Centre Wellington Hydro Ltd.
EB-2017-0032
Response to OEB Staff, VECC & SEC Interrogatories

Contents

Exhibit 2

2-Staff-8

Ref: Exhibit 1, Table 10
Exhibit 2, Table 30: Capital Expenditure Summary Appendix 2-AB
Preamble:

The Filing Requirements indicate that the rate base evidence must include the percentage change in capital expenditures from last OEB-approved.
Exhibit 1, Table 10: Capital Expenditures Summary, Centre Wellington Hydro did not include the percentage change in capital expenditures from last OEB-approved. The percentage change in rate base from last OEB-approved was provided in Exhibit 1, page 37, section 1.5.3.

Question(s):

a) Please resubmit Exhibit 1, Table 10, to include the percentage change in capital expenditures from last OEB-approved, in addition to the change in dollar amount.

b) Please explain why the numbers in Exhibit 1, Table 10, do not reconcile with the numbers in Exhibit 2, Table 30. For example, the 2017 capital expenditures in Exhibit 1, Table 10, is $1,377,600, but in Exhibit 2, Table 30, the number is $1,055,000. Please update the evidence as required.

Response(s):

a) Please find the updated Table 10 for Exhibit 1 below.

Table 10: Capital Expenditure Summary

In CoS - Exhibit 1 - table 10 updated for Irs

CAPEX Category	2013 Board Approved	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 - Projected	2018 - Projected	2019 - Projected	2020 - Projected	2021 - Projected	2022 - Projected
System Access	$ 471,000	$ 97,757	$ 29,825	$ 174,730	$ 289,576	$ 305,200	$ 30,600	$ 24,900	$ 25,400	$ 25,900	$ 26,400
System Renewal	$1,361,800	$1,993,702	$2,280,571	$1,112,990	$1,654,016	$ 474,400	$ 512,500	$ 503,300	$527,300	$ 538,500	$1,228,100
System Service	$ -	$1,204,414	$ 3,284	-$ 2,613	$ 19,291	$ 17,400	$ 81,900	$ 65,400	$ 29,400	$ 29,400	$ 29,400
General Plant	$ 43,600	$ 267,826	$ 84,516	$ 585,270	$ 169,915	$ 580,600	$ 250,300	$ 157,000	$392,800	$ 126,200	$ 141,800
Total Capital Expenditure	**$1,876,400**	**$3,563,699**	**$2,398,195**	**$1,870,376**	**$2,132,797**	**$1,377,600**	**$875,300**	**$750,600**	**$974,900**	**$720,000**	**$1,425,700**
Change in % over 2013 Board Approved		90%	28%	0%	14%	-27%	-53%	-60%	-48%	-62%	-24%
Change in $ over 2013 Board Approved		$1,687,299	$521,795	-$6,024	$256,397	-$498,800	-$1,001,100	-$1,125,800	-$901,500	-$1,156,400	-$450,700

b) There was a problem in a formula for a table that was being used as backup and it was not including the full column of jobs. Table 10 and Table 30 have been corrected.

Table 30: Capital Expenditure Summary Appendix 2-AB

First year of Forecast Period: *2018*

CATEGORY	Historical Period (previous plan[1] & actual)															Forecast Period (planned)				
	2013			2014			2015			2016			2017			2018	2019	2020	2021	2022
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual[2]	Var					
	$ '000		%	*$ '000*		%	*$ '000*		%	*$ '000*		%	*$ '000*		%	*$ '000*				
System Access		98	--		30	--		175	--		290	--	305		-100.0%	31	25	25	26	26
System Renewal		1,994	--		2,281	--		1,113	--		1,654	--	474		-100.0%	513	503	527	539	1,228
System Service		1,204	--		3	--		- 2	--		19	--	17		-100.0%	82	65	29	29	29
General Plant		268	--		85	--		585	--		170	--	581		-100.0%	250	157	392	126	142
TOTAL EXPENDITURE	1,876	3,564	90.0%	2,347	2,399	2.2%	2,035	1,871	-8.1%	2,051	2,133	4.0%	1,377	-	-100.0%	876	750	973	720	1,425
System O&M	$1,018	$1,081	$0	$1,037	$1,066	$0	$1,015	$1,110	$0	$1,074	$1,180	$0	$1,198		-$1	$1,249	$1,280	$1,312	$1,345	$1,379

2-Staff-9

Ref: Exhibit 1, page 71
Distribution System Plan

Preamble:

As per Exhibit 1, page 71, Centre Wellington Hydro stated “Examples of continuous improvements include increased focus on replacement of assets that have reached the end of useful life. Improve reliability which supports maintenance of or improvement in the Service Quality indices.”

Question(s):

a) Please explain why “continuous improvements” include an increased focus on replacement of assets that have reached the end of useful life, rather than running the assets to failure.

Response(s):

a) The context that “continuous improvements include an increased focus on replacement of assets that have reached the end of useful life” was specific to CWH’s refurbishment of its 6 distribution stations in an effort to explain how that has had a positive effect on reliability within the scorecard MD&A in a succinct way. A more focused explanation of CWH’s planning in regards to replacing assets or running to failure can be found within the DSP on page 9 or as provided below:

“Over the past five years CWH has been systematically planning and implementing investments into asset renewal projects to replace the assets that have reached the end of their useful service life, by prioritizing investments into those assets with the highest impact on reliability and safety when they fail in service. Since the in-service failure of substation assets has the highest impact on reliability and safety, a majority of the asset renewal investments during the past five years have focussed on renewal of substation equipment.”

A more comprehensive explanation of risk of asset failure and the option of running certain assets to failure i.e. transformers, can be found in the DSP, section 1.2.2 System Renewal on page 8 and 9.

2-Staff-10

Ref: Exhibit 2, page 4
Preamble:

As per Exhibit 2, page 4, Centre Wellington Hydro has included a cost of power of $20,053,083, in its Allowance for Working Capital.

The OEB has approved new commodity prices effective July 1, 2017 that are lower than previous prices.

Centre Wellington Hydro has not reflected updated commodity values for the cost of power balances included in working capital.

Question(s):

a) Please update the commodity values used in the cost of power for 2018 Test Year Working Capital and Rate Base, effective July 1, 2017.

Response(s):
The Commodity forecast filed in conjunction with these responses have been updated to use the Regulated Price Plan-Price Report (May 1, 2017 to April 30, 2018) issued on April 20, 2017.

2-Staff-11

Ref: Exhibit 2, page 5
Distribution System Plan
Preamble:
Impact of Customer Preferences

Chapter 5 of the Filing Requirements states, "A DS Plan filing must demonstrate that distribution services are provided in a manner that responds to identified customer preferences."

This is to be accomplished by providing information on customer engagement to identify preferences; the value proposition the DS Plan represents for customers (economic efficiency and cost-effectiveness); and on the factors relating to customer preferences or input from customers and participants in a Regional Planning Process that were considered in the course of planning investment projects and activities

As per Exhibit 2, page 5, Centre Wellington Hydro stated that its capital assets significantly increased each year from the 2013 Board Approved to 2018 Test Year due to extensive upgrades for its distribution stations costing $5.5 million in total.

OEB staff notes that the DSP includes a section titled "2.3.2 Collaboration Process and Conclusions," however it is unclear from this section how the $5.5 million in upgrades to its distribution stations reflected customer preferences.

Question(s):

a) Please explain how these upgrades to its distribution stations reflect customer preferences identified through customer engagement.

b) Please provide an overview of how the $5.5 million of net capital additions spent in upgrades to Centre Wellington Hydro's distributions stations were broken down by year and allocated to specific USoA accounts.

Response(s):

a) Through customer satisfaction surveys and customer engagement at public events and at our front desk customers have indicated time over time that their biggest "want" is a reliable electrical service with as few as possible outages at a reasonable cost. Three (3) of our customers top six priorities are to; 1) maintain and upgrade equipment 2) reduce time needed to restore power and 3) invest in the electrical grid to reduce number of outages.

CWH's focus on rebuilding stations took customers identified preferences into account when planning the detailed design of the work and included public and worker safety, and environmental risk. Rather than replace every asset at a much higher cost within each station, CWH replaced equipment at the highest risk of failure and obsolete to the point of not having an option to repair or replace in its current configuration. i.e. 5kV mini oil filled breakers, type D reclosers, cabling and some switches. If equipment was old but otherwise in repairable condition it was refurbished at a lesser cost i.e. 44kv switches, 4 kv switchgear, perimeter fencing and transformers. This approach allowed CWH to meet customer identified expectations of reliability and reasonable cost while addressing public, worker, and operational risk.

b) The chart below shows the additions and disposals by year for CWH's Distribution Stations upgrades from 2012 to 2016, which were all allocated to USofA 1820.

CWH USofA 1820 - Distribution Station Equipment 2012-2016

Distribution Station	USofA Accounts	2012		2013		2014		2015		2016		NET ADDITIONS
		Addition	Disposal	Addition	Disposal	Addition	Disposal	Addition	Disposal	Addition	Disposal	
MS#2 Fergus - Queen St	1820	$ 1,164,265.37	-$43,422.23									$1,120,843.14
MS#1 Fergus - Blair St	1820			$ 1,238,510.45	-$ 43,321.03							$1,195,189.42
MS#1 Elora - Mill St	1820					$ 1,925,636.40	-$242,233.21					$1,683,403.19
PME Fergus	1820						-$ 51,741.02					-$ 51,741.02
MS#1 Elora - Mill St	1820							$ 9,877.77				$ 9,877.77
MS#3 Fergus - Gartshore St	1820							$807,551.19	-$52,494.64			$ 755,056.55
MS#2 Elora - Waterloo St	1820									$ 491,599.70	-$ 55,892.85	$ 435,706.85
MS#4 Fergus - Gzowski St	1820									$ 691,579.69	-$241,336.57	$ 450,243.12
												$ -
TOTAL		$1,164,265.37	-$43,422.23	$1,238,510.45	-$ 43,321.03	$1,925,636.40	-$293,974.23	$817,428.96	-$52,494.64	$1,183,179.39	-$297,229.42	$5,598,579.02

2-Staff-12

Ref: Exhibit 2, Table 26 and Tables 11, 14-18
EB-2012-0113 App. 2-B_Fix Ass Cont 2013 CGAAP
Pacing and Distribution Rate Impacts

Preamble:

Centre Wellington Hydro's actual net capital additions since the last COS year (2013) have ranged from 3% to 29% less than the amount the OEB approved in its 2013 decision. The 2018 Test Year net capital additions is forecasted to be 52% lower than the 2013 OEB approved amount.

**Schedule of Net Capital Additions,
as per Exhibit 2, Table 26 and Tables 11, 14-18; and
EB-2012-0113 App.2-B_Fix Ass Cont 2013 CGAAP**

	Additions	Disposals	Net Capital Additions	% Increase / (Decrease) Year over Year	% Increase / (Decrease) versus 2013 OEB Approved
2013 OEB Approved	1,876,400	-68,253	1,808,147		
2013 Actual	2,372,444	-845,853	1,526,591		-16%
2014 Actual	2,398,195	-645,111	1,753,085	14.8%	-3%
2015 Actual	1,870,376	-583,884	1,286,492	-26.6%	-29%
2016 Actual	2,132,797	-396,216	1,736,581	35.0%	-4%
2017 Bridge	1,377,600	0	1,377,600	-20.7%	-24%
2018 Test	875,300	0	875,300	-36.5%	-52%
	11,026,712	-2,471,064	8,555,649		

Question(s):

a) In its annual capital planning and implementation for the years 2014 to 2018, did Centre Wellington Hydro take into account the cumulative impact its net capital additions and capital expenditures would have on rates in 2018?

b) What changes ensued from these considerations?

c) As Centre Wellington Hydro's actual net capital additions from 2013 through 2016 have been less than 2013 OEB approved, what assurances can Centre Wellington Hydro provide the OEB that the proposed 2018 Test Year net capital additions of $875,300 will actually be spent?

Response(s):

a) CWH places a high priority on balancing the monetary impact of its capital spending while addressing the upkeep and replacement of its aging infrastructure. That said, the utility has an obligation to its customer to “keep the lights on.” Therefore, when technical issues with the Distribution System occur, the utility will address it in accordance with the priorities set out in the Capital Expenditure Planning Process Overview explained in Section 4.1 of the DSP.

b) As stated above, CWH places a high priority on balancing the monetary impact of its capital spending. It is recognized throughout the industry that with the steep increase in the price of the electricity commodity, customers are progressively experiencing significant hardship in paying their electricity bills. The fact that CWH’s portion is typically less than one fifth of the total bill does little to reduce pressure on the utility and its customers. CWH’s emphasis is therefore on seeking to minimize its customers’ rates while maintaining at the current level the reliability of supply required by the Distribution System Code.

c) The capital costs included in the utility’s 2013 Cost of Service Application included specific projects related to refurbishing substations which are no longer an issue in the 2018-2022 period. CWH notes that its proposed investments are supported by a comprehensive Distribution System Plan. The capital spending in the proposed test year is roughly 50% of the average for the previous 5 years as there are no planned major projects which will cause a much higher spending when compared to the recent past.

2-Staff-13

Ref: Exhibit 2, page 40
Customer Benefits
Preamble:

As per the table generated by OEB staff in the above interrogatory, actual net capital additions from 2013 through 2016 have averaged about $1,575,000 annually. Centre Wellington Hydro's capital plan includes the planned capital additions of $875,300 for the 2018 Test Year. As per Exhibit 2, page 40, $254,800 of this amount is related to Pole lines. As per Centre Wellington Hydro, these pole lines are showing age and potential safety concerns. The poles were installed between 1963 and 1980. Age and condition as well as public safety are all considerations for the increase in spending in this account.

