - Move to true monthly billing
1.7%	

100.0%	Total

Appendix 4: Maintenance Inspection Program

Maintenance Inspection Program

In Accordance to the Requirements of:

Ontario Regulation 22/04 Sections 4 & 5

"Safety Standards / When Safety Standards Met"

And

Ontario Energy Board

Electrical Distribution System Code Appendix C

"Minimum Inspection Requirements"

Rev. 3, November 2012

Table of Contents:

Foreword:

In response to the 2007 ESA Regulation 22/04 Compliance Audit, the Fort Frances Power Corporation has taken initiative to develop a formal policy and protocol to govern the maintenance and inspection of overhead, underground and transformer station facilities.

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.

Process Summary:

The Fort Frances Power Corporation performs routine inspections on all of its overhead, underground and transformer station facilities, to ensure that deficiencies are identified and corrected on a timely basis, to minimize the probability of exposure to electrical hazards. The inspection system is broken into three components; inspection of overhead systems, inspection of underground systems and inspection of transformer station. All three components are subjected to "Tier 1" inspections that are performed at least quarterly for overhead and underground distribution plant and monthly on transformer station plant. Tier 1 line patrol inspections utilize generic inspection forms that do not reference FFPC's itemized assets that are now available through FFPC's GIS system.

Over the last several years FFPC has implemented "Tier 2" Inspections that are inspections performed at the major distribution asset level. FFPC has itemized its major overhead and underground distributions assets and developed asset specific inspection logs. FFPC will perform asset specific "Tier 2" at a minimum inspection interval of three years. The three year inspection cycle is in accordance with the "Minimum Inspection Requirements" a set out in the Ontario Energy Board's Distribution System Code (DSC) Appendix C.

Section 1: Overhead Distribution System

Regulation 22/04 Requirements and FFPC Policy:

All overhead distribution lines, including secondary distribution lines, shall meet the following safety standards:

1. Operating electrical equipment shall be maintained in proper operating condition.

2. Adequate space shall be provided around electrical equipment for proper operation and maintenance.
3. Energized conductors and live parts shall be barriered such that vegetation, equipment or unauthorized persons do not come in contact with them or draw arcs under reasonably foreseeable circumstances.
4. Metal parts of the installation that are not intended to be energized and that are accessible to unauthorized persons shall be effectively grounded.
5. Structures supporting energized conductors and live parts shall have sufficient strength to withstand the loads imposed on the structure by electrical equipment and weather loadings. O. Reg. 22/04, s. 4 (4).

Overhead Inspection Process:

Inspection of the overhead distribution system is performed at a minimum quarterly basis utilizing FFPC's "Tier 1" inspection forms. The following list of observations / tests is performed to assess components to either be Acceptable or Not Acceptable. Not acceptable items are documented and tracked on a maintenance summary backlog and are repaired as soon as practically possible depending on the urgency of the deficiency. Refer to Appendix B for a copy of the Tier 1 Overhead Distribution System Inspection Form

Tier 1 Inspections - Patrol Inspections:

Transformers:

- Tank Corrosion/Rust, Paint Condition
- Tank Leaking Oil
- Exterior Damage
- Contamination/Discolouration of Bushings
- Flashed or Cracked Insulators
- Loose Cable Connections
- Accessibility Compromised

Switches & Protective Devices:

- Bent, Broken Bushings & Cutouts
- Damaged Lightning Arrestors
- Ground Wires on Arrestors Unattached
- Damaged Instrument Transformers

Conductors & Cables:

- Low Conductor Clearance
- Broken or Frayed Conductor Strands
- Exposed Broken Ground Conductor
- Excessive or Inadequate Conductor Sag
- Bared Insulation on Secondary Conductor

Poles & Supports:

- Leaning, Cracked or Broken Poles
- Excessive Surface Wear or Scaling
- Indications of Burning
- Woodpecker or Insect Damage
- Bird Nests on Poles
- Loose or Broken Cross Arms
- Loose or Broken Brackets
- Loose or Unattached Guy Wires or Stubs
- Guy Strain Insulators Pulled Apart or Broken
- Guy Guards Out of Position or Missing
- Guy Anchors Exposed
- Grading Changes or Washouts

Pole Hardware & Attachments:

- Loose or Missing Hardware
- Insulators Unattached From Brackets
- Conductor Unattached From Insulators
- Riser Pole Hardware Damage
- Dip Pole Hardware Damage
- Insulators Flashed Over or Contaminated
- Tie Wires Unravelled
- Ground Wire Broken or Removed
- Ground Wire Guards Broken or Removed
- Missing Switch, Riser or Dip Pole ID Tag

Other Equipment Installations:

- Telecommunications Attachments
- Cable TV Attachments
- Hydro One Attachments
- Accessibility Compromised

Vegetation & Right of Way:

- Leaning or Broken "Danger" Trees
- Trees, Vines or Brush Growth Interference

Tier 2 Inspections - Detailed Asset Inspections:

FFPC has invested significant resources towards the development of a Geographic Information (GIS) system. The GIS system contains a detailed listing of FFPC's major overhead and underground distribution system components including poles, transformers, primary conductor runs and conductor sizes. FFPC is currently creating “itemized” inspection logs at the component level (ie. for overhead plant listing every pole) that are intended to be completed at a minimum three year interval. FFPC refers to these inspections as “Tier 2” Inspections and sample inspection forms are located in Appendix F.

Tier 2 Overhead Plant Inspections:
Perform inspection of all poles and associated pole hardware rating each inspection category "S-Satisfactory" or "U-Unsatisfactory." Not Applicable categories may be left blank of denoted "N/A'. Examples of deficiencies include:

Inspection Categories:

Pole Hammer Test
- Structural integrity of pole tested via hammer test

Pole Condition Assessment
- Leaning, Cracked or Broken Poles
- Excessive Surface Wear or Scaling
- Indications of Burning
- Woodpecker or Insect Damage
- Bird Nests on Poles

Anchors & Guying
- Loose or Unattached Guy Wires or Stubs
- Guy Strain Insulators Pulled Apart or Broken
- Guy Guards Out of Position or Missing
- Guy Anchors Exposed
- Grading Changes or Washouts

Primary / Secondary Conductor
- Low Conductor Clearance
- Broken or Frayed Conductor Strands
- Exposed Broken Ground Conductor
- Excessive or Inadequate Conductor Sag
- Bared Insulation on Secondary Conductor
- Conductor Unattached From Insulators
- Tie Wires Unravelled
- Ground Wire Broken or Removed
- Ground Wire Guards Broken or Removed

Pole-Top Assembly
- Bent, Broken Bushings & Cutouts
- Damaged Lightning Arrestors
- Ground Wires on Arrestors Unattached
- Damaged Instrument Transformers
- Loose or Broken Cross Arms
- Loose or Broken Brackets
- Loose or Missing Hardware

Insulators Unattached From Brackets

- Riser Pole Hardware Damage
- Dip Pole Hardware Damage
- Missing Switch, Riser or Dip Pole ID Tag
- Insulators Flashed Over or Contaminated

Transformers

- Tank Corrosion/Rust, Paint Condition
- Tank Leaking Oil
- Exterior Damage
- Contamination/Discolouration of Bushings
- Flashed or Cracked Insulators
- Loose Cable Connections
- Accessibility Compromised

Third Party Attachments

- Telecommunications Attachments
- Cable TV Attachments
- Hydro One Attachments
- Accessibility Compromised

Vegetation

- Leaning or Broken "Danger" Trees
- Trees, Vines or Brush Growth Interference

Deficiency Criticality Rating:

Upon the discovery of a deficiency, the deficiency will be prioritized as per the following (note that priority 1 - Immediate Attention deficiencies are acted upon immediately and do not require the issuance of a Work Oder).