Question(s):

a) Please describe and quantify where possible the benefits that Centre Wellington Hydro's customers will realize from this investment.

b) Please describe the alternatives to capital investment that were assessed and rejected in favour of the proposed capital investment.

c) Please describe why Centre Wellington Hydro is confident that $875,300 net capital additions is sufficient for the 2018 Test Year, when past actual net capital additions have averaged about $1,575,000 annually from 2013 to 2016.

Response(s):

a) The benefit that CWH's customers will realize from this investment is that new poles and assets would prevent potential failures from occurring that could impact reliability and in turn our customer's livelihoods and business continuity. Failure causes significant disruptions and financial hardship specifically to our commercial customers' viability and is detrimental to their operations during business hours. Replacement and maintenance costs are ever increasing and consequently, delaying these projects will have a negative impact to the safety, reliability of the system and the cost for maintenance, plus eventual replacement later will come at a higher cost.

b) Specific to the pole replacements the only alternative to replacing, as CWH projects to complete as capital investment, is to leave the existing poles in the condition they are in. This would not be keeping with operating and optimal distribution system and running poles to failure is a public and worker risk that

needs to be averted. Some assets as indicated within the DSP can be maintained extending the overall life and need for replacement such as switches that can be maintained, transformers that can be repaired and painted, and some assets can be run to failure with no safety risk and limited negative effect on customers; none of those considerations apply to poles in a material way.

Alternatives to capital investments are assessed with all assets and consideration to the most economical solution while keeping in mind safety, reliability and optimal performance is key. This decision-making process is done proactively and "trading off" asset replacement with the ability to repair and maintain is a part of that proactive decision making. Prioritizing projects years in advance and then monitoring this prioritization continually allows for re-assessing alternatives to capital investment. Below is a more detailed explanation taken from CWH's Asset management process found within the DSP Section 3.1.

Decisions involving investment into fixed assets play a major role in determining the optimal performance of distribution system fixed assets. Investments that are either oversized or made too far in advance of the actual system needs may result in non-optimal operation. On the other hand, investment not made on time when warranted by the system needs raise the risk of performance targets not being achieved and would also result in non-optimal operation. Optimal operation of the Distribution System is achieved when "right sized" investments into renewal and replacement (capital investments) and into asset repair, rehabilitation and preventative maintenance are planned and implemented based on a "just-in-time" approach. In summary, the overarching objective of the Asset Management Strategy is to find the right balance between capital investments in new infrastructure and operating and maintenance costs so that the combined total cost over the life of the asset is minimized.

c) CWH is confident that $875,300 net capital additions is sufficient for the 2018 Test Year; past actual net capital additions have averaged about $1,575,000 annually from 2013 to 2016 because the 2013 to 2016 net capital additions included major upgrades to the distribution stations. These stations have all been upgraded with the exception of the transformers (other than Elora MS-1 which had a new transformer installed in 2014) which were painted during their respective station rebuild years. CWH plans on replacing the Fergus MS-2 transformer in 2022 as explained in the DSP.

2-Staff-14

Ref: Exhibit 2, page 65-67
Distribution System Plan, Section 2.4.1

Preamble:

The Filing Requirements indicate that five historical years of SAIDI and SAIFI needs to be provided, including all interruptions, all interruptions excluding loss of supply, and all interruptions excluding major events. An explanation for any under-performance versus the five year average needs to be provided and actions taken to address this issue.

Although Centre Wellington Hydro provided some detail in the DSP, Section 2.4.1 Supply System Reliability Indicators, Centre Wellington Hydro did not include "all interruptions excluding major events" and did not include "explanation for any under-performance versus five year average and actions taken". However the Excel Ch 2 Appendix 2-G includes "Excluding Major Event Days" but this is not included in the PDF. OEB Staff also notes in Appendix 2-G the same numbers are erroneously recorded for "Excluding outages caused by loss of supply" and "Excluding Major Event Days."

Question(s):

a) Please update Appendix 2-G in both Excel and PDF format to:

   i. Include all interruptions excluding major events
   ii. Correct the issue that the same numbers are erroneously recorded for "Excluding outages caused by loss of supply" and "Excluding Major Event Days"

b) Please provide an explanation for any under-performance versus five year average and actions taken.

Response(s):

a) i) CWH confirms all interruptions excluding major events have been included.
ii) No corrections were required, as the Major Event was a loss of Supply, therefore the numbers remain as filed.

b) Please refer to CWH's Scorecard in Exhibit 1 on page 70. The distributors target for SAIDI is .89 and for SAIFI is .66. CWH is at 0.10 (SAIDI) for 2016 as seen in Chapter 2 Appendix 2-G and .11 (SAIFI), therefore CWH does not have an underperformance score. CWH's 2016 scorecard has been included in response to 1.0 VECC – 2.

2-Staff-15

Ref: Exhibit 2, page 50, Table 31: Variance of Capital Expenditures
Preamble:

On Exhibit 2, page 50, “Table 31: Variance of Capital Expenditures” is shown. However, there are no totals for each column.

Question(s):

a) Please provide another version of Table 31 with totals for each column.

Response(s):
Table 31 has been provided below with totals for each column.

Table 31: Variance of Capital Expenditures														
		2013 Approved	2013	2013 act vs 2013 Approved	2014	2014 vs 2013	2015	2015 vs 2014	2016	2016 vs2015	2017	2017 vs 2016	2018	2018 vs 2017
1611	Computer Software (Formally known as Account 1925)	$50,000	$171,607	**$121,607**	$26,363	**-$145,244**	$68,020	**$41,657**	$0	**-$68,020**	$0	**$0**	$50,000	**$50,000**
1612	Land Rights (Formally known as Account 1906 and 1806)	$4,000	$0	**-$4,000**	$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**
1820	Distribution Station Equipment <50 kV	$1,101,300	$1,238,510	**$137,210**	$1,925,636	**$687,126**	$817,429	**-$1,108,207**	$1,183,179	**$365,750**	$0	**-$1,183,179**	$44,800	**$44,800**
1825	Storage Battery Equipment		$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**
1830	Poles, Towers & Fixtures	$222,700	$226,219	**$3,519**	$126,155	**-$100,063**	$161,765	**$35,609**	$110,827	**-$50,937**	$237,200	**$126,373**	$254,800	**$17,600**
1835	Overhead Conductors & Devices	$134,200	$175,901	**$41,701**	$93,155	**-$82,746**	$92,259	**-$896**	$56,268	**-$35,991**	$167,200	**$110,932**	$158,000	**-$9,200**
1840	Underground Conduit	$110,300	$211,338	**$101,038**	$10,523	**-$200,815**	$63,799	**$53,276**	$153,557	**$89,758**	$0	**-$153,557**	$600	**$600**
1845	Underground Conductors & Devices	$123,300	$161,871	**$38,571**	$143,421	**-$18,450**	$31,907	**-$111,515**	$87,402	**$55,495**	$138,600	**$51,198**	$14,800	**-$123,800**
1850	Line Transformers	$73,500	$100,683	**$27,183**	$6,546	**-$94,137**	$37,205	**$30,659**	$205,508	**$168,303**	$94,900	**-$110,608**	$80,000	**-$14,900**
1855	Services (Overhead & Underground)	$45,100	$99,205	**$54,105**	$25,929	**-$73,276**	$81,412	**$55,482**	$192,124	**$110,712**	$27,500	**-$164,624**	$30,600	**$3,100**
1860	Meters	$18,400	$1,459	**-$16,941**	$6,929	**$5,470**	$0	**-$6,929**	$3,920	**$3,920**	$116,000	**$112,081**	$1,800	**-$114,200**
1860	Meters (Smart Meters)	$0	$1,205,240	**$1,205,240**	$0	**-$1,205,240**	$12,956	**$12,956**	$18,594	**$5,637**	$15,600	**-$2,994**	$39,600	**$24,000**
1908	Buildings & Fixtures	$0	$0	**$0**	$0	**$0**	$0	**$0**	$73,701	**$73,701**	$77,000	**$3,299**	$0	**-$77,000**
1915	Office Furniture & Equipment (10 years)	$5,000	$4,295	**-$705**	$1,227	**-$3,068**	$3,295	**$2,067**	$0	**-$3,295**	$18,300	**$18,300**	$30,000	**$11,700**
1920	Computer Equipment - Hardware	$28,500	$48,900	**$20,400**	$4,802	**-$44,098**	$71,184	**$66,382**	$55,096	**-$16,088**	$62,500	**$7,404**	$19,000	**-$43,500**
1930	Transportation Equipment	$0	$15,150	**$15,150**	$37,626	**$22,476**	$421,052	**$383,426**	$33,498	**-$387,553**	$400,000	**$366,502**	$130,000	**-$270,000**
1935	Stores Equipment	$0	$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**	$5,000	**$5,000**	$0	**-$5,000**
1940	Tools, Shop & Garage Equipment	$1,000	$7,491	**$6,491**	$9,896	**$2,405**	$2,357	**-$7,538**	$5,599	**$3,242**	$8,800	**$3,201**	$14,800	**$6,000**
1945	Measurement & Testing Equipment	$0	$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**	$4,500	**$4,500**
1950	Power Operated Equipment	$0	$0	**$0**	$0	**$0**	$6,262	**$6,262**	$2,020	**-$4,242**	$0	**-$2,020**	$0	**$0**
1955	Communications Equipment	$0	$4,815	**$4,815**	$0	**-$4,815**	$13,100	**$13,100**	$0	**-$13,100**	$0	**$0**	$2,000	**$2,000**
1960	Miscellaneous Equipment	$0	$0	**$0**	$0	**$0**	$0	**$0**	$0	**$0**	$9,000	**$9,000**	$0	**-$9,000**
1995	Contributions & Grants	-$40,900	-$124,553	**-$83,653**	-$24,616	**$99,937**	-$13,625	**$10,991**	-$48,495	**-$34,870**	$0	**$48,495**	$0	**$0**
1609	Capital Contributions Paid	$0	$0	**$0**	$4,603	**$4,603**	$0	**-$4,603**	$0	**$0**	$0	**$0**	$0	**$0**
TOTAL		**$1,876,400**	**$3,563,698**	**$1,687,298**	**$2,398,195**	**-$1,165,503**	**$1,870,376**	**-$527,819**	**$2,132,797**	**$262,421**	**$1,377,600**	**-$755,197**	**$875,300**	**-$502,300**

2-Staff-16

Ref: Exhibit 2, Pages 16-23, Appendix 2-BA
Exhibit 3, Page 66, Appendix 2-H

Preamble:

In Appendix 2-BA, disposals were incurred for 2013 to 2016 and no disposals are forecasted for 2017 and 2018. However, in Appendix 2-H, gains and losses on disposals are forecasted for 2017 and 2018.

Question(s):
Please reconcile the differences for 2017 and 2018, and update the evidence as needed.

Response(s):
CWH has updated its Fixed Asset Continuity Schedules to reflect the disposals that were recorded in Appendix 2-H.

2-Staff-17

Ref: Exhibit 2, Page 42
Exhibit 2, Appendix A, Depreciation Expense Policy and Methodology
Appendix 2-BB
Exhibit 4, Pages 111-117, Appendix 2-C

Preamble:

In the useful life table of page 42 and Appendix 2-BB, the useful life of Account 1980 SCADA is 15 years. However, in Appendix A under the Amortization section and Appendix 2-C, Centre Wellington Hydro has used a useful life of 8 years for SCADA.

Question(s):

a) Please clarify which useful life is to be used and whether this is a change in useful life from the previous rate application.

Response(s):

CWH changed the useful life for Scada Equipment on January 1, 2017 from 8 years to 15 years.

In 2012, CWH completed a major upgrade to its SCADA equipment, which at the time was designated a useful life of 8 years; when projecting the capital budgets for the 2017 bridge and 2018 test years, however, CWH realized that the upgraded SCADA equipment will last longer than the anticipated 8 years, and that 15 years was more appropriate for assets in System Supervisory Equipment, account 1980.

CWH recognizes that changes to useful life for the purposes of depreciation expense should be approved by the OEB prior to implementation.

The total annual adjustment of spreading the useful life over 15 years instead of 8 years is $9,200; CWH proposes to effectively credit customers the amount of $9,200 against the opening 2018 rate base in order to hold them harmless against the implementation of the new depreciation rate in 2017, while at the same time maintaining the benefit to customers, in 2018, of the lower annual depreciation rate for this class of asset.

Because this adjustment is well below the materiality threshold, CWH proposes to reflect the change when it finalizes rates subsequent to the Board's decision with respect to the application, rather than making an update to current filing. The impact on the revenue requirement for 2018 of this proposed credit is approximately $525.

2-Staff-18

Ref: Exhibit 2, Page 61
Appendix 2-D

Preamble:

Centre Wellington Hydro indicated that indirect overhead costs, such as general and administration costs that are not directly attributable to an asset are not capitalized. Centre Wellington Hydro did not complete Appendix 2-D as it does not capitalize overhead. Appendix 2-D shows the portion of OM&A that is capitalized.

Question(s):

a) Please confirm that Centre Wellington Hydro does not capitalize any OM&A, not only indirect overhead costs. If this is not the case, please complete Appendix 2-D.