1. Immediate Attention - Hazardous condition exists that requires immediate attention
2. Immediate Analysis - Requires immediate analysis to determine severity of condition
3. Priority Schedule - Requires prompt planned attention but no immediate hazard exists
4. Regularly Schedule - Requires planned attention but no immediate hazard exists
5. Regular Inspection Cycle - Potential deficiency exists, to be re-evaluated during next regular inspection cycle

Completion of Inspection Phase

Once all assets have been inspected according to the asset listing, the inspectors involved in performing the inspection signoff on the inspection process so that formal processing of deficiencies can begin.

Processing of Deficiencies

Upon completion of the inspection cycle, a review of findings is conducted and deficiencies are processed for appropriate corrective actions such as being to a maintenance work order or to future capital plans.

Review of Status of Deficiencies

A periodic review of identified deficiencies is conducted to ensure that all identified deficiencies are processed.

Section 2: Underground Distribution System

Regulation 22/04 Requirements and FFPC Policy:

All underground distribution lines, including secondary distribution lines, shall meet the following safety standards:

1. Operating electrical equipment shall be maintained in proper operating condition.
2. Adequate space shall be provided around electrical equipment for proper operation and maintenance.
3. Energized conductors and live parts shall be barriered such that equipment or unauthorized persons do not come into contact with them or draw arcs under reasonably foreseeable circumstances.
4. Metal parts of the installation that are not intended to be energized and that are accessible to unauthorized persons shall be effectively grounded.
5. Parts of the distribution system in proximity to the inside walls of a swimming pool shall be installed in such a way as to minimize the possibility of voltage gradients in the swimming pool.
6. Parts of a distribution system in proximity to propane tanks and natural gas pipelines shall be installed in such a way as to minimize the possibility of explosions under normal circumstances and operating conditions. O. Reg. 22/04, s. 4 (5).

Underground Inspection Process:

Inspection of the underground distribution system is performed at a minimum quarterly basis utilizing FFPC's "Tier 1" inspection forms. The following list of observations / tests is performed to assess components to either be Acceptable or Not Acceptable. Not acceptable items are documented and tracked on a maintenance summary backlog and are repaired as soon as practically possible depending on the urgency of the deficiency. Refer to Appendix B for a copy of the Tier 1 Underground Distribution System Inspection Form.

Tier 1 Inspections - Patrol Inspections:

Pad-mount Transformers & Enclosures

- Corrosion/Rust, Paint Condition
- Leaking Oil

- Lid or Cabinet Damage
- Missing Bolts
- Security Lock Damage
- Grade Changes
- Access Changes

Switching & Protective Devices:

- Structural Condition of Enclosure
- Security Condition of Enclosure
- Missing Switch ID Tag

Conductors & Cables:

- Exposed Cables
- Grade Changes Bringing Cable to Surface

Tier 2 Inspections - Detailed Asset Inspections:

FFPC has invested significant resources towards the development of a Geographic Information (GIS) system. The GIS system contains a detailed listing of FFPC's major overhead and underground distribution system components including poles, transformers and conductor sizes. FFPC is currently creating "itemized" inspection logs at the component level (a listing of all pad mounted transformers to perform enclosure integrity inspections) that are intended to be completed at a minimum three year interval. For a sample itemized underground inspection sheet, refer to Appendix G.

Tier 2 Overhead Plant Inspections:

Perform inspection of all pad-mounted transformer and associated equipment, rating each inspection category "S-Satisfactory" or "U-Unsatisfactory." Not Applicable categories may be left blank of denoted "N/A'. Examples of deficiencies include:

Inspection Categories:

Lock Integrity

- Security Lock Damaged / Not Operational

Enclosure/Exterior Inspection

- Corrosion/Rust, Paint Condition
- Lid or Cabinet Damage
- Doors do not open
- Missing Bolts
- Exposed Cables
- Nomenclature / Danger Signage

Internal Visual Inspection

- Leaking Oil
- Animal Intrusion
- Cable Damage / Degradation
- Connector Damage / Degradation
- Cracked Bushing

General / Other Observations

- Grade Concerns / Tilting
- Accessibility / Obstructions / Plant Interference
- Grade Changes Bringing Cable to Surface
- Bollards
- Concrete Pad

Snow Poles

FFPC also uses the inspection log to track the annual installation and removal of snow poles. FFPC installs snow poles on all pad-mounted transformers that are in proximity to vehicular traffic such that transformer enclosures can be easily identified in deep snow.

Assessing Criticality of Deficiency:

Upon the discovery of a deficiency, the deficiency will be prioritized as per the following (note that priority 1 - "Immediate Attention" deficiencies are acted upon immediately and do not require the issuance of a Work Oder).

1. Immediate Attention - Hazardous condition exists that requires immediate attention
2. Immediate Analysis - Requires immediate analysis to determine severity of condition
3. Priority Schedule - Requires prompt planned attention but no immediate hazard exists
4. Regularly Schedule - Requires planned attention but no immediate hazard exists
5. Regular Inspection Cycle - Potential deficiency exists, to be re-evaluated during next regular inspection cycle

Processing of Deficiencies

Upon completion of the inspection cycle, a review of findings is conducted and deficiencies are processed for appropriate corrective actions such as being assigned to a maintenance work order or to future capital plans.

Review of Status of Deficiencies

A periodic review of identified deficiencies is conducted to ensure that all identified deficiencies are processed.

Section 3: Transformer Station

Regulation 22/04 Requirements and FFPC Policy:

Transformer stations shall meet the following safety standards:

1. Operating electrical equipment shall be maintained in proper operating condition.
2. Adequate space shall be provided around electrical equipment for proper operation and maintenance.
3. Metal parts of the installation that are not intended to be energized and that are accessible to unauthorized persons shall be effectively grounded.
4. Energized conductors and live parts shall be barriered such that equipment or unauthorized persons do not contact them or draw arcs under reasonably foreseeable circumstances.
5. Structures supporting energized conductors and live parts shall have sufficient strength to withstand the loads imposed on the structure by equipment and weather loadings. O. Reg. 22/04, s. 4 (6).

Transformer Station Inspection Process:

Inspection of the transformer station is performed on a monthly basis, as well as on an annual basis with the annual inspection having different inspection criteria. The following list of observations / tests are performed to assess components to either be Acceptable or Not Acceptable. Not acceptable items are documented and tracked on a maintenance summary backlog and are repaired as soon as practically possible depending on the urgency of the deficiency.

Outside Yard:

- Condition of Driveway & Surrounding Yard
- Condition of Station Fence & Gates
- Condition of Signage
- Condition of Security Locks
- Grading Changes or Washouts Along Fence
- Operation of Yard Lights
- Condition of Yard Housekeeping
- Vegetation Growth Inside Fence Area

Exterior of Buildings:

- Condition of Exterior Walls & Roofs
- Condition of Exterior Doors & Security Locks
- Operation of Exterior Lights

Tower Structure:

- Leaning, Cracked or Bent Components
- Loose Bolts or Fasteners

- Exterior Corrosion/Rust
- Exterior Damage
- Condition of Insulators
- Condition of Energizing Blades

Transformers:

- Leaking Oil
- Paint Condition
- Exterior Corrosion/Rust
- Exterior Damage
- Operation of Fans
- Condition of Bushings & Arrestors
- Condition of Tap Changer Cabinet
- Operation of Tap Changer
- Operation of Tap Changer Heater
- Oil Samples Taken & Sent for Analysis

Oil Filled Circuit Breakers:

- Operation of Heaters
- Oil Samples Taken & Sent for Analysis

Transformer DC Battery Bank:

- Leaking Fluid
- Condition of Jumpers & Plates
- Condition of Cabinet
- Test Individual Battery Cell Voltages (Quarterly)
- Operation of Charger
- Calibrate Float
- Equalize Voltage
- Charge Batteries
- End-of-Life Battery Test (5years)

Relays:

- Status of Reclosures & Flags
- Operation of Relays (Breakers in Test Mode)
- Test & Re-Calibrate (3 years)

Interior of Buildings:

- Condition of Walls, Floors & Ceilings
- Operation of Lights
- Operation of DC Lights
- Operation of Heating & HVAC System
- Operation of Station Telephone
- Condition of Eyewash Station

- Condition of First Aid Kit
- Condition of Housekeeping

Switchgear:

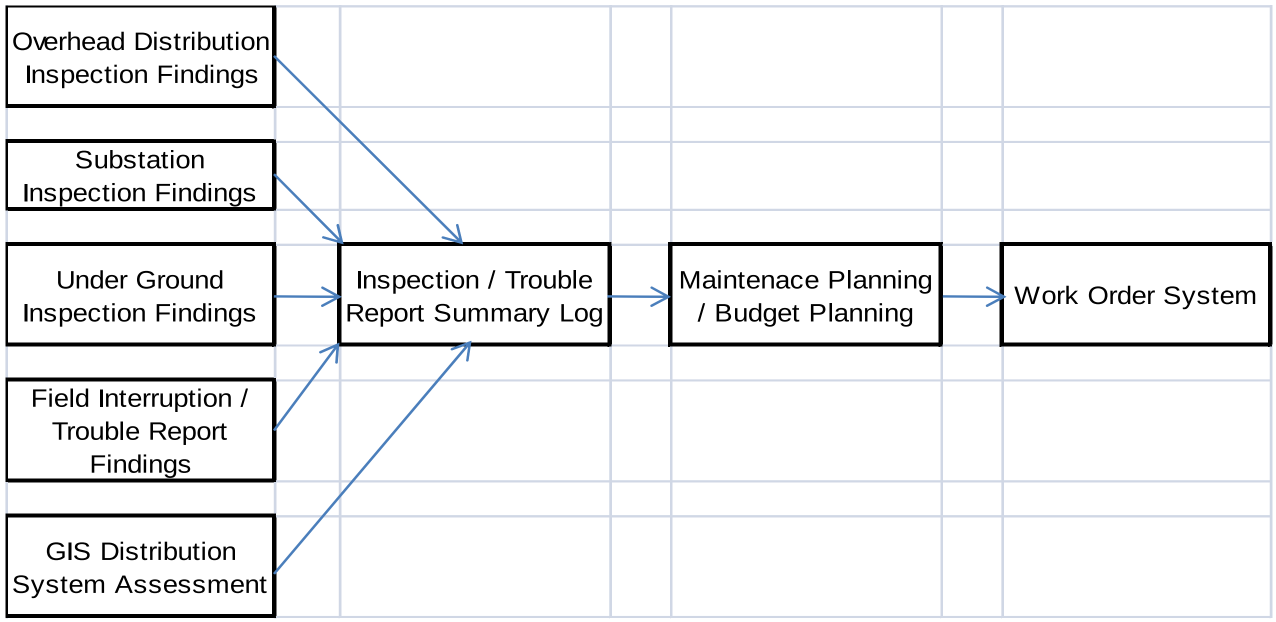
- Condition of Station Arrestors (Back Cabinet)
- Operation of Breakers (2 years)
- Cleaning of Breakers (2 years)

Third Party Inspection and Maintenance of FFPC Substation:

FFPC has retained third party services to provide annual condition testing and inspections of key substation components and to perform any necessary major repairs. All major station components are condition tested on a three year cycle. Inspections are performed on all high/medium voltage circuit breakers, station transformers (including on-load tap changers and lightning arresters), DC power systems, and all station protective relaying. In addition, oil testing and condition analysis is performed on station transformers and high voltage oil filled circuit breakers annually.

Maintenance Planning Process:

The Fort Frances Power Corporation aims to perform maintenance on its plant in a proactive manner, utilizing the inspection process as well as information gathered from Trouble, Outage Reports and its GIS system to develop maintenance action items. All "Not Acceptable" maintenance items, as well as Outage Causes, are tracked on a maintenance log to ensure that all items are repaired in a timely manner as well as assisting in future maintenance planning to improve the system performance, reliability and safety. An item will remain on the maintenance log until the item is marked as complete and no further action is required. The document / information flow is as follows.