Response(s):

CWH does not capitalize indirect overhead costs. In accordance with the move to IFRS CWH confirmed that OM&A cost as listed in Appendix 2-D Overhead are not capitalized. CWH only capitalize those expenses that directly relate to the capital projects.

2-Staff-19

Ref: Distribution System Plan - General

Question(s):

Please provide the single line diagram for each distribution station, the distribution operating map for the feeders in each town, and the peak loading for each feeder.

Response(s):

Please see Appendix A.

2-Staff-20

Ref: Distribution System Plan - Reliability
2.4.1 Supply System Reliability Indicators

Preamble:

Centre Wellington Hydro has shown that the historical SAIFI has decreased over the last 5 years and is a result from investments into automation.

Question(s):

a) Please provide the number of outages grouped by cause for each year between 2012-2015.

b) Are momentary outages included in Centre Wellington Hydro's SAIFI score?

c) Please explain the automation process or control that has caused the decrease in number of outages.

Response(s):

a) Please find the table below that provides the number of outages grouped by cause code for 2012 to 2015.

Number of Interruptions that occurred as a result of all causes of interruptions				
Cause code	**2012**	**2013**	**2014**	**2015**
0	0	0	6	1
1	0	0	39	17
2	2	5	1	0
3	1	15	1	2
4	1	0	3	0
5	12	10	3	13
6	0	3	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	1	2
TOTAL	16	33	54	35

b) CWH only documents sustained outages.

c) New automated controls and equipment in the 6 distribution stations have contributed to the cause of a decrease in outages. The automated reclosers will re-energize circuits after momentary outages caused by lightning, wind and tree contact etc., and the relays coordinate with downstream protective devices to minimize the number of customers affected by sustained outages.

2-Staff-21

Ref: Distribution System Plan – Asset Condition Assessment
3.3 Results of 2015 Asset Condition Assessment

Preamble:

Centre Wellington Hydro had stated road salts used on main regional streets caused corrosion to pad mounted transformer enclosures, which lead to rehabilitation or replacement of the transformer.

Question(s):

a) How many transformers are replaced due to salt corrosion per year?

b) Has Centre Wellington Hydro considered preventing corrosion with techniques such as protective coating or cathodic protection? If not, why?

Response(s):

a) Centre Wellington has replaced 7-9 transformers due to salt erosion per year during 2012 and 2016. CWH does contract the painting of approximately 50 transformers per year due to corrosion from road salt, which are not in need of replacement yet and can be kept in service with rust protecting painting.

b) Yes, CWH contracts the painting of transformers by Permashell coatings, which includes sand blasting preparation to alleviate excessive corroding and paint which aids transformers to meet their service life expectancy.

2-Staff-22

Ref: Distribution System Plan – Asset Condition Assessment
Figure 18: Condition Rating of Overhead distribution Lines

Preamble:

Figure 18 showed that a significant portion of the 2.4kV distribution system is in poor condition and in need of replacement.

Question(s):

a) Has Centre Wellington Hydro considered voltage conversion of the existing 2.4kV system to 4.16kV during the replacement? If not, why?

b) Are there any OM&A savings by operating with one standard voltage?

Response(s):

a) In line with all other electric utilities in North America, the distribution network serving CWH's service territory employs 3-phase and 1-phase lines, in Y-connected configuration with grounded neutral. This arrangement is more economical, as it avoids the need to install 3-phase lines on residential streets requiring only single phase, services.

CWH's distribution network employs only a single operating voltage: 4.16/2.4 kV; with line-to-line voltage of 4.16 kV and line-to-neutral voltage of 2.4 kV.

The two top charts in Figure 18, referenced above in the question, indicate the condition of 1-phase lines (with operating voltage of 2.4 kV line to neutral) and 3-phase lines (with operating voltage of 4.16 kV line to line).

b) Yes, there are savings in OM&A by operating with one standard voltage, and therefore CWH already employs only one standard distribution voltage: 4.16/2.4 kV, in its service territory.

2-Staff-23

Ref: Distribution System Plan – Asset Lifecycle Optimization
3.4.1 Prioritization of Capital Investments

Preamble:

The asset management principle used to prioritize projects is to minimize the "Total Cost", which is the combined cost of risk and risk mitigation initiatives. The risk cost is calculated by determining the probability of the risk and the consequences of failure.

Question(s):

a) How does Centre Wellington Hydro calculate the probability of failure for each piece of asset?

b) Is the quantitative cost of risk calculated for each project? If not, how are the capital investments prioritized as per the asset management principle described above?

Response:

(a) Many factors, including manufacturing specifications, manufacturing quality, service age, loading patterns, environmental conditions, preventative maintenance routines, impact failure probability of distribution system assets. CWH (and the Ontario LDCs in general) do not possess sufficient data to co-relate equipment failure probability with the contributing factors, in form of a mathematical function. It is, however, possible to qualitatively express the failure probability of various assets by taking into consideration assets' service age and the current level of impairment in asset health, assessed through various tests and inspections.

During preparation of this DSP, the probability of assets' failure during the next five years was not quantitatively, but qualitatively established, by taking into all available information about assets' current state, including assets' service age, the scope and frequency of historic preventative maintenance, and for some assets the degree of asset impairment determined through testing and visual inspections.

(b) In the absence of electricity reliability valuation surveys, it was not possible for CWH to quantitatively calculate the cost of risk for each project. The consequences of assets' failure in service were qualitatively determined thorough assessment of assets' failure on power supply reliability, i.e. number of residential and general service customers impacted and the duration of resulting outage, as well as the potential safety impacts of asset failures.

2-Staff-24

Ref: Distribution System Plan – Asset Lifecycle Optimization
Figure 25: Risk Based Decision Support System

Preamble:

Figure 25 showed that a change in maintenance plans could reduce the decrease in asset value over time by extending the life expectancy. This is used to produce an optimized decision to either replace, repair or do-nothing.

Question(s):

a) How does Centre Wellington Hydro quantitatively assess the extended life of an asset related to an OM&A activity?

b) Is capital versus OM&A trade-off analysis done for all capital replacement projects? If not, why?

Response:

(a) As shown in Figure 25, the scope and frequency of preventative maintenance activities impact the rate of asset impairment over assets' life and determine the useful service life of assets. The impacts of historic maintenance practices are reflected in the level of assets' health impairment, when is qualitatively measured/estimated when asset condition is assessed through testing or inspections.

For example, when a set of assets with typical useful life of 35 years, receives adequate preventative maintenance through its service life, there is a high probability the asset set will provide a mean service life of 35 years. But when adequate maintenance is not received the assets in the set may fail prematurely with average service life of 25 years.

In the above example when condition assessment of assets with actual service age of 25 years is performed, assets with adequate historic maintenance will be found in "Fair" condition but in the absence of adequate maintenance, the assets will be found in "Poor" or "Very Poor" condition.

(b) Yes, the Capital versus OM&A trade-off analysis was taken into account for all asset categories - to determine the optimal scope and frequency of preventative maintenance activities on different type of assets. Also, as indicated in response (a) above, the level of capital investments into system renewal is determined by the existing operating condition of assets, which is dependent on the historic O&M practices.

2-Staff-25

Ref: Distribution System Plan – Asset Inspection
3.4.2 Preventative Maintenance and Safety Inspections

Preamble:

Centre Wellington Hydro uses thermograph inspection on distribution assets to detect incipient faults. It has recommended that these should be continued as part of the maintenance program.

Question(s):

a) What assets are inspected with thermograph inspection?

b) How often are they inspected? What is the cost of each inspection?

c) What is the cost of reactive replacement of the assets inspected?

Responses:

a) Once per calendar year, CWH contracts out the thermal inspection of all the overhead assets by Infrared Thermal Analysis, including overhead lines, switching apparatus, transformer apparatus, primary voltage terminations and both primary and secondary voltage connections. CWH also takes this opportunity to assist customers by thermal inspection of customer owned private lines and notifies customers of issues.

b) This inspection is completed once per calendar year, involving approximately 9 hours of inspection. The yearly inspection cost was $809.36 +HST in 2017.

c) Reactive costs for all labor and material between January 2012 and Dec 2016 in response to concerns discovered via thermographic inspection is $14,500.00.

2-Staff-26

Ref: Distribution System Plan – Vegetation Management
3.4.2 Preventative Maintenance and Safety Inspections

Preamble:

Centre Wellington Hydro has stated that it considers tree trimming on a two year cycle satisfactory.

Question(s):

a) Please provide the number of outages related to vegetation in the past five years.

b) Have there been customer complaints on the reliability of the system? If so, please provide evidence of the complaints.

c) Has Centre Wellington Hydro considered increasing the tree trimming separation distance between the tree and the distribution line to reduce trimming cycle?

Responses(s):

a) CWH has had 24 total vegetation related outages during the period of January 2012 to December 2016. There was one outage in 2012, 15 outages in 2013, 4 outages in 2014, 2 outages in 2015 and 2 outages in 2016.

b) CWH does not have any documented or recorded customer complaints specific to reliability due to vegetation management. As seen in the 2014 Customer Satisfaction Survey, customers do put a high priority on tree trimming.

c) CWH works closely with the Township of Centre Wellington (through the Urban Forestry Project Manager), and a local not for profit group called Neighbourwoods in Elora and Fergus to address tree vegetation growth in proximity to power lines. The current two (2) year tree trimming cycle appropriately addresses clearance/separation distance as per ESA guidelines and customers' requests for keeping tree trimming a priority, while at the same time trimming to an acceptable minimum clearance.

2-Staff-27

Ref: Distribution System Plan – Material Capital Investments
2012 Capital Job – CP15

Preamble:

A Smart Centre requested a connection for a large box store and three medium sized commercial stores. This required a line extension from the existing 44kV circuit. The scope involved replacement of 28 poles which were sized to attach Centre Wellington Hydro's feeders and Hydro One's feeders.

Question(s):

a) Did the Smart Centre pay a capital contribution for this project? If not, why?

b) Did Hydro One contribute to the cost of this project? If not, why?

Response(s):

a) Yes, the Smart Centre did pay a capital contribution for this project.

b) Hydro One did not pay a capital contribution towards the cost of this project; however, Hydro One did transfer their circuits (a 44kv circuit and an 8kv circuit) onto CWH installed new poles at no cost to CWH.

2-Staff-28

Ref: Distribution System Plan – Material Capital Investments
2013 Capital Job – CP17

Preamble:

The underground cable system on Argyll St is operating beyond its life expectancy and requires replacement.

Question(s):

a) The project is completed over two phases, one in-service September 2012 and the other October 2013. Why is the project done over two periods? Are there cost savings to complete this project together?

b) How many kilometers of underground cable was replaced?

Response(s):

a) CWH split this job into two phases due to many inclement weather days which would not allow staff to work on the energized apparatus safely. CWH management decided to break the job into two phases to complete the project safely. In phase one CWH completed the conduit and conductor in 2012 and in phase two CWH completed the transformer and services in 2013. Completing this job in two different phases did not impact the cost of the job as the work load was not increased.

b) .390 KM of underground 15 KV primary conductor was replaced.

2-Staff-29

Ref: Distribution System Plan – Material Capital Investments
2013 Capital Job – CP30

Preamble:

The Fergus Library branch is expanding and the Township is reconstructing the parking and parkland adjacent to the library. This library expansion will extend into the existing overhead pole line requiring the service to be relocated.

Question(s):

a) Does Centre Wellington Hydro have easement rights for the existing line?

b) Is the cost of this project fully or partially recovered from the Township if Centre Wellington Hydro has easement rights?

c) The existing feeder is an overhead design yet the new design is an underground design. What is the cause of the change in design? If it is due to aesthetics, who requested the change? Where they responsible for any incremental cost to the design change?

Response(s):

a) No, all plant equipment is installed on Centre Wellington Township ("public") property where easements are not required. The Township approves all utility (including gas, communications, electric, etc.) installation corridors without easements.

b) CWH did not recover any costs from the Township as this area was in CWH's consideration for rebuilding prior to the Township's decision to upgrade the parking lot and the Wellington Counties library renovation and addition. The old overhead lines were not to current standards, with open bus conductor, suspect insulators and brackets as well as being in contravention of ESA standards as the primary circuit was in close (less than 3') proximity to commercial buildings including windows.

c) It was decided during preconstruction meetings by CWH that the library project provided CWH an opportunity to improve the existing overhead plant as explained above. There was also an opportunity to design a loop feed by accessing existing spare underground duct on an existing bridge as well as prepare for a future road reconstruction project that will enable CWH to continue

on with the underground plant across a main corridor (Highway 6). This area is downtown Fergus with very limited space (narrow alleys and roads, small parking spaces, no boulevards) for overhead plant and public interest as presented in customer feedback indicates underground is a preference. It was customers 6th top priority spending as expressed to CWH through consultation to which CWH responded during the residential small commercial meeting "CWH works closely with the Municipality and other utilities to rebuild infrastructure in a joint effort to reduce costs and go underground if viable." This project and the incremental cost to design the rebuild underground was in keeping with this vision.

2-Staff-30

Ref: Distribution System Plan – Material Capital Investments
2013 Capital Job – CP35

Preamble:

A 400m section of underground duct bank was built on Beatty Line from Garafraxa St. to Hill St. This section of the feeder is on the edge of town with no apparent space constraints.

Question(s):

a) Please explain the justification why this portion was built underground instead of an overhead design?