Overhead Distribution Inspection Findings
Substation Inspection Findings
Under Ground Inspection Findings
Field Interruption / Trouble Report Findings
GIS Distribution System Assessment
Inspection / Trouble Report Summary Log
Maintenace Planning / Budget Planning
Work Order System

Appendix A:

Regulation 22/04 Definitions as per Technical Guidelines

Definitions

1.3.1 "ancillary equipment" means electrical installations (not located in buildings, or rooms in buildings, used as offices, washrooms, cafeterias, warehouses, garages, machine shops and recreational facilities) that are operating at 750 Volts or below to support but are not a direct part of a *distribution system* such as sump pumps, SCADA equipment, strip heating, etc.;

1.3.2 "approved equipment" means equipment that meet rule 2-024 of the Electrical Safety Code or that has been purchased, tested and inspected in accordance with industry standards, or equipment specification, or *Good Utility Practice* and procedures of the distributor and an assurance of safety of the equipment equivalent

to rule 2-024 of the Electrical Safety Code is provided; 1.3.3 "Authority" means the Electrical Safety Authority;

1.3.4 "authorized person" means a *competent person* authorized by a distributor to have access to areas containing, or structures supporting, energized apparatus or conductors. O. Reg.22/04;

1.3.5 "barriered" means separated by clearances, burial, separations, spacings, insulation, fences, railings, enclosures, structures and other physical barriers, signage, markers or any combination of the above (Reg.22/04);

1.3.6 "Certificate" means a certificate issued by a *professional engineer*, ESA or a *qualified person* identified in the distributor's construction verification program, that the construction meets the safety standards set out in Section 4 of the Regulation;

1.3.7 "certificate of approval" means the certificate issued by a professional engineer or ESA confirming that a plan or Standard Design meets the safety standards set out in section 4 of the Regulation and provided to the distributor;

1.3.8 "certification organization" means an organization accredited by the Standards Council of Canada;

1.3.9 "Certified Test Report" means a report that contains sufficient information to allow the distributor's competent person to approve the electrical equipment. The report shall provide sufficient information to ensure the equipment meets or exceeds the applicable industry standard or distributor developed equipment specification. A Certified Test Report must be signed by a P.Eng or an Engineer where the licensure's obligation to public safety of the home jurisdiction are substantially equivalent to those required by Ontario.

1.3.10 "competent person" means a person who,

(a) is qualified because of knowledge, training and experience,
 (i) to perform specific work, or
 (ii) to organize work and its performance,

(b) has knowledge of any potential or actual danger to health or safety in the workplace in relation to the work, and

(c) Is familiar with section 113 of the Act and the regulations made under it, and with the *Occupational Health and Safety Act* and the regulations made under that Act, that apply to the work. O. Reg.22/04;

1.3.11 “construction verification” means the inspection, approval and documentation of any new construction or repairs to *distribution systems* including replacements of part or portion of a distribution system, *like-for-like replacements*, and *legacy construction* replacement with respect to the safety standards set out in Section 4 of the Regulation;

1.3.12 “contractor” means any person who performs work on electrical equipment or an electrical installation. O. Reg.22/04;

1.3.13 “disconnecting means” means a device, group of devices or other means whereby the conductors of a circuit can be disconnected from their source of supply. O. Reg.22/04;

1.3.14 “distribution line” or “line” means an electricity distribution line, transformers, plant or equipment used for conveying electricity at voltages of 50,000 volts or less (Reg.22/04);

1.3.15 “distribution station” means an enclosed assemblage of equipment, including but not limited to switches, circuit breakers, buses and transformers, through which electrical energy is passed for the purpose of transforming one primary voltage to another primary voltage. O. Reg.22/04;

1.3.16 “distribution system” means a system for distributing electricity, and includes any structures equipment or other things used by a *distributor* for that purpose;

1.3.17 “distributor” means a person who owns or operates a *distribution system* in the service territory defined in the electricity distribution license issued by the Ontario Energy Board (OEB);

1.3.18 “effectively grounded” means permanently connected to earth through a ground connection of sufficiently low impedance and having sufficient current-carrying capacity to prevent the building up of voltages that may result in undue hazard to persons. O. Reg.22/04;

1.3.19 "electrical installation" means the installation, repair, replacement, alteration or extension of any wiring or electrical equipment that forms part of a distribution system (Reg.22/04); 1.3.20 “ESC” means the Electrical Safety Code referred to in Ontario Regulation 164/99;

1.3.21 "equipment" or “electrical equipment” means any apparatus, device or material used for the distribution of electricity, including materials that are non-electric in origin *(refer to the Regulation for the complete definition of “electrical equipment”*(Reg.22/04);

1.3.22 “field evaluation agency” means an organization accredited by the Standards Council of Canada and recognized by the Electrical Safety Authority (ESA) as being qualified to carry out a safety evaluation of electrical equipment that is limited in scope to essential safety considerations;

1.3.23 “Good Utility Practice” means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry in North America during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good practices, reliability, safety and expedition. Good utility practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in North America (DSC);

1.3.24 “hazard” means a potential for injury to a person or property;

1.3.25 “legacy construction” means existing construction built in accordance with *Good Utility Practice,* that does not meet current Standard Designs;

1.3.26 “like-for-like replacement” means the replacement of one piece of electrical equipment (one assembly) under all conditions, or a part or portion of a line under emergency conditions, on an existing distribution system that maintains as a minimum the characteristics and functionalities of the original installation;

1.3.27 “line upgrade” means the replacement or significant improvement of an existing *distribution line*;

1.3.28 “live” means electrically connected to a source of voltage difference or electrically charged so as to have a voltage different from that of the earth O. Reg.22/04;

1.3.29 “no undue hazard” for the purpose of approving equipment for use in the distribution system where indicated in this Guideline means that:

- energized parts of the equipment are insulated or *barriered*,
- the equipment has sufficient mechanical strength to withstand the loads imposed on it by the intended application in the distribution system,
- the equipment has grounding provision so that it can be *effectively grounded* where required,
- the equipment design and construction has no unprotected sharp edges, or dangerous moving parts,
- the equipment electrical characteristics and protection minimize the possibility of excessive temperature, fire or explosion under expected operation conditions;

1.3.30 “no undue hazard” for the purpose of *construction verification* of an *electrical installation* where indicated in this Guideline means that:

- metal parts that are not intended to be energized and that are accessible to unauthorized persons are adequately grounded,
- *live* parts are adequately insulated or *barriered*,
- the installation meets the minimum CSA clearances from buildings, signs and ground or barriers are installed to protect,
- the structure has adequate strength where adequate means in accordance with *Good Utility Practice*;

1.3.31 “ownership demarcation point” means the point,

(a) at which the distributor’s ownership of a distribution system, including connection assets, ends at the customer, and

(b) that is not located beyond,

i. the first set of terminals located on or in any building,or

ii. an electrical room or *vault* in a building where the electrical room or *vault* is of tamperproof construction, bears a sign to indicate that it is an electrical room or *vault* and is accessible only to *authorized persons* (Reg.22/04);

1.3.32 “plan” means the drawings and instructions that are prepared for the construction of new or modified *distribution system* that have been reviewed and approved by a *professional engineer* or ESA;

1.3.33 “primary distribution line” means a distribution line conveying electricity at more than 750 volts but not more than 50,000 volts phase to phase; O. Reg.22/04

1.3.34 “professional engineer” means a person who holds a license or temporary license under the Professional Engineers Act (Reg. 22/04);

1.3.35 “putting a system into use” means making an *electrical installation* forming part of the electrical *distribution system* available for service;

1.3.36 “qualified person” means a person identified in a *construction verification* program developed by the distributor and approved by ESA for the purpose of inspection and approval of construction;

1.3.37 “record of inspection” means a record prepared by a *professional engineer*, ESA, or a *qualified person* identified in the distributor’s *construction verification* program, detailing the inspection of a constructed or repaired portion of an electrical distribution system with respect to the safety standards set out in section 4 of the Regulation;

1.3.38 “Regulation” means the Ontario Regulation 22/04 – Electrical Distribution Safety;

1.3.39 “safety standards” means the safety standards set out in section 4 of the Regulation;

1.3.40 “secondary distribution line” means an electricity distribution line conveying electricity at 750 volts or less phase to phase. O. Reg.22/04;

1.3.41 “Standard Designs” means the standards such as standard design drawings, standard design specifications, technical specifications, and construction standards that have been reviewed and approved by a *professional engineer* or ESA for use by a *distributor* and that the *distributor* uses on an ongoing basis for the construction, operation, and maintenance of its distribution system;

1.3.42 “Utility Advisory Council (UAC)” means an advisory body formed to provide advice to ESA specific to the Electrical Distribution Safety Regulation governing the distribution of electricity in Ontario;

1.3.43 “vault” means an isolated enclosure, either above or below ground, with fire-resistant walls, ceilings and floors in which transformers and other *electrical equipment* are housed. O. Reg. 22/04, s. 1.

1.3.44 “work instruction” means the assembly of *Standard Designs* into drawings and instructions prepared by a *competent person* in accordance with the distributor’s job planning process used for the installation of new or modified *electrical equipment* that forms part of a *distribution system*.

Appendix B:

Tier 1 Overhead / Underground Distribution System Inspection Form

Fort Frances Power Corporation - Distribution System Field Inspections

Month:

	Acceptable	Problem / Condition Description	Location / Work Order	Date Corrected
A. Overhead System				
1) Transformers:				
Tank Corrosion/Rust, Paint Condition				
Tank Leaking Oil				
Exterior Damage				
Contamination/Discolouration of Bushings				
Flashed or Cracked Insulators				
Loose Cable Connections				
Accessibility Compromised				
2) Switching & Protective Devices:				
Bent, Broken Bushings & Cutouts				
Damaged Lightning Arrestors				
Ground Wires on Arrestors Unattached				
Damaged Instrument Transformers				
3) Conductors & Cables:				
Low Conductor Clearance				
Broken or Frayed Conductor Strands				
Exposed Broken Ground Conductor				
Excessive or Inadequate Conductor Sag				
Bared Insulation on Secondary Conductor				

	Acceptable	Problem / Condition Description	Location / Work Order	Date Corrected
4) Poles & Supports:				
Leaning, Cracked or Broken Poles				
Excessive Surface Wear or Scaling				
Indications of Burning				
Woodpecker or Insect Damage				
Bird Nests on Poles				
Loose or Broken Cross Arms				
Loose or Broken Brackets				
Loose or Unattached Guy Wires or Stubs				
Guy Strain Insulators Pulled Apart or Broken				
Guy Guards Out of Position or Missing				
Guy Anchors Exposed				
Grading Changes or Washouts				
5) Pole Hardware & Attachments:				
Loose or Missing Hardware				
Insulators Unattached From Brackets				
Conductor Unattached From Insulators				
Riser Pole Hardware Damage				
Dip Pole Hardware Damage				
Insulators Flashed Over or Contaminated				
Tie Wires Unraveled				

	Acceptable	Problem / Condition Description	Location / Work Order	Date Corrected
Ground Wire Broken or Removed	_	_	_	_
Ground Wire Guards Broken or Removed	_	_	_	_
Missing Switch, Riser or Dip Pole ID Tag	_	_	_	_

	Acceptable	Problem / Condition Description	Location / Work Order	Date Corrected
6) Other Equipment Installations:				
Telecommunications Attachments	_	_	_	_
Cable TV Attachements	_	_	_	_
Hydro One Attachements	_	_	_	_
Accessibility Compromised	_	_	_	_
7) Vegetation & Right-of-Way:				
Leaning or Broken "Danger" Trees	_	_	_	_
Trees, Vines or Brush Growth Interference	_	_	_	_
8) General				
Sufficient Space Observed	_	_	_	_
Energized Conductors Adequately Barriered	_	_	_	_
Grounding is Effective	_	_	_	_

B. Underground System

1) Padmount Transformers & Enclosures:				
Corrosion/Rust, Paint Condition	_	_	_	_
Leaking Oil	_	_	_	_
Lid or Cabinet Damage	_	_	_	_
Missing Bolts	_	_	_	_

Security Lock Damage				
Grade Changes				
Access Changes				

2) Switching & Protective Devices:

Structural Condition of Enclosure				
Security Condition of Enclosure				
Missing Switch ID Tag				

3) Conductors & Cables:

Exposed Cables				
Grade Changes Bringing Cable to Surface				

4) General

Sufficient Space Observed				
Energized Conductors Adequately Barriered				
Grounding is Effective				

NOTES:

____

____

____

Inspected by **Name:** ______________________

Position/Title: ______________________

Signature: ______________________

Appendix C:

Transformer Station Monthly Inspection For

Fort Frances Power Corporation - Substation Monthly Maintenance Inspections
For The Month:

	Acceptable	Problem / Condition Description / Work Order	Date Corrected
1) Outside Yard:			
Condition of Driveway & Surrounding Yard	_	_	_
Condition of Station Fence & Gates	_	_	_
Condition of Signage	_	_	_
Condition of Security Locks	_	_	_
Grading Changes or Washouts Along Fence	_	_	_
Operation of Yard Lights	_	_	_
Condition of Yard Housekeeping	_	_	_
Vegetation Growth Inside Fence Area	_	_	_
2) Buildings - Exterior:			
Condition of Exterior Walls & Roofs	_	_	_
Condition of Exterior Doors & Security Locks	_	_	_
Operation of Exterior Lights	_	_	_
3) Tower Structure:			
Leaning, Cracked or Bent Components	_	_	_
Loose Bolts or Fasteners	_	_	_
Exterior Corrosion/Rust	_	_	_
Exterior Damage	_	_	_

	Acceptable	Problem / Condition Description / Work Order	Date Corrected
4) T1 - Transformer:			
Leaking Oil	_	_	_
Paint Condition	_	_	_
Exterior Corrosion/Rust	_	_	_
Exterior Damage	_	_	_
5) T2 - Transformer:			
Leaking Oil	_	_	_
Paint Condition	_	_	_
Exterior Corrosion/Rust	_	_	_
Exterior Damage	_	_	_
6) T1 - Transformer DC Battery Bank:			
Leaking Fluid	_	_	_
Condition of Jumpers & Plates	_	_	_
Condition of Cabinet	_	_	_
Test Individual Battery Cell Voltages	_	_	_
7) T2 - Transformer DC Battery Bank:			
Leaking Fluid	_	_	_
Condition of Jumpers & Plates	_	_	_
Condition of Cabinet	_	_	_
Test Individual Battery Cell Voltages	_	_	_
8) Relays:			
Status of Reclosures & Flags	_	_	_