Response(s):

a) The main driver for this project was to establish a tie circuit between the M7 and M1 feeders for reliability and optimization of the distribution system. The three main drivers for installing the circuit underground were:

1) There are numerous large mature maple trees along Beatty Line on the east side that a pole line would have been preferred. To negate the probability of completing major tree trimming on the existing trees and future trimming maintenance the circuit was buried in a cost-efficient way by means of open trench.

2) The existing poleline on the west side of the road is owned by Hydro One and CWH would bear the added cost of requesting Hydro One to rebuild their poleline to include space for CWH attachments, which would minimize the cost effectiveness of going overhead.

3) Future redevelopment of the area will be needed as the area to the North is currently being developed with mass residential building. It is unknown at this time how this will affect the streetscape and specifically where sidewalks will be placed the extent of road widening. If CWH installed polelines that happened to be in the way of the road reconstruction extra future costs would be incurred to relocate the polelines.

2-Staff-31

Ref: Distribution System Plan – Material Capital Investments
2016 Capital Job – CP64
Costello Associates Inc. – 2011 Substation Score

Preamble:

Centre Wellington Hydro had stated the asset management plan called for the rehabilitation of Elora MS#2 due to worker/public safety, risk of equipment failure, and smart grid applications. In 2011, a report was done by Costello Associates for each substation. In the report, the overall station condition was deemed low risk with the exception of the station fence.

Question(s):

a) Centre Wellington Hydro has changed the reclosers in the station when their health rating in the Costello report showed they were healthy. Please provide justification on deviating from the asset condition assessment?

b) Please confirm if the station fencing and grounding was addressed in this project.

Response(s):

a) Although the reclosers in the station were given a healthy rating they were of a vintage that if they failed it would be challenging to repair or replace with identical used reclosers as new ones are not available. Added to that, the existing reclosers could not be used in conjunction with the SCADA system for automated purposes including optimizing remote capabilities. For these reasons they were replaced.

b) Yes, the station grounding and fencing issues were addressed in this project and rectified.

2-Staff-32

Ref: Distribution System Plan – Material Capital Investments
2016 Capital Job – CP65
Costello Associates Inc. – 2011 Substation Score

Preamble:

Centre Wellington Hydro had stated the Costello study found that station grounding was inadequate and the station was not equipped to handle the opportunity of SCADA. There were also concerns of oil containment for the station and this was to be addressed as part of the station upgrade.

Question(s):

a) The grounding issue seems to be limited to the ground potential rise of the neighbour's fence. What grounding upgrade was done to address this deficiency? Were there other grounding issues not explicit in the report?

b) The report showed that all of the equipment with the exception of cables seems to be in good condition. In addition, the overall risk assessment is low. Were the recloser upgrade and new SCADA installed specifically for the development of Smart Grid?

c) Centre Wellington Hydro had stated that an oil containment upgrade would be part of the project. In the Costello study for the station it seems the deficiency is that there is no oil containment for this station and is deemed higher risk. What did Centre Wellington Hydro install for oil containment? Has Centre Wellington Hydro done an environmental study outside the station to assess if there was, in fact, risk of oil flowing outside or into a water stream?

Response(s):

a) The ground issue was limited to the ground potential rise of the neighbour's fence. CWH addressed this issue by installing a permanent ground mat at the 44kv switch location to current standards. The neighbour's metal clad fence is still in close proximity to the switch and the exact potential difference that could be seen if a fault were to occur is unknown. The only way to permanently eliminate this risk would be to install a non-conductive fence section adjacent to the switch in both directions.

b) Although the secondary fuse protection in the station was in good condition, Costello's report suggested alternatives to fusing be contemplated and explained

the limitations to fusing only protection, for example, single phase protection devices in urban environments is non-standard and may cause single-phasing problems for three-phase customers. Also, reliability was improved by installing reclosers that automatically re-energize circuits that have experienced a momentary fault caused by lightning, wind/galloping, or tree limb contact. Previously when this occurred trucks would have to be rolled, feeders patrolled, and fuses replaced, which was time consuming and costly. The recloser and SCADA upgrades were not specifically installed for the development of SG. They provide superior protection and coordination with downstream devices, such as renewable connections and connected with SCADA will enable future SG applications which for this project was considered a secondary driver for this work.

c) A Sorbweb plus oil containment system was engineered and designed specific for the site. A costly environmental study was not conducted, rather the municipal works department was contacted and information was provided explaining the nature of the storm water management “pond”. The basis for the storm water retention pond which is located directly adjacent to the station fence a distance of 10 meters (NW) is designed to collect rain water from the area and release it along a storm water course directly to the Grand River which is located 922 meters from the site along the drainage system.

2-Staff-33

Ref: Distribution System Plan – Material Capital Investments
2017 Capital Job – CP33

Preamble:

The County of Wellington has requested a connection for a hospital. This requires an extension of the 44kV line to the site. This project was also proposed in Centre Wellington Hydro's 2013 cost of service application. The estimate at the time was $139,900.

Question(s):

a) The current estimate for this project is $244,100 compared to the estimate of $139,900. Please provide an explanation for the change in cost and why the project was delayed.

b) Is there any capital contribution from the County of Wellington for this expansion? If not, why?

c) How long is this expansion? Why did Centre Wellington Hydro choose an underground design for the expansion?

Response(s):

a) The change in cost was due to the customer requesting an underground connection rather than an overhead. The project was delayed as per the customers schedule changes and planning and design process and out of CWH's control.

b) There will be a capital contribution required from the customer and or developer; being the Groves memorial hospital and County of Wellington respectively.

c) The total length of the expansion for the M3 feeder and the M7 redundant feeder is approximately 1200 meters. As explained above the customer has requested a new design being underground.

2-Staff-34

Ref: Distribution System Plan – Material Capital Investments
2017 Capital Job – CG1930

Preamble:

Centre Wellington Hydro had planned to replace a bucket truck because it has reached end-of-life and also purchase an electric vehicle for tasks such as delivering notices, water read, system inspections, banking and attending meetings.

Question(s):

a) Did Centre Wellington Hydro consider the possibility of a used bucket truck?

b) Was there a business case on the purchase of an electric vehicle compared to a regular gas vehicle? If so, please provide the business case. If not, why?

c) The capital spending in the 2017 General Plant category is significantly higher than other years. Did Centre Wellington Hydro considered deferring other capital investments in the 2017 General Plant category to smooth the yearly investments? If not, why? If so, please explain the criticality of the Computer Hardware project (CG1920) and the Electric Vehicle (CG1930) and why those projects could not be deferred a year to smooth the spend in the investment category.

Response(s):

a) CWH did consider the option of purchasing a “used” vehicle instead of a “new” vehicle, but this option was rejected, because it was not determined to be the optimal option, due to the following reasons:

I. The bucket trucks used for live-line work are highly specialized, with customized features and design, required to meet the electric utilities’ specific operating needs. The market for used vehicles of this type is relatively small, which makes it extremely difficult to obtain used vehicles in “low-risk” condition and with the required customized features at competitive prices.

North American distribution utilities, which are generally regulated utilities, are the largest user of this type of vehicles and their policies generally dictate them to purchase new, warranty-bound, vehicles from the manufacturers and retire them from service only when they reach the end of their economic service life. Only a small proportion of this type of vehicles is owned by

private contractors, but the private contractors rarely have surplus vehicles in good operating condition to sell.

II. The used vehicles available in the market place generally require much higher level of maintenance to keep the vehicles in a reliable operating condition. As a result, any savings in initial purchase price are quickly lost due to the increased maintenance costs.

III. The new vehicles from the manufacturers come with an extended warranty against hidden defects and such warranties are not available on used vehicles. In the absence of the extended warranty, any hidden defects in vehicles could potentially expose CWH to unintended risks, including unexpected repair costs or safety risks to employees.

b) The business case for purchasing an electric vehicle over a regular gas vehicle was completed in the form of a comparison as can be seen by the chart below. The values are conservative as there was no additional costing included towards the gas vehicle for expected maintenance indicative of gas vehicles that would be reasonable to assume for traditional mechanical type degradation/breakdowns. The Chev Cruze gas model was used as it is most similar in size and performance characteristics for city driving.

CHEVY BOLT (EV) vs CHEVY CRUZE (GAS) COST COMPARISON		
Vehicle	CHEVY BOLT EV	CHEVY CRUZE HATCHBACK
MSRP COST	$43,195	$20,995
REBATE	$14,000	$0
TOTAL COST pre tax	$29,195	$20,995.00
annual electric/gas cost for 15000 kms using average cost of $1 for gas and $0.12 for electrcicity	$275	$1,245
annual oil change and service cost	$0	$156
Total gas/electric and oil change costs over 8 year anticipated vehicle life at CWH	$2,200	$11,208
Total eight (8) year expenses including ourchase, gas/electicity, and oil changes	$31,395	$32,203.00

c) When CWH prepared the 2017 budget, CWH looked at the overall capital spending and not specifically by investment category. What CWH spends in a year for general plant and which spending is advanced or deferred depends on what CWH has or has not to spend in other categories as well as what CWH has to spend in general plant. Planning is done for all categories in concert. As

shown in the 2016, the General plant was relatively low due to other 2016 priorities, however, condition of the single bucket truck required the replacement take place in 2017 and because the bucket truck is a high-ticket item there was a significant increase in the General Plant for 2017. The truck was over 60% of the total General Plant budget amount. When considering whether or not to continue or defer the purchase of computer hardware and the electric car, CWH looked at the overall 2017 capital budget and determined that CWH could proceed with the purchase of these two capital projects as well.

2-Staff-35

Ref: Distribution System Plan – Material Capital Investments
2018 Capital Job – CP9

Preamble:

Centre Wellington Hydro has planned $80,000 every year for replacement of transformers. The main driver is to have transformers on site and available for unseen replacement and planned conversions, to minimize customer outage times.

Question(s):

a) Please provide a historical trend on the number of transformers replaced on a reactive basis.

b) Please provide the number of spare overhead and pad mount transformers Centre Wellington Hydro has in their inventory.

Responses:

a) The table below shows the number of transformers replaced historically.

Year	Polemount	Padmount
2013	0	3
2014	0	0
2015	0	3
2016	7	15

b) Currently CWH has 59 pole mounted transformers in stock rated from 3KVA to 167KVA in single phase configuration.

CWH has 50 pad mount transformers rated from 50 KVA to 500KVA.

2-Staff-36

Ref: Distribution System Plan – Material Capital Investments
2020 Capital Job – CG1930

Preamble:

Centre Wellington Hydro has proposed to purchase a digger derrick truck in 2020 because the existing digger derrick truck has reached its maximum lifespan.

Question(s):

a) Did Centre Wellington Hydro consider the possibility of a used digger derrick truck?

b) Did Centre Wellington Hydro consider an Advanced Capital Module for the purchase of the digger derrick truck?

Response(s):

a) As stated in 2-Staff-34, CWH did consider the option of purchasing a "used" vehicle instead of a "new" vehicle, but this option was rejected, because it was not determined to be the optimal option, due to the following reasons:

The Digger Derrick truck is highly specialized, with customized features and design, required to meet the electric utilities' specific operating needs. The market for used vehicles of this type is relatively small, which makes it extremely difficult to obtain used vehicles in "low-risk" condition and with the required customized features at competitive prices.

North American distribution utilities, which are generally regulated utilities, are the largest user of this type of vehicles and their policies generally dictate them to purchase new, warranty-bound, vehicles from the manufacturers and retire them from service only when they reach the end of their economic service life. Only a small proportion of this type of vehicles is owned by private contractors, but the private contractors rarely have surplus vehicles in good operating condition to sell.

The used vehicles available in the market place generally require much higher level of maintenance to keep the vehicles in a reliable operating condition. As a result, any savings in initial purchase price are quickly lost due to the increased maintenance costs.

The new vehicles from the manufacturers come with an extended warranty against hidden defects and such warranties are not available on used vehicles.

In the absence of the extended warranty, any hidden defects in vehicles could potentially expose CWH to unintended risks, including unexpected repair costs or safety risks to employees.

b) No, CWH did not consider an Advanced Capital Module for the purchase of the digger truck in 2020.

2-Staff-37

Ref: Asset Management Plan – 44kV Station Switches and 4kV Reclosers
Asset Management Plan – Table 31-33

Preamble:

Centre Wellington Hydro proposed a health index table for both 44kV station switches and 4kV reclosers but did not provide rating descriptions similar to other assets.

Question(s):

a) Please provide rating descriptions for each of the criteria in Table 31, 32, and 33

Response(s):

As indicated in Table 3 of DSP, all 44 kV station switches and 4 kV reclosers in all of CWH's Distribution Stations have been renewed/rehabilitated during the past five years and are currently in "very good" condition.
The rating descriptions for Tables 31, 32 and 33 are provided below:

Rating Descriptions for Table 31:

Condition Rating	Service Age of 44 kV Switchgear
A	0 to 10 years
B	10 to 20 years
C	20 to 30 years
D	30 to 40 years
E	40 years or older

Condition Rating	Condition of Insulators
A	Brand new bushings with no degradation of insulation
B	Like new condition of bushings with no defects
C	Normal bushing wear but no surface degradation, no discoloration of surface and no cracks or flashovers
D	Minor chips in insulation bushing and/or minor discoloration due to flashover, no sign of surface tracking
E	Major cracks and/or chipped insulator and/or major discoloration or surface contamination due to flashover, signs of surface tracking

Condition Rating	Condition of Blades
A	Brand new contact blades with no degradation
B	Like new condition of blades with no defects
C	Normal blade wear but no surface degradation, no pitting of contacts and no signs of arcing during opening/closing
D	Minor contact pitting due to arcing or minor misalignment of contacts
E	Major contact pitting or major misalignment of contacts, signs of visible arcing and hot spots on blades

Condition Rating	Condition of Operating Mechanism
A	Brand new operating mechanism with no degradation
B	Like new condition of operating mechanism with no defects
C	Normal operating mechanism wear, with minor hardware rust, smooth movement with normal force during opening/closing
D	Significant rusting of the hardware, noticeable increase in friction evident during switch opening and closing
E	Unsafe condition of operating mechanism, high risk of the mechanism seizing during switch opening and closing

Condition Rating	IR Scan Results
A	No hot spots detected through IR Scan
C	Minor hot spots detected through IR Scan, but they do not impact safe switch operation
E	Major hot spots detected through IR Scan, that render switch operation unsafe

Rating Descriptions for Table 32:

Condition Rating	Age of Outdoor Recloser
A	0 to 7 years
B	8 to 15 years
C	16 to 24 years
D	25 to 32 years
E	33 years or older

Condition Rating	Condition of Tank or Enclosure
A	Brand new tank or enclosure with no surface defects
B	Normal surface degradation, no rust, no oil leaks
C	Minor rust or minor oil leak but do not impact safe operation
D	Tank/enclosure badly rusted or significant oil leak requiring repairs
E	Badly corroded tank or enclosure with major oil leaks rendering unsafe operating conditions

Condition Rating	Condition of Terminators
A	Brand new bushings with no degradation of insulation
B	Like new condition of bushings with no defects
C	Normal bushing wear but no surface degradation, no discoloration of surface and no cracks or flashovers
D	Minor chips in insulation bushing and/or minor discoloration due to flashover
E	Major cracks and/or chipped insulator and/or major discoloration and contamination due to flashover, signs of surface tracking

Condition Rating	Recloser Open/Close Counter Reading
A	Counter Reading ≤ 5% of the rated Open/Close operations
B	Counter Reading ≤25%, >5% of the rated Open/Close operations
C	Counter Reading ≤80%, >25% of the rated Open/Close operations
D	Counter Reading ≤100%, >80% of the rated Open/Close operations
E	Counter Reading >100% of the rated Open/Close operations

Condition Rating	Oil Leaks
A	No signs of oil leaks
B	Signs of minor oil leak on tanks surface, but the leak does not appear to be active
C	Visible minor oil leak at bushings
D	Significant oil leak from bushings or tank seals
E	Major oil leak, rendering unsafe operating condition

Condition Rating	Rating of Insulating Oil - Based on DGA, Oil Quality, Particle Count and Metal Content
A	Good Quality of Insulating Oil
B	Fair condition of insulating oil requiring resampling and retest within 12 months
C	Poor condition of insulating oil requiring resampling and retest within 3 months
D	Very poor condition requiring immediate investigation to determine problem
E	Unsafe Condition requiring immediate Removal from service and Remedial action

Condition Rating	Condition of Operating Mechanism and Controls
A	Brand new Operating mechanism and controls with no degradation
B	Like new condition of operating mechanism and controls with no defects
C	Normal operating mechanism wear, with minor hardware rust, smooth movement with normal force during opening/closing, control wiring in good condition
D	Noticeable increase in friction evident during opening and closing tests or control wiring in poor condition
E	Unsafe condition of operating mechanism, high risk of the mechanism seizing during opening and closing or control wiring in very poor condition

Rating Descriptions for Table 33:

Condition Rating	Age of Outdoor Recloser
A	0 to 7 years
B	8 to 15 years
C	16 to 24 years
D	25 to 32 years
E	33 years or older

Condition Rating	Condition of Tank or Enclosure
A	Brand new tank or enclosure with no surface defects
B	Normal surface degradation, no rust, no oil leaks
C	Minor rust or minor oil leak but do not impact safe operation
D	Tank/enclosure badly rusted or significant oil leak requiring repairs
E	Badly corroded tank or enclosure with major oil leaks rendering unsafe operating conditions

Condition Rating	Condition of Terminators
A	Brand new bushings with no degradation of insulation
B	Like new condition of bushings with no defects
C	Normal bushing wear but no surface degradation, no discoloration of surface and no cracks or flashovers
D	Minor chips in insulation bushing and/or minor discoloration due to flashover
E	Major cracks and/or chipped insulator and/or major discoloration and contamination due to flashover, signs of surface tracking

Condition Rating	Recloser Open/Close Counter Reading
A	Counter Reading ≤ 5% of the rated Open/Close operations
B	Counter Reading ≤25%, >5% of the rated Open/Close operations
C	Counter Reading ≤80%, >25% of the rated Open/Close operations
D	Counter Reading ≤100%, >80% of the rated Open/Close operations
E	Counter Reading >100% of the rated Open/Close operations

Condition Rating	Vacuum Bottle Integrity
A	Vacuum Bottle in “As New” Condition
B	Vacuum Bottle in “Good” Condition
C	Vacuum Bottle in “Fair” condition
D	Vacuum Bottle in “Poor” Condition, requiring remedial action
E	Vacuum Bottle in “Very Poor” Condition, requiring replacement

Condition Rating	Condition of Operating Mechanism and Controls
A	Brand new Operating mechanism and controls with no degradation
B	Like new condition of operating mechanism and controls with no defects
C	Normal operating mechanism wear, smooth movement during opening/closing, control wiring in good condition
D	Noticeable increase in friction during opening and closing tests or control wiring in poor condition
E	Unsafe condition of operating mechanism, high risk of the mechanism seizing during opening and closing or control wiring in very poor condition

2-Staff-38

Ref: Asset Management Plan – Wood Poles
Asset Management Plan – Figure 13 Poles Type Employed
Asset Management Plan – Figure 14 Pole Service Age Profile

Preamble:

Centre Wellington Hydro showed that approximately 25% of the 1445 wood poles in their system are near its typical useful service life and require replacement. This equates to approximately 360 poles that need to be replaced. In Centre Wellington Hydro's proposed capital plan, the proposal is to replace 10 poles a year.

Question(s):

a) Has Centre Wellington Hydro assessed the risk of only replacing 50 poles in the next five years? If so, how?

b) Please provide the pacing strategy used from the asset management plan.

Response(s):

a) and b)

As indicated in the Asset Management Plan (Appendix B), approximately 360 wood poles will reach a service age of 45 years during the period covered by this DSP, which is considered the useful life for fully dressed wood poles.[1] A majority of these poles are employed on lines, the overall condition of which has been assessed to be in "very poor" condition and "poor" condition, the extent of which is shown in Figure 17 of the Asset Management Plan.

The wood pole renewal strategy involves two tracks – a part of the wood poles near the end of their useful service life and presenting a high risk of failure in service are replaced during complete rebuilt of the line-sections found in "very poor" or "poor" condition. Any remaining unsafe poles on the lines are identified through non-destructive testing in field and the poles with unacceptably high risk of failure are replaced as individual poles.

This DSP includes investments under system renewal for rebuild of overhead line sections, found in "very poor" condition and a subset of overhead line sections found in "poor" condition, prioritized based on the consequence of risk of failure of lines in service. As described in Project Descriptions of the projects above the threshold of materiality, included in the DSP, approximately 200 poles at the end

[1] "Asset Depreciation Study for the Ontario Energy Board" Kinectrics Inc. July, 2010

of their service life will be replaced during the planned rebuild of overhead line sections.

To identify remaining poles in unsafe condition, CWH performs non-destructive testing of poles that have been in service for 30 years or longer. The testing reveals poles with reduced structural strength and the poles presenting unacceptably high risk of failure are removed from service and replaced. This DSP includes investments for replacement of 10 poles each year that are found to have significant reduction in structural strength through testing and are determined to present high risk of failure in service.

2-Staff-39

Ref: Asset Management Plan – Smart Grid Initiative
Asset Management Plan page 39

Preamble:

Centre Wellington Hydro had stated that four of the existing stations are equipped with automated and remote controlled reclosers and two remaining stations scheduled to undergo an upgrade during 2016.

Question(s):

a) Has the upgrade for the remaining two stations been completed?

b) With all six stations equipped with remote controllable reclosers and a SCADA system, what is Centre Wellington Hydro's current smart grid capability? (eg. Remote closing of feeder recloser)

c) Does Centre Wellington Hydro have a plan or strategy for the continued development of the smart grid?

Response(s):

a) Yes, the remaining two stations upgrades have been completed.

b) The extent of CWH's current smart grid capability is the remote opening and closing of individual feeder reclosers at each station, as well as remote automatic reclose blocking for work protection purposes. The recloser relays allow for coordination with downstream devices, such as renewable connections.

c) CWH does not have a stand-alone strategic plan for the implementation of smart grid, rather it is included throughout CWH's cost of service application in the applicable sections. Smart grid development has been occurring at CWH through the "normal" course of asset replacement which is a prudent economical approach as opposed to it being the primary reason for expenditures. CWH's current smart grid capabilities including SCADA, station automation with the above noted functionality and the implementation of smart meters and the ODS functionality including OMS monitoring are the foundation. This has allowed for small scale renewable and load displacement connections, TOU rates and billing, and CWH anticipates leveraging this equipment to enable new technologies to be developed and implemented.

2.0-VECC-3

Reference: Exhibit 2/Section 2.1.4

a) The Various Continuity Schedules show total 2013 additions of $2,372,444, whereas Appendix 2-AA (Excel) shows an amount of capital expenditures of $3,563,699. In all other years Appendix 2-AA and the Continuity Schedule Total Capital Expenditure and Additions match. Please explain the variance in 2013.

Response(s):

a) The difference between the additions of $2,372,444 and $3,563,699 on Appendix 2-AA is $1,191,255 which is the amount that was transferred to account 1860 Meters due to the smart meter deployment, from account 1555-Smart Meter Capital and Recovery Offset variance account.

2.0-VECC-4

Reference: Exhibit 2/Section 2.5.1/pg. 58

a) Please amend Appendix 2-AA to show 2013 Board approved amounts.

Response(s):

Please find below the amended Appendix 2-AA to show the 2013 Board Approved amounts.

Projects	2013 Board Approved	2013	2014	2015	2016	2017 Bridge Year	2018 Test Year
Reporting Basis		**MIFRS**	**MIFRS**	**MIFRS**	**MIFRS**	**MIFRS**	**MIFRS**
System Access							
New Services	10,500	24,212	23,553	27,249	47,341	26,100	30,600
New Meter install				11,041			
Fergus Library	225,000	96,402		145,537			
Geo Solar		-172					
Elora Sewage plant	95,600	101,042					
St George Hospital realign			25,027				
Water Street Widening					287,508		
Wellington Place Hospital Service	139,900					244,100	
Easements	4,000						
Capital Contributions							
Water St Customers paying for underground service conversion					-18,231		
New Services	- 40,900	-123,727	-8,644	-9,096	-27,042		
Hospital Realignment			-10,111				
Sub-Total	434,100	97,757	29,825	174,730	289,576	270,200	30,600
System Renewal							
Annual Pole Replacement		39,679	20,659	2,863	51,618	89,300	94,500
Transformers		66,685	4,330	12,208	78,569	80,000	80,000
Rodan Meter Platform						18,000	
Argyll St		57,737					
Tower St Bridge		78,726					
Beatty Line	178,800	150,359	24,829				
GS>50 stock		1,459					
MS 1	1,145,000	1,238,505					
MS 1 River crossing		162,338					
Condo		43,352					
Irvine Reconstruction		30,031					
Tower St		16,051					
Union to Highland		72,997	60,996				
Perth St: Prince's to Wellington		35,783	79,838				
Replace #6 Copper wire & insulators	15,600						
MS 1Elora			1,925,636	9,878			
Chalmers			65,408	35,046			

Elora mS1			98,873	32,714			
Gartshore M3				121,677			
MS3 Fergus				807,551			
Tower St Concrete Poles					18,069		
Braeside UG					47,629		
Melville Poles				34,920			
Poletran replacement					215,180		
Gartshore Stn				43,498			
Mill St				12,636			
MS 2 Waterloo					491,600		
MS 4 Gzowski					691,580		
Station 4 Riser Pole					59,773		
CWEI Pole, Transformers						35,000	
Hill St Conversion						49,300	
Hill St Re-routing						25,000	
Hill St						49,900	
44kV Tie Re Route						140,200	
Brock St Conversion						22,700	
St Patrick: Gartshore to Herrick							85,600
St Patrick: Gowrie to Herrick							103,800
St George: Herrick to Gartshore							103,800
Sub-Total	1,339,400	1,993,702	2,280,571	1,112,990	1,654,016	509,400	467,700
System Service							
Meters	18,400		6,929	1,916	22,513	17,400	41,400
Zehrs Wholesale meter							
Meter Transfer Smart meters		1,191,255					
Meter New install Res and GS'50		13,985					
St David St Bridge UG Addition							40,500
Station Fans - Elora #2, Fergus #4							44,800
Contrib Capital for meters		-826	-1,982	-2,139	-1,167	0	0
Contrib Capital for CTs PTs			-1,663	-2,390	-2,055		
Sub-Total	18,400	1,204,414	3,284	-2,613	19,291	17,400	126,700
General Plant							
Capital Conts Pd Hydro One			4,603				
Computer Software	50,000	171,607	26,363	68,020	0		50,000
Building and Fixtures					73,701	22,000	
Building and Fixtures - Cold Storage						55,000	
Office Furniture	5,000	4,295	1,227	3,295		18,300	30,000
Computer Hardware	28,500	64,467	4,802	71,184	55,096	62,500	19,000
Transportation Equipment		15,150	37,626	421,052	33,498	400,000	130,000
Stores Equipment						5,000	
Tools, Shop and Garage Equip	1,000	7,491	9,896	2,357	5,599	8,800	14,800
Measurement & Testing Equip							4,500

Power Operated Equipment				6,262	2,020		
Communication Equipment		4,815		13,100			
Misc Equipment						9,000	2,000
System Supervisory Equipment							
Sub-Total	84,500	267,826	84,516	585,270	169,915	580,600	250,300
Miscellaneous							
Total	**1,876,400**	**3,563,699**	**2,398,195**	**1,870,376**	**2,132,797**	**1,377,600**	**875,300**
Less Renewable Generation Facility Assets and Other Non-Rate-Regulated Utility Assets *(input as negative)*		0	0	0	0	0	0
Total		**3,563,699**	**2,398,195**	**1,870,376**	**2,132,797**	**1,377,600**	**875,300**

2.0-VECC-5

Reference: Exhibit 2/Appendix B/DSP/Table 3 (PDFpg90/115)

a) Please amend Tables 3 &13, so as to show for each station the actual and forecast spending on each station for year 2017 through 2022.