	Acceptable	Problem / Condition Description / Work Order	Date Corrected
9) Buildings - Interior:			
Condition of Walls, Floors & Ceilings			
Operation of Lights			
Operation of DC Lights			
Operation of Heating & HVAC System			
Operation of Station Telephone			
Condition of Eyewash Station			
Condition of First Aid Kit			
Condition of Housekeeping			
10) General			
Sufficient Space Observed			
Energized Conductors Adequately Barriered			
Grounding is Effective			

NOTES:

____

____

Inspection Date: ______________________________

Inspected by: **Name** ______________________________

Position/Title ______________________________

Signature ______________________________

Appendix D:

Transformer Station Annual Inspection Form

Fort Frances Power Corporation - Substation Annual Maintenance Inspections
Year -

	Inspection Date	Acceptable	Problem / Condition Description / Work Order	Date Corrected
1) Tower Structure:				
Condition of Insulators	_	_	_	_
Condition of Energizing Blades	_	_	_	_
2) T1 - Transformer:				
Operation of Fans	_	_	_	_
Condition of Bushings & Arrestors	_	_	_	_
Condition of Tap Changer Cabinet	_	_	_	_
Operation of Tap Changer	_	_	_	_
Operation of Tap Changer Heater	_	_	_	_
Oil Samples Taken & Sent for Analysis	_	_	_	_
3) T2 - Transformer:				
Operation of Fans	_	_	_	_
Condition of Bushings & Arrestors	_	_	_	_
Condition of Tap Changer Cabinet	_	_	_	_
Operation of Tap Changer	_	_	_	_
Operation of Tap Changer Heater	_	_	_	_
Oil Samples Taken & Sent for Analysis	_	_	_	_

4) OCB's - Oil Circuit Breakers:

	Inspection Date	Acceptable	Problem / Condition Description / Work Order	Date Corrected
Operation of Heaters				
Oil Samples Taken & Sent for Analysis				
5) Relays:				
Operation of Relays (Breakers in Test Mode)				
Test & Re-Calibrate (3 years)				
6) T1 - Transformer DC Battery Bank:				
Operation of Charger				
Calibrate Float				
Equalize Voltage				
Charge Batteries				
End-of-Life Battery Test (5years)				
7) T2 - Transformer DC Battery Bank:				
Operation of Charger				
Calibrate Float				
Equalize Voltage				
Charge Batteries				
End-of-Life Battery Test (5years)				
8) Switch Gear:				
Condition of Station Arrestors (Back Cabinet)				
Operation of Breakers (2 years)				
Cleaning of Breakers (2 years)				

Notes:

Inspected by **Name:** ______________________ **Position/Title:** ______________________.

Signature: ______________________

Appendix E:

Trouble Report / Field Interruption Form

Trouble Report

Date:	Time Reported am/pm	Regular Hours ☐	Call-Out Hours ☐

Time Dispatched ____________am/pm Time Completed____________am/pm

Customer Name: ____________________.

Customer Address: ____________________.

Customer Phone No ____________________,

No Power ☐ Part Power ☐ Other ☐ Description :

.

Reported Details:

Feeder Reference #____________________Switch Reference #____________.

Primary Fault ☐ Location of Fault:

Cause of Problem:

Description of Work Performed:

Vehicle Accident Information: ESA Reportable Yes ☐ No ☐

Police Incident No.: ____________ Copy of Incident Report Attached Yes ☐ No ☐

Police Officer's Name: ____________________Badge # ______.

STATUS OF WORK: ☐ Work Completed ☐ Temporary Repairs Made

☐ Site Left In Safe Condition

Name of Person Completing Report **Signature** **Date**

CERTIFICATE:

- ☐ No Undue Hazards Exist
- ☐ Approved Material Used
- ☐ Work in Accordance with Standard Designs
- ☐ Work Not in Accordance, Forward to General Superintendent
- ☐ **Is not in Accordance with Standard Designs**
- ☐ **Does not meet the safety standards**

Name of Qualified Person **Signature** **Date**

Field Interruption Report

Date ____	Time Call Rec'd ____	☐ Direct	☐ Answering Service
Name ____		Location ____	
INTERRUPTION		**RESTORATION**	
Date: ____	Time: ____	Date: ____	Time: ____
# of Customers: ____	Duration (min): ____	☐ Auto Reclosure	Customer Min. ____
FAILURE DATA	**Select One:**	☐ Overhead	☐ Underground
Feeder Affected By Outage: ____			
Select one of the following Voltage Levels			
☐ 120/240 V	☐ 120/208 V	☐ 347/600 V	☐ 600 V
☐ 4.16/2.4 kV	☐ 8.32/4.8 kV	☐ 13.8/8 kV	☐ 27.6/16 kV
Interrupting Device	Designation: ____		
☐ Breaker	☐ Fuse	☐ Recloser	☐ Switch
☐ Other: ____			
Restored By	☐ Repair	☐ Replacement	☐ Load Transfer
☐ Sectionalizing	☐ Reclosing Device	☐ Other ____	
Cause (Choose One)	☐ Human Element	☐ Lightning	☐ Loss Of Supply
☐ Scheduled Outage	☐ Tree Contact	☐ Unknown/Other	☐ Customer Request
☐ Adverse Environment	☐ Adverse Weather	☐ Defective Equipment	☐ Foreign Interference
(select one sub-category below)	(select one sub-category below)	(select one sub-category below)	(select one sub-category below)
☐ Salt Spray	☐ Rain	☐ Arrester Failure	☐ Birds
☐ Industrial Contamination	☐ Freezing Rain	☐ Broken Insulator	☐ Animals
☐ Humidity	☐ Snow	☐ Cable Failure (insultn)	☐ Vehicles
☐ Corrosion	☐ High Winds	☐ Cable Fail. (mech. dam)	☐ Dig-Ins
☐ Vibration	☐ Extreme Temperatures	☐ Drop Leads	☐ Vandalism
☐ Fire	☐ Freezing Fog	☐ Elbow Failure	☐ Sabotage
☐ Flood	☐ Frost	☐ Loose Connection	☐ Other
☐ Other	☐ Other	☐ Termination Failure	
		☐ Splice Failure	
		☐ Switch Failure	
		☐ Transformer Failure	
		☐ Other/Unknown	

Comments ____

☐ Work Completed ☐ See Attached Sheet ____ prepared by

Appendix F:

Tier 2 Overhead Plant Detailed Asset Inspection Form (Sample)