Response(s):

a) The amended Tables 3 & 13, showing actual and forecast spending on each station for year 2017 through 2022 are presented below:

Table 3 (amended as requested)

					Proposed Capital Investment Projects Related to Stations					
Station ID	Transformer In Service/Rebuilt Date	Installed Capacity	44 kV Switchgear	4 kV Switchgear with Automatic Reclosers	2017	2018	2019	2020	2021	2022
Fergus MS1	Not Known	5 MVA	Upgraded During past five years	Upgraded During past five years						$ 700,000
Fergus MS2	Not Known	5 MVA	Upgraded During past five years	Upgraded During past five years						
Fergus MS3	1992	5 MVA	Upgraded During past five years	Upgraded During past five years						
Fergus MS4	1989	5 MVA	Upgraded During past five years	Upgraded During past five years		$ 22,400				
Elora MS1	2014	6/8 MVA	Upgraded During past five years	Upgraded During past five years						
Elora MS2	1997	5 MVA	Upgraded During past five years	Upgraded During past five years		$ 22,400				
						Addition of Cooling Fans to Station Transformers				Replace Station transformer at Fergus MS1

Table 13 (amended as requested)

			Historic Station Loading						Proposed Capital Investment Projects Related to Stations					
Station ID	Transformer In Service/Rebuilt Date	Installed Capacity	2010	2011	2012	2013	2014	2015 (Jan-Sep)	2017	2018	2019	2020	2021	2022
Fergus MS1	Not Known	5 MVA	3.0	3.1	3.3	3.4	3.9	4.2						$ 700,000
Fergus MS2	Not Known	5 MVA	4.0	4.1	4.1	4.2	3.0	3.2						
Fergus MS3	1992	5 MVA	2.4	2.6	3.3	3.4	2.7	2.5						
Fergus MS4	1989	5 MVA	4.9	5.1	4.8	5.6	4.7	4.9		$ 22,400				
Elora MS1	2014	6/8 MVA	3.7	3.3	3.3	3.6	3.8	4.0						
Elora MS2	1997	5 MVA	2.1	3.2	2.2	2.3	2.0	1.7		$ 22,400				
										Addition of Cooling Fans to Station Transformers				Replace Station transformer at Fergus MS1

2.0-VECC-6

Reference: Exhibit 2/Appendix B/DSP/Section 2.4 (PDFpg98)

a) Please provide the outages (SAID/SAFI) by cause code for each year 2012 through 2016.

Response(s):

a) The outages by cause codes are shown below. In 2012 and 2013 the RRR Filing 2.1.4 did not calculate SAIDI and SAIFI by cause code, therefore they have been left blank.

SAIDI & SAIFI by Cause Code													
Cause code	2012**			2013**			2014			2015			2016	
	SAIDI	SAIFI		SAIDI	SAIFI		SAIDI	SAIFI		SAIDI	SAIFI		SAIDI	SAIFI
0							0.00	0.01		0.00	0.00		0.00	0.00
1							0.02	0.06		0.09	0.02		0.06	0.02
2							0.00	0.68		0.00	0.00		3.73	1.57
3							0.00	0.00		0.00	0.00		0.00	0.00
4							0.00	0.01		0.00	0.00		0.01	0.01
5							0.00	0.00		0.05	0.04		0.03	0.08
6							0.00	0.00		0.00	0.00		0.00	0.00
7							0.00	0.00		0.00	0.00		0.00	0.00
8							0.00	0.00		0.00	0.00		0.00	0.00
9							0.00	0.00		0.00	0.00		0.00	0.00

2.0-VECC-7

Reference: Exhibit 2/Appendix B/DSP/Section 4.2.0/ Table 22

a) Please explain the IT (Computer Software investments to be made in 2018 (50k) and 2019 (80k).

Response(s):

a) In 2018 CWH has a budget of $50k for an upgrade to its CIS billing system which includes all of the improved performance enhancements. The last major upgrade was in 2014. Patches are applied as required to be able to accommodate changes to incorporate regulatory changes as necessary. The $50k is a reduced cost as CWH is a member of Utility Collaborative Services, where programming, software and hosting costs are shared, which result in lower costs to all members.

In 2019 CWH has a budget of $80k for an upgrade to its financial system. The last major upgrade took place in 2015. Major upgrades should be done once every three years to ensure that the LDC is taking advantage of all major program changes and performance enhancements. The $80k is a reduced cost as CWH is a member of Utility Collaborative Services, where programming, software and hosting costs are shared and result in lower costs to all members.

2.0-VECC-8

Reference: Exhibit 2/Appendix B/Asset Management Plan (AMP)

a) Please provide a table showing for each major asset classes (e.g. station transformers, breakers, wood poles, distribution transformers, OH Switches, underground cables, underground switches, meters etc.):
   I. Whether the asset condition assessment data is based on- age only, age and testing, or testing only.
   II. If testing was used please describe for each asset the type of testing (e.g. oil sample) and the percentage population of the asset tested.

Response(s):

(I) Please see the table below with requested information.

Asset	Type of Data Used for Condition Assessment
Station Transformers	Service Age, Historic Loading, Visual Inspections, Testing
Reclosers	Service Age, Counter Reading, Visual Inspections, Testing
Wood Poles	Service Age, Testing
Overhead lines	Service Age, Testing, Visual Inspections
Underground Cables	Service Age only
Pad-mounted transformers	Service Age and Visual inspections
Pole mounted transformers (Run to Failure Strategy)	Service Age, Testing
Revenue meters	Service Age, Testing

(II) Type of Testing

Station Transformers: Turns ratio, Winding resistance, Insulation resistance (Mega-Ohmmeter), Insulating oil test

Reclosers: Insulation Resistance, Contact Resistance, Operating tests

44 kV Switchgear: Insulation Resistance, Contact resistance, Time travel tests

Wood Poles: Non-destructive testing (Polux)

Overhead lines, Distribution Transformers, Riser poles: IR Scans

2-SEC-7

[Ex.2 p.48] Please revise table 2-AB to remove the impact of the costs associated with the Smart Meter deployment from account 1555-Smart Meter Capital and Recovery Offset variance account into capital in 2013.

Response(s):

CWH has revised table 2-AB to remove the impact of the costs associated with the Smart Meter deployment from account 1555-Smart Meter Capital and Recovery Offset variances account into capital in 2013.

Note that $171,607 was removed from the General Plant category and $1,191,255 from the System Service Category.

Appendix 2-AB
Table 2 - Capital Expenditure Summary from Chapter 5 Consolidated Distribution System Plan Filing Requirements

First year of Forecast Period: *2018*

CATEGORY	Historical Period (previous plan[1] & actual)															Forecast Period (planned)				
	2013			2014			2015			2016			2017			2018	2019	2020	2021	2022
	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual	Var	Plan	Actual[2]	Var					
	$ '000		%	*$ '000*		%	*$ '000*		%	*$ '000*		%	*$ '000*		%	*$ '000*				
System Access		98	--		30	--		175	--		290	--	270		-100.0%	31	25	25	26	26
System Renewal		1,994	--		2,281	--		1,113	--		1,654	--	187		-100.0%	468	503	527	539	1,228
System Service		13	--		3	--		- 2	--		19	--	17		-100.0%	127	65	29	29	29
General Plant		96	--		85	--		585	--		170	--	581		-100.0%	250	157	392	126	142
TOTAL EXPENDITURE	1,876	2,201	17.3%	2,347	2,399	2.2%	2,035	1,871	-8.1%	2,051	2,133	4.0%	1,055	-	-100.0%	876	750	973	720	1,425
System O&M	$1,018	$1,081	$0	$1,037	$1,066	$0	$1,015	$1,110	$0	$1,074	$1,180	$0	$1,198		-$1	$1,249	$1,280	$1,312	$1,345	$1,379

2-SEC-8

[Ex.2, p.48] Please explain the basis/source of the ‘plan’ amounts in Appendix 2-AB.

Response(s):

CWH did not have a DSP in its 2013 CoS filing therefore only total plan numbers have been provided in Appendix 2-AB. The plan numbers used are the amounts that were passed by CWH’s Board of Directors for 2014 to 2016.

Planned 2013, 2013 Board Approved Cost of Service ($1,876k)
Planned 2014, 2014 CWH Budget as approved by Board of Directors ($2,347K)
Planned 2015, 2015 CWH Budget as approved by Board of Directors ($2,035K)
Planned 2016, 2016 CWH Budget as approved by Board of Directors ($2,051K)
Planned 2017, 2017 CWH Budget as approved by Board of Directors ($1,055K)

The 2013 Cost of Service had an approved budget of $1,876,400, this over five years would amount to a total increase in capital of $9,382K. CWH’s approved capital budgets for the five years amounts to $9,364K, keeping CWH within the aggregate amount of $9,382K.

2-SEC-9

[Ex.2, p.57] Please provide for each year between 2013 and 2018:

a. The number of poles replaced or forecast to be replaced
b. The number of transformers replaced or forecast to be replaced

Response(s):

a) CWH has replaced or forecasts to replace:

2013 – Actual	50 poles
2014 – Actual	33 poles
2015 – Actual	26 poles
2016 – Actual	32 poles
2017 – Forecast	50 poles
2018 – Forecast	50 poles

b) CWH has replaced or forecasts to replace the following number of transformers:

2013 – Actual	3 padmount and 0 polemount transformers
2014 – Actual	0 padmount and 0 polemount transformers
2015 – Actual	3 padmount and 0 polemount transformers
2016 – Actuals	15 padmount and 7 polemount transformers
2017 – Actual to date (September 30, 2017)	7 padmount and 0 polemount transformers
2018 – Forecast	10 padmount and 10 polemount transformers

2-SEC-10

[Ex.2, DSP] For each 2017 material capital project, please provide the status of the project, and their expected in-service date.

Response(s):

CP 7. Pole changes are on an ongoing basis. Service life and condition of poles will affect scheduling of pole replacements. CWH has pole changes scheduled in November and December 2017 to match projected job plan in CWH's DSP, in Exhibit 2, Appendix B, and Section 4.2.1.

CP 9. Transformer changes are on an ongoing basis. Unsafe or nonoperational transformers are changed as needed. CWH is very near projected costing for transformers in 2017.

CP 13. CWH is currently changing meters as part of CWH sampling, and the scheduling of new services will add to number of new meters installed during 2017. Project is ongoing, with CWH anticipating metering work to be completed as specified in our job plan in CWH's DSP, in Exhibit 2, Appendix B, and Section 4.2.1.

CP 13-18. Due to the existing metering platform's condition on Mill Street in Elora, Centre Wellington staff removed the old structure and erected a new structure. Work was completed as planned and was put in service in August 2017. All work on this project is completed.

CP33. Groves Hospital Expansion: This project is anticipated to start in the fourth week of November with completion of pole placements, duct banks and civil work to be completed in the fourth week of December. The in-service date or energization is expected to occur in the second quarter of 2018.

CP54. This project was completed in September 2017 using current CSA approved materials and USF framing standards. It was completed as anticipated and in the scheduled time frame.

CP 69. Hill St West Fergus: The pole line conversion is under construction at this time. CWH crews have installed poles, primary conductor, secondary conductor and pole line framing according to ESA and USF approved standards. Anticipate energization and completion of project is in November 2017.

CP 71. St Patrick St Fergus: Locates, engineering and pole line staking (pole location) have all been completed for this project. Material for the project is all on site at CWH's service center, and CWH does not anticipate any delays to start this project. CWH anticipates excavation for new poles to begin within the next two weeks. The project is to be completed as anticipated by the end of November 2017.

CP 72. 44kv tie Reroute (Queen St): This project is ongoing at the present time. Poles have been installed along with both 4 and 46 KV hardware installed on poles. All construction performed using current ESA and USF standards for framing. The project is underway as expected and CWH does not anticipate any issues delaying completion of this project by early December 2017.

2-SEC-11

[Ex.2, DSP] For each 2018 material capital project, please provide the forecast in-service month.

Response(s):

CP 7. Pole Replacements: This project is continuous therefore completion is expected between January 2018 to December 2018 as required.

CP 9. Transformer Replacement: This project is continuous therefore completion is expected between January 2018 to December 2018 as required.

CP 75. St Patrick St.- Gartshore St. to Herrick St.: Pole line conversion is scheduled to a have a completion/in service month of June 2018.

CP 76 St Patrick St - Gowrie St. to Herrick St. Pole line conversion is scheduled to a have a completion/in service month of July 2018.

CP 77 St George St - Herrick St. to Gartshore St.: Pole line conversion is scheduled to a have a completion/in service month of September 2018.

2-SEC-12

[Ex.2, DSP, Appendix B] With respect to the Asset Management Plan undertaken by METSCO:

a. [p.9] METSCO states it took site visits to confirm data provided by the Applicant in its records. In METSCO's opinion what is the quality of the Applicant's data?
b. [p.11] For each asset type included in the asset management plan, please provide the number of assets that fall within each of the final Health Index scores of 'very good', 'good', 'fair', 'poor' and 'very poor'.
c. [p.45] The report provides a capital investment plan based on the condition assessment of the Applicant's major asset types. The spending on assets is based on the "quantities of asset requiring replacement during the next six years". For each major asset type, please explain how METSCO determined the number of assets that would need to be replaced in the next 6 years based on the condition information.
d. [p.47] Please explain the basis for the differences from the METSCO estimate of annual capital expenditures, and the amounts the Applicant spent or forecasts to spend during the DSP term.

Response(s):

a) In METSCO's opinion the quality of asset data maintained by the applicant is as good as or better than the quality of data kept by any other LDC in Ontario, of similar size. There is also evidence of continuous improvement in data quality during the past 10 years. CWH currently has a centralized asset database or GIS system, in which demographic information on all distribution system assets is maintained. Field inspections confirmed accuracy of data records.

b) For the following assets, condition assessment was performed using multiple indicators of asset health and assets were assigned "very good", "good", "fair", "poor" and "very poor" ratings, based on the health indices and the requested information is available in Appendix B:

Power Transformers – Appendix B - DSP Figure 16
44 kV and 4 kV Switchgear – Appendix B – DSP Figure 17
44 kV, 4.2 kV, 2.4 kV Overhead lines – Appendix B – DSP Figure 18

For the remaining asset categories, where test results to determine asset condition were unavailable (not economical to perform testing), asset service age was the primary indicator of asset health and the age profiles are presented in Appendix B:

Underground Cables – Appendix B – DSP Figure 19
Pole mounted transformers – Appendix B - DSP Figure 20
Pad mounted transformers – Appendix B - DSP Figure 21

c) The investment plan was developed to manage to risk of in-service failure of assets determined to be in very poor or poor condition.

The investment plan includes funding for renewal of all assets determined to be in “very poor” condition and a sub-set of assets determined to in “poor condition”, where the consequences of the risk of asset failure in service have been determined to be high. For those assets where service age was the only available indicator of asset health, the five service age groups (shown in Figure 19, 20 and 21) were taken to correspond with “very good”, “good”, “fair”, “poor” and “very poor” asset condition.

d) The asset management plan identifies investments requirements into assets for optimal system operation, covering the time period from 2016 to 2021. The DSP lists finalized investment requirements based on updated information and covering the time period from 2017 to 2022.

The following reasons account for the difference between METSCO estimate of annual capital expenditure in Asset Management Plan and the capital investment plan proposed in the DSP:

Investments into System Service, System Access and General Plan:

1) In METSCO’s AM plan, investment levels proposed for system service, system access and general plant were preliminary, based on historic spending level during the previous five years. These were refined and revised based on updated information on actual needs, during preparation of the DSP.
2) The project specific cost estimates in METSCO’s AM Plan were preliminary and these were revised during preparation of DSP, by preparing detailed project designs.

Investments into System Renewal:

1) As shown in the table below, in the system renewal category, the variance between overall actual and proposed capital expenditure in DSP from the capital investment level recommended in the asset management plan is relatively small, less than 5%.

From Table 10 in Exhibit 1							
CAPEX Category	**2016 Actual**	**2017 - Projected**	**2018 - Projected**	**2019 - Projected**	**2020 - Projected**	**2021 - Projected**	**Total 2016-2021**
System Renewal	$ 1,654,016	$ 474,400	$ 512,500	$ 503,300	$ 527,300	$ 538,500	$ 4,210,016
From Table 44 in Exhibit 2, DSP - AMP	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**Total**
System Renewal - Overhead line assets	$ 369,433	$ 408,866	$ 417,043	$ 425,384	$ 433,892	$ 442,570	$ 2,497,188
System Renewal - Underground dist assets	$ 203,424	$ 104,128	$ 125,313	$ 129,699	$ 132,293	$ 134,939	$ 829,796
System Renewal - Substation assets	$ 1,048,600	$ -	$ -	$ -	$ -	$ -	$ 1,048,600
TOTAL RENEWAL ONLY from AMP	$ 1,621,457	$ 512,994	$ 542,356	$ 555,083	$ 566,185	$ 577,509	$ 4,375,584
							$ -
Amount over AMP Amount	$ 32,559	-$ 38,594	-$ 29,856	-$ 51,783	-$ 38,885	-$ 39,009	-$ 165,568
% over AMP	2%	-8%	-6%	-9%	-7%	-7%	-4%

2) The reason for the variation is that the cost estimates presented in METSCO's AM Plan were preliminary, based on conceptual design and these cost estimates were refined and revised during preparation of DSP, by preparing detailed project designs.

2-SEC-13

[Ex.2, DSP, CP9] The Applicant forecasts to spend $80,000 in each of 2017 and the Test Year for transformers.

a. The Applicant states that the “exact number can’t [sic] not be determined at this point”. For the purposes of setting the $80,000 budget, how many transformers is the Applicant planning to purchase and what is the basis for that forecast?
b. How many transformers have been purchased to date and at what is the total cost?
c. How many are expected to be used for planned versus unplanned replacements?
d. The Applicant references a new large subdivision therefore there will need to be an increase in the transformer stock. Which project is the Applicant referring to and when is its in-service date?
e. Is the Test Year budget of $80,000 for transformers determined on the same basis as 2017?

Response(s):

a. CWH anticipates the purchase of 2 - 500 KVA pad mount transformers to be in supply in the event of failures to existing 500 KVA transformers presently in service.

   CWH anticipates the purchase of 10 - 50 KVA pad mount transformers which are scheduled to be entered into service in 2018 to service new subdivisions in CWH’s service territory. The estimated total transformer costs for the above referenced transformers is $80,000.

b. CWH in 2017 has purchased 7 padmount transformers to date. The cost of these 7 transformers is $82,500.

c. Ten of the twelve transformers noted above are scheduled to be used for planned replacements.

d. Eastwood Subdivision is located on Gartshore Street, in Fergus. Phase 1 of this subdivision is currently under construction and has been energized, August 2017. Phase 2 of this particular subdivision will begin construction in 2018. This project was not in our original budget for 2017 as it was not anticipated.

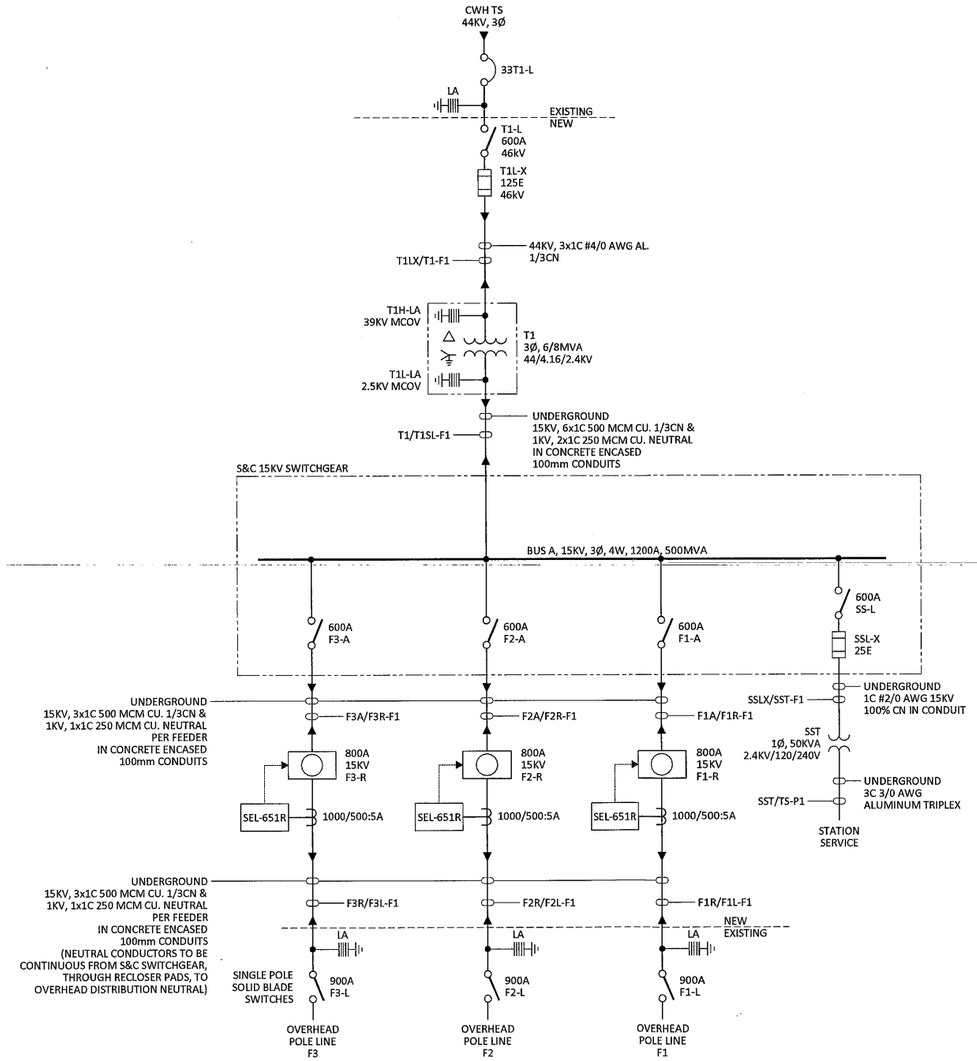
e. The estimated transformer costs for 2018 were calculated based on the same criteria as 2017. Anticipated transformer installations with an adequate spare supply in case of failures were both considerations in the amount estimated.

Exhibit 2

Appendix A

LEGEND:

- TRANSFORMER
- 15KV RECLOSER
- LIGHTNING ARRESTOR



AS BUILT

REFERENCE DRAWINGS		REVISIONS					
		1	AS BUILT	20MAY15	RSP		
–		0	FOR CONSTRUCTION	20MAY14	JPK	BAZ	HEH
REF. DWG. NO.	REFERENCE DRAWING TITLE	REV.	DESCRIPTION (THIS DRAWING IS NOT VALID UNLESS THE LAST REVISION IS HAND SIGNED)	DATE	BY	CHECK	APPR.

CENTRE WELLINGTON HYDRO

THIS DRAWING MIGHT BE REDUCED FROM ITS ORIGINAL SIZE. DO NOT SCALE

NORDMIN
RESOURCE & INDUSTRIAL ENGINEERING
NORDMIN ENGINEERING LTD.
160 Logan Ave., Thunder Bay, ON, P7A 6R1
Phone: (807) 683-1730, Fax: (807) 683-1744
www.nordmin.com

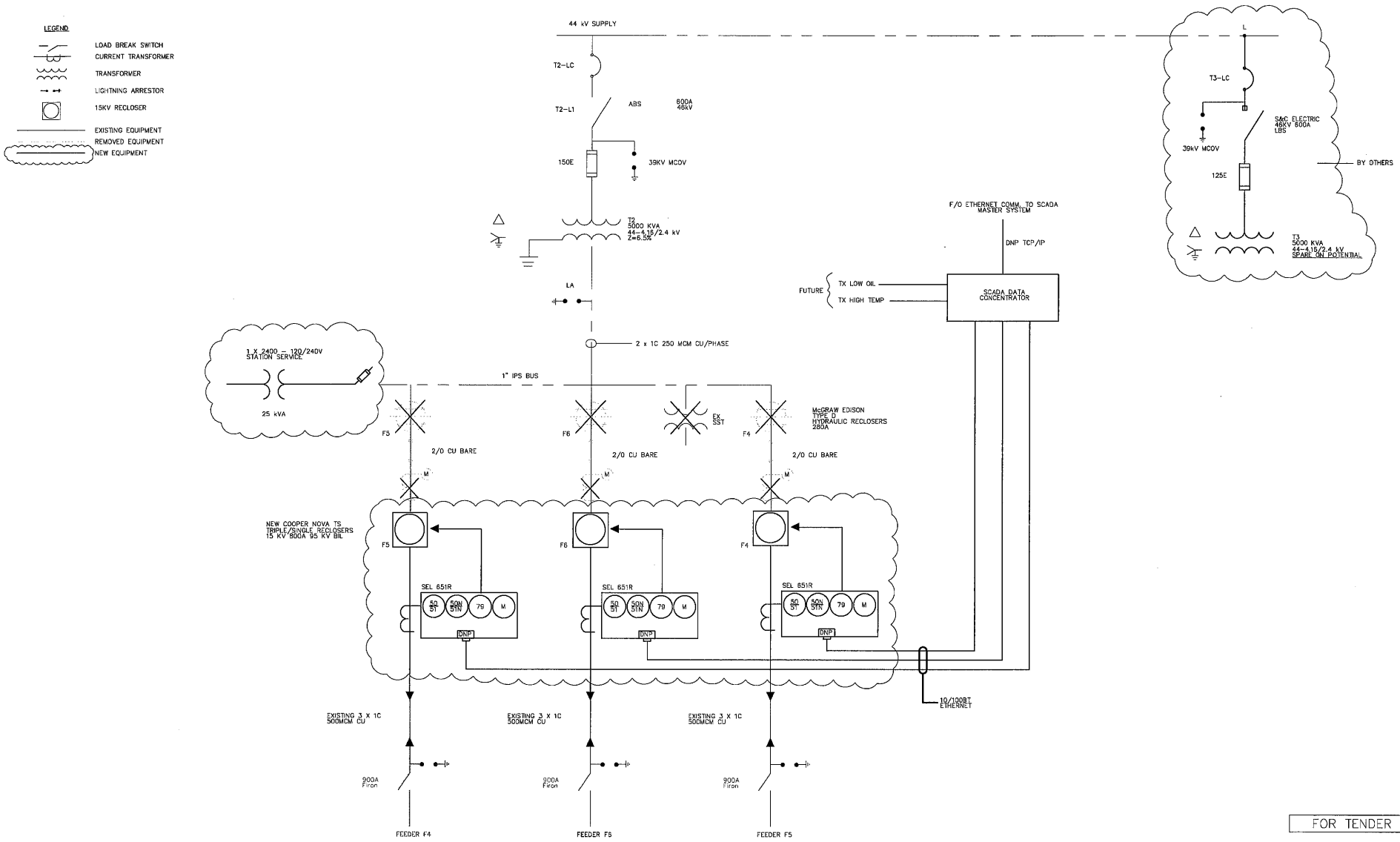
DESIGNED BY: J. KRUZLIAK
DRAWN BY: J. KRUZLIAK
CHECKED BY: B. ZAPPITELLI
APPROVED BY:
DATE: 21JAN14