FFPC Pole Number / Location	Pole Hammer Test	Pole Condition Assessment	Anchors & Guying	Pole-Top Assembly	Primary Conductor	Secondary Conductor	Transformer Setting	Vegetation	Third Party Attachments	Comments / Reason for Deficiency	Deficiency Criticality Rating
	S / U	S / U	S / U	S / U	S / U	S / U	S / U	S / U	S / U		
EXAMPLE	U	U	S	S	S	S	S	S	S	Extensive Damage - Woodpecker Holes	2
AP0001	_	_	_	_	_	_	_	_	_	_	
AP0002	_	_	_	_	_	_	_	_	_	_	_
AP0003	_	_	_	_	_	_	_	_	_	_	_
AP0004	_	_	_	_	_	_	_	_	_	_	_
AP0005	_	_	_	_	_	_	_	_	_	_	_
AP0006	_	_	_	_	_	_	_	_	_	_	_
AP0007	_	_	_	_	_	_	_	_	_	_	_
AP0008	_	_	_	_	_	_	_	_	_	_	_
AP0009	_	_	_	_	_	_	_	_	_	_	_
AP0010	_	_	_	_	_	_	_	_	_	_	_
AP0011	_	_	_	_	_	_	_	_	_	_	_
AP0012	_	_	_	_	_	_	_	_	_	_	_
AP0013	_	_	_	_	_	_	_	_	_	_	_
AP0016	_	_	_	_	_	_	_	_	_	_	_

Appendix G:

Tier 2 Underground Plant Detailed Asset Inspection Form (Sample)

Tx Name	Lock Integrity	Enclosure/ Exterior Inspection	Internal Visual Inspection	General / Other Observations	Snow Pole Mounted / Removed	Explanation For U (Unsatisfactory) Rating	Deficiency Criticality Rating
	S / U	S / U	S / U	S / U	M / R		
Sample	U	S	S	S	X	Lock Failed	1
AT135	-	-	-	-	-	-	-
AT101	-	-	-	-	-	-	-
AT104	-	-	-	-	-	-	-
AT105	-	-	-	-	-	-	-
AT106	-	-	-	-	-	-	-
AT107	-	-	-	-	-	-	-
AT109	-	-	-	-	-	-	-
AT11	-	-	-	-	-	-	-
AT110	-	-	-	-	-	-	-
AT114	-	-	-	-	-	-	-
AT115	-	-	-	-	-	-	-
AT116	-	-	-	-	-	-	-
AT12	-	-	-	-	-	-	-
AT120	-	-	-	-	-	-	-
AT121	-	-	-	-	-	-	-
AT128	-	-	-	-	-	-	-

Appendix 5: FFPC June 24, 2013 Submission re Defining and Measuring Performance of Electricity Distributors (EB-2010-0379)

June 24, 2013

FFPC
FORT FRANCES POWER CORPORATION

Kristin Walli
Board Secretary
Ontario Energy Board
PO Box 2319
2300 Yonge Street, 26th Floor
Toronto, Ontario M4P 1E4

Re. Consultation Report and Stakeholder Consultation Meetings in May Defining and Measuring Performance of Electricity Distributors (EB-2010-0379)

Please accept this correspondence as the formal comments of Fort Frances Power Corporation ("FFPC") on the issues addressed in the report prepared by Board Staff's expert consultant ("PEG") entitled, "Empirical Work in Support of Incentive Rate Setting in Ontario" (the "PEG Report").

Throughout the PEG Report, PEG underscores the importance of ensuring "apples to apples" benchmarking across distributors (see, for example, pages 37-38 of the PEG Report). For the purpose of benchmarking, PEG has grouped FFPC along with 17 other distributors which PEG has identified as having small output, small area, and below average customer growth (Peer Group E, Table 23 of the PEG Report).

FFPC is concerned that, given the unique circumstances of FFPC described in this letter, it might not be possible to make such an "apples to apples" comparison of FFPC to other distributors. FFPC has a unique feature which inflates its legal and administrative expenses relative to other distributors. In particular, FFPC is the custodian of a 1905 Agreement which greatly benefits residents of the Town of Fort Frances. To maintain that benefit, FFPC is required to incur significant legal and administrative expenses on an ongoing basis. FFPC is concerned that, by ignoring this unique circumstance applicable to FFPC, FFPC might appear to be less efficient than others in its peer group when the costs are entirely unrelated to efficiency, and are in fact prudently and effectively incurred to the benefit of customers.

As the Board is aware, the residents of the Town of Fort Frances are beneficiaries of a 1905 Agreement entered into between the Town and the local pulp and paper mill. The 1905 Agreement obligates the mill owner, or more precisely today, the owner of the generation assets on the Rainy River (today, H2O Power LP ("H2O")), to provide to the Town of Fort Frances, in perpetuity, 4,000 horsepower (2.984 Megawatts) at $14 per horsepower per annum (0.21416 cents per kilowatt hour) "for municipal purposes and for public utilities" [*Fort Frances v Boise Cascade Canada Ltd*., [1983] 1 SCR 171 at 184].

The 1905 Agreement is filed as a physical bilateral contract with the IESO and represents a financial obligation of H2O. Essentially, for 2.984 Megawatts, which represents approximately 25% of the power purchases of FFPC, H2O pays to the IESO the additional costs of power above 0.21416 cents per kilowatt hour, and the IESO credits FFPC for that amount. FFPC in turn credits its customers who, in effect, pay a blended commodity rate reflecting the benefit of the 1905 Agreement. The amount of the benefit currently exceeds $2.2 million annually.

Costs associated with maintaining the benefits of the 1905 Agreement are not insignificant. The accounting and billing for the benefits of the 1905 Agreement is labour-intensive. Further, given the value of the 1905 Agreement to the residents of the Town of Fort Frances, and the corresponding cost to the owner of the generation assets on the Rainy River, the 1905 Agreement is under constant attack from the owner of the generation assets. Finally, the existence of the 1905 Agreement and the manner in which it reduces the price for power paid by the residents of the Town of Fort Frances relative to other ratepayers in the Province often requires that FFPC be given unique and specific treatment by government policy, regulation and legislation so as to preserve its benefits.

The specific cost elements associated with maintaining and enforcing the 1905 Agreement are best dealt with in FFPC's cost of service rebasing application. For present purposes, FFPC will explain the nature of the costs it incurs with respect to the following categories:

1. Ensuring regulatory and policy changes do not negate the benefit of the 1905 Agreement;

2. Enforcing the 1905 Agreement as against the various owners, from time to time, of the generation assets tied to the 1905 Agreement; and

3. Working with the IESO and the owner of the generation assets and internally to ensure that residents obtain a blended rate which reflects the financial benefit of the 1905 Agreement to which they are entitled.

Costs Related to Preserving the 1905 Agreement in the Face of Regulatory and Policy Changes

At pages 49-50 of the PEG Report, PEG makes an apt comment about costs related to regulatory changes and the difficulty of capturing company-specific cost pressures, as follows:

> A surprising finding of our cost model was the coefficient on the trend variable. This coefficient was estimated to be 0.014%. This implies that, even when input prices, outputs, and other business condition variables remain unchanged, costs for the Ontario electricity distribution industry still increased by an average of 1.4% per annum between 2002 and 2011. This is counter to the usual finding in cost research, where the coefficient on the trend variable is negative. One factor that could be contributing to these upward cost pressures is government policy implemented over the sample period. Another possibility is that there are cost pressures for a sizeable portion of the industry due to company-specific factors, rather than industry-wide policies, but it is difficult to capture these company-specific cost pressures in measurable business condition variables.

No doubt all distributors incur significant costs associated with regulation and changing government policy. However, in the experience of FFPC, it is forced to incur costs for proceedings and negotiations solely related to the 1905 Agreement, which other distributors do not. In the words of the PEG Report, FFPC appears to have a company-specific cost burden to maintain the 1905 Agreement.

In order to appreciate the time and expense that is required to support the 1905 Agreement, we can consider a few of the major regulatory changes that have required extensive work by FFPC:

- In 1999, Fort Frances Public Utilities Commission was required to apply for and obtain an Order of the Board exempting it and FFPC from Section 2.2.2 of the *Standard Supply Service Code*. If FFPC had not obtained this exemption, FFPC would have been required to meet all of its power needs through the IMO (as it then was) at market rates. By incurring the legal expenses to secure the exemption, FFPC retained the ability to obtain 25% of its power purchases at the low rate 0.21416 cents per kilowatt hour and pass on that benefit to its customers, allowing them to retain the lowest electricity rates in the Province.

- In 2002, Bill 210 required distributors to charge their standard supply customers at a fixed commodity rate of 4.3 cents per kilowatt hour. Regulation 339/02 filed under Bill 210 specifically exempted FFPC from this requirement so as to permit FFPC to continue to offer its customers the lower, blended rate consisting of power purchased from the IMO at 4.3 cents and power acquired from the owner of the generation assets on the Rainy River at 0.21416 cents. However, further regulations filed on Christmas Eve of that year, and in particular the revocation of Ontario Regulation 342/02, required all LDCs to pay the spot market price. As the Regulations stood at that time, FFPC was obliged to purchase power at spot prices and was not entitled to settlement payments under Ontario Regulation 435/02 (as were other LDCs) on an apparent theory that the 1905 Agreement would provide a blended commodity rate to the Town residents not to exceed 4.3 cents per kilowatt hour. This policy was objectionable to FFPC for two reasons. First, the residents of the Town had been paying *less* than 4.3 cents per kilowatt hour for power, and therefore a policy implemented to reduce the cost of power to Ontario consumers would increase the cost of power to Town residents. Second, the policy opened up the 1905 Agreement to the risk of challenge by the owner of the generating assets. In 1983 the Supreme Court of Canada [*Fort Frances v Boise Cascade Canada Ltd*., [1983] 1 SCR 171] had confirmed that the perpetual right to call for the delivery of power at the low rate of 0.21416 cents is "for municipal purposes and public utilities" and that the Town cannot call for power "for commercial purposes". Any diversion of the benefits of the 1905 Agreement from municipal purposes to the Province might have opened the Agreement to challenge, which no doubt the owner of the generation assets on the Rainy River would seize upon. Negotiations with the Province, including face-to-face meetings between FFPC counsel and then Minister of Energy John Baird and his staff were required to get the proper legislative exemptions in place to preserve the benefits of the 1905 Agreement.

- In 2004, Ontario Regulation 429/04 was enacted under section 25.33 of the *Electricity Act, 1998* (the "Global Adjustment Regulation"). FFPC worked with the Ministry to ensure that the Global Adjustments Regulation, and subsequent amendments to it, would be consistent with the 1905 Agreement and the Supreme Court of Canada decision. However, accounting for the Global Adjustment vis-à-vis customers eligible for the credit under the 1905 Agreement was complex, and true-ups with the IESO resulted in the inadvertent return of the benefit of the global adjustment cost savings on 2.984 Megawatts to the IESO. FFPC had to undertake extensive discussions with the IESO, OEB, OEFC and OPA regarding implementing accounting changes in order to reverse the error and once again ensure that the residents of the Town received all the benefit to which they are entitled under the 1905 Agreement.

Attacks on the 1905 Agreement by various owners of the generation assets on the Rainy River

It is not surprising that the owner of the generation assets, which now incurs a cost in the neighbourhood of $2.2 million annually under the 1905 Agreement, would attempt to attack it on every occasion. The most notorious attack was the legal attack by Boise Cascade which resulted in the Supreme Court of Canada decision confirming the perpetual right. There have been other attacks, while less public, which have required time and effort on behalf of FFPC management and the advice of counsel. Threats to negate the 1905 Agreement have taken various forms, including threats to shut down the generation assets on the Rainy River. FFPC management must be vigilant and incur prudent legal expenses in such battles.

Administration related to the 1905 Agreement

Administration of the 1905 Agreement is time-consuming. Approximately 30% of the work load of Lori Cain, Financial and Regulatory Officer at FFPC, is devoted to the day-to-day administration of the Agreement. This does *not* include extraordinary efforts on Lori's part which result from OEB and Ministry of Finance audits because of the Agreement. For example, the Ontario Energy Board requested audits of FFPC's Group 1 and Group 2 RSVA accounts, which alone consumed 9 months of Lori's time. Recently, the Ministry of Finance requested an HST audit. These audits were the result of FFPCs unique accounting requirements which make FFPC appear anomalous when compared to other LDCs. In addition, approximately another 0.2 Full Time Equivalent is devoted by general administration towards the day-to-day administration of the Agreement. A conservative estimate is that 0.5 FTEs are required to manage the $2.2 million dollars annually across FFPC's customer base of approximately 3800 customers.

The day-to-day tasks involved with the administration of the Agreement include the following:

- **Agreement value determination**. Data must be extracted from the IESO's daily settlement statement to distinguish between Agreement and non-Agreement related charges. A monthly invoice must be prepared for H2O to receive recovery of Agreement-related charges from H2O. Further, all of the data must be compiled and incorporated into monthly and annual financial statements for FFPC's Board of Directors and auditors.

- **Review of regulations**. FFPC must constantly scan issues for applicability or conflict with the Agreement, including IESO charges, regulatory methodology and reporting, financial budgeting and reporting, customer billing, benefits, such as the Ontario Clean Energy Benefit, and taxation issues.

- **Adjustments to conform to regulatory reporting formats.** In order for FFPC to conform to regulatory reporting formats, FFPC must adjust all integrated regulatory and financial data by extraction of balances related to the Agreement.

- **Calculation and implementation of credits and rebates**. FFPC must calculate and provide the benefits of the Agreement to its customers in the form of monthly credits and annual rebates, including the issuance of rebate cheques which must be mailed to former FFPC customers.

- **Billing and customer communications**. FFPC must integrate the special accounting for the 1905 Agreement into its billing process and calculation algorithms. It must also process customer inquiries regarding the Agreement, as well as draft and publish periodic announcements related solely to the administration of the Agreement.

Conclusion

FFPC cannot speak to any company-specific cost pressures borne by other distributors. However, FFPC asks the Board to consider that, because of the unusual legal and administrative costs related to the 1905 Agreement, which to date have resulted in tremendous benefit to Fort Frances consumers, it might not be possible to compare "apples to apples" when considering the efficiency of FFPC.

Yours truly,

FORT FRANCES POWER CORPORATION

Per: *Original Signed By*

Joerg Ruppenstein, President and CEO

Davis: 14193141.1