CLIENT: CENTRE WELLINGTON HYDRO
PROJECT / LOCATION: MS-1 SUBSTATION / ELORA, ONTARIO
TITLE: AREA 70 - SUBSTATION
MS1
SINGLE LINE DRAWING

SCALE:	PROJ. NO.	DWG. NO.	REV. NO.
NTS	13226-01	13226-01-70-9300	1

4 Inches | 3 | 2 | 1 | 50 | 100 Millimeters

KNOWLEDGE + EXPERIENCE + INNOVATION = SOLUTIONS



No.	Reference Drawing	No.	Revision	Date	By	Appr.
		0	ISSUED FOR TENDER	05/02/2016	HL	REL

costello Utility Consultants

Costello Utility Consultants
11 Mary Street, Suite L
Sudbury, Ontario P3C 1B4
Ph: 705-470-3090

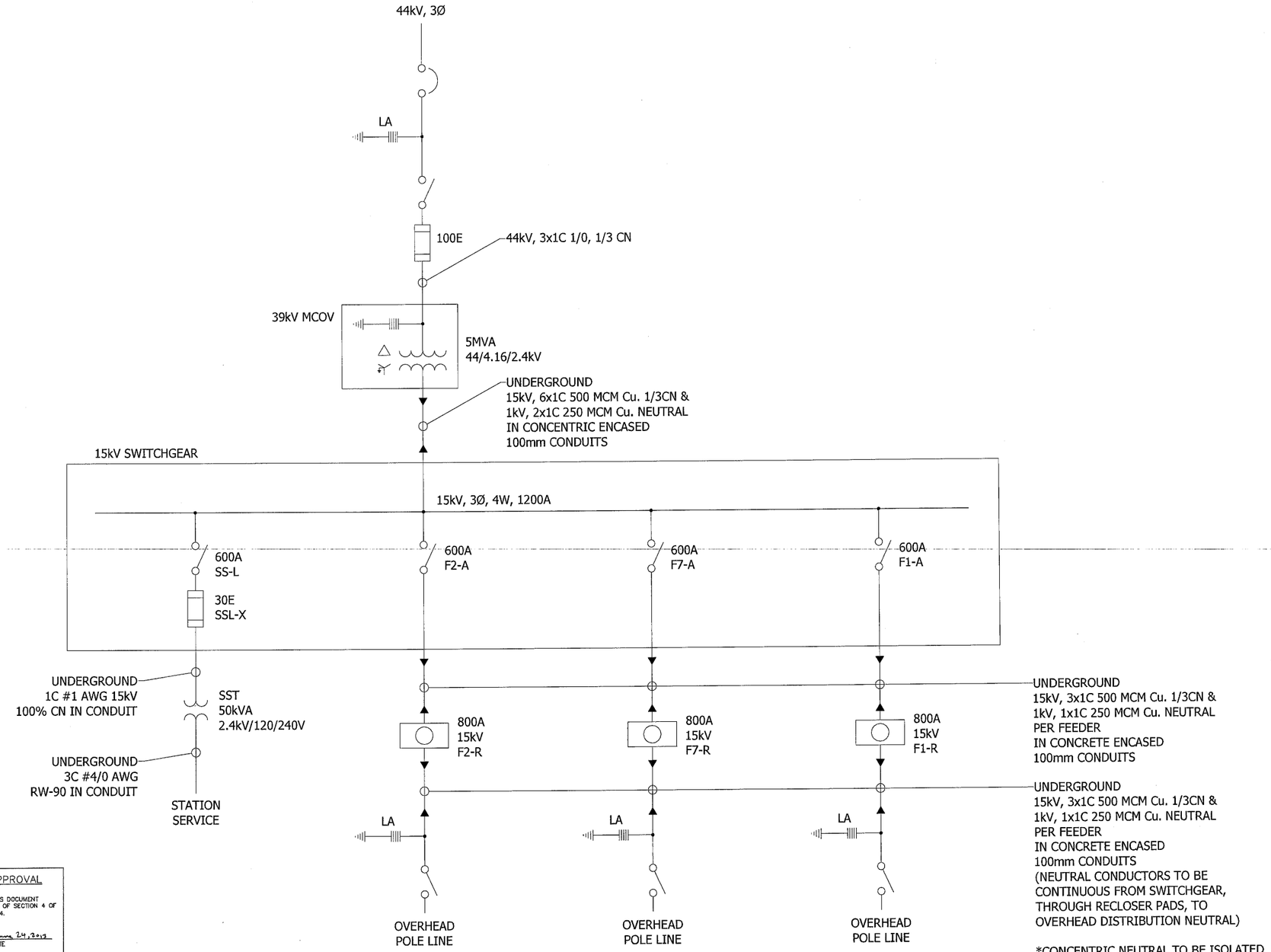
4053 Meadowbrook Drive, Unit 102
London, Ontario N6L 1E8
Ph: 519-203-1222

www.costelloassociates.ca

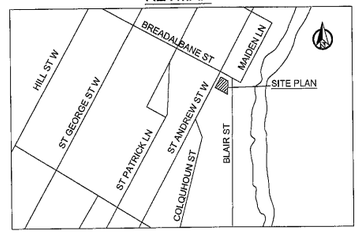
CENTRE WELLINGTON HYDRO

ELORA MS-2 SUBSTATION
STATION REHABILITATION PROJECT
SINGLE LINE DIAGRAM

Scale:	N.T.S.
Drawn by: K.LAPIER	Date: 01/02/2016
Designed by: R.LAPIER	Date: 01/02/2016
Checked by: R.LAPIER	Date: 05/02/2016
Approved by: R.LAPIER	Date: 05/02/2016
Drawing Number: 15197-01	Rev: 0



KEYMAP



CERTIFICATE OF APPROVAL

THE DESIGN COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04.

David Lee — NAME
June 24, 2013 — DATE
P.Eng — SIGNATURE & PROFESSIONAL DESIGNATION

AS-BUILT

REV.	MM/DD/YY	DESCRIPTION	BY	CHKD
3	9/19/13	AS-BUILT	C.M.	D.L.
2	6/24/13	ISSUED FOR CONSTRUCTION	C.M.	D.L.
1	6/6/13	80% DESIGN COMPLETION	C.M.	D.L.
0	4/15/13	PRELIMINARY DESIGN	C.M.	D.L.

REVISIONS

K-TEK ELECTRO-SERVICES LIMITED
CONSULTING ENGINEERS
37 SANDIFORD DR., UNIT 107
STOUFFVILLE, ONTARIO, L4A 7X5
TEL.: (905) 640-0660 FAX: (905) 640-8566

TITLE:

FERGUS MS1
SINGLE LINE DIAGRAM

LOCATION:

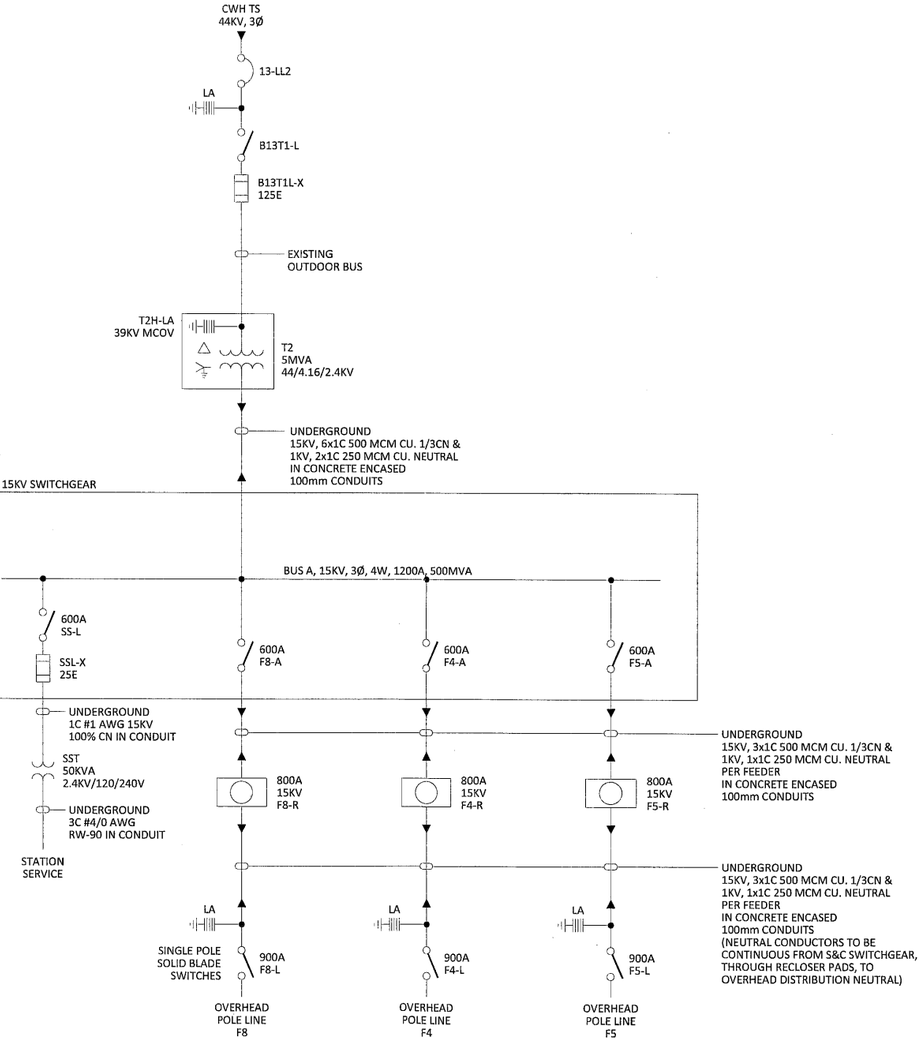
CENTRE WELLINGTON, ONTARIO

WORK ORDER No.	CUSTOMER WORK ORDER No.	SCALE:
31084-20-13		N.T.S.

DESIGNED BY:	CHECKED BY:	DRAWING No.	Sheet:
D.L.	G.M.	KT-31084-E-001	1
DRAWN BY: C.M.	DATE: April 15, 2013		

LEGEND:

- TRANSFORMER
- 15KV RECLOSER
- LIGHTNING ARRESTOR



FOR TENDER ONLY

NOT FOR CONSTRUCTION

REFERENCE DRAWINGS		REVISIONS					ISSUES		
		C	FOR TENDER	20JUL12	JPK	HH	HH		
		B	FOR REVIEW	09JUL12	JPK	HH	HH		
		A	PRELIMINARY	08MAY12	JPK	HH	HH	FOR TENDER	20JUL12
REF. DWG. NO.	REFERENCE DRAWING TITLE	REV.	DESCRIPTION	DATE	BY	CHECK	APPR.	DESCRIPTION	DATE

THIS DRAWING IS NOT VALID UNLESS THE LAST REVISION IS HAND SIGNED

CENTRE WELLINGTON HYDRO

THIS DRAWING MIGHT BE REDUCED FROM ITS ORIGINAL SIZE. DO NOT SCALE

NORDMIN
RESOURCE & INDUSTRIAL
ENGINEERING
NORDMIN ENGINEERING LTD.
1139 Alloy Dr., Suite 224
Thunder Bay, ON, P7B 6M9
Phone: (807) 683-1730, Fax: (807) 683-1744
www.nordmin.com

DESIGNED BY:
DRAWN BY: J. KRUZLIAK
CHECKED BY:
APPROVED BY:
DATE: 08 MAY 12

CLIENT: CENTRE WELLINGTON HYDRO
PROJECT / LOCATION: FERGUS SUBSTATION UPGRADE
TITLE: AREA 70 - SUBSTATION MS2 SINGLE LINE DRAWING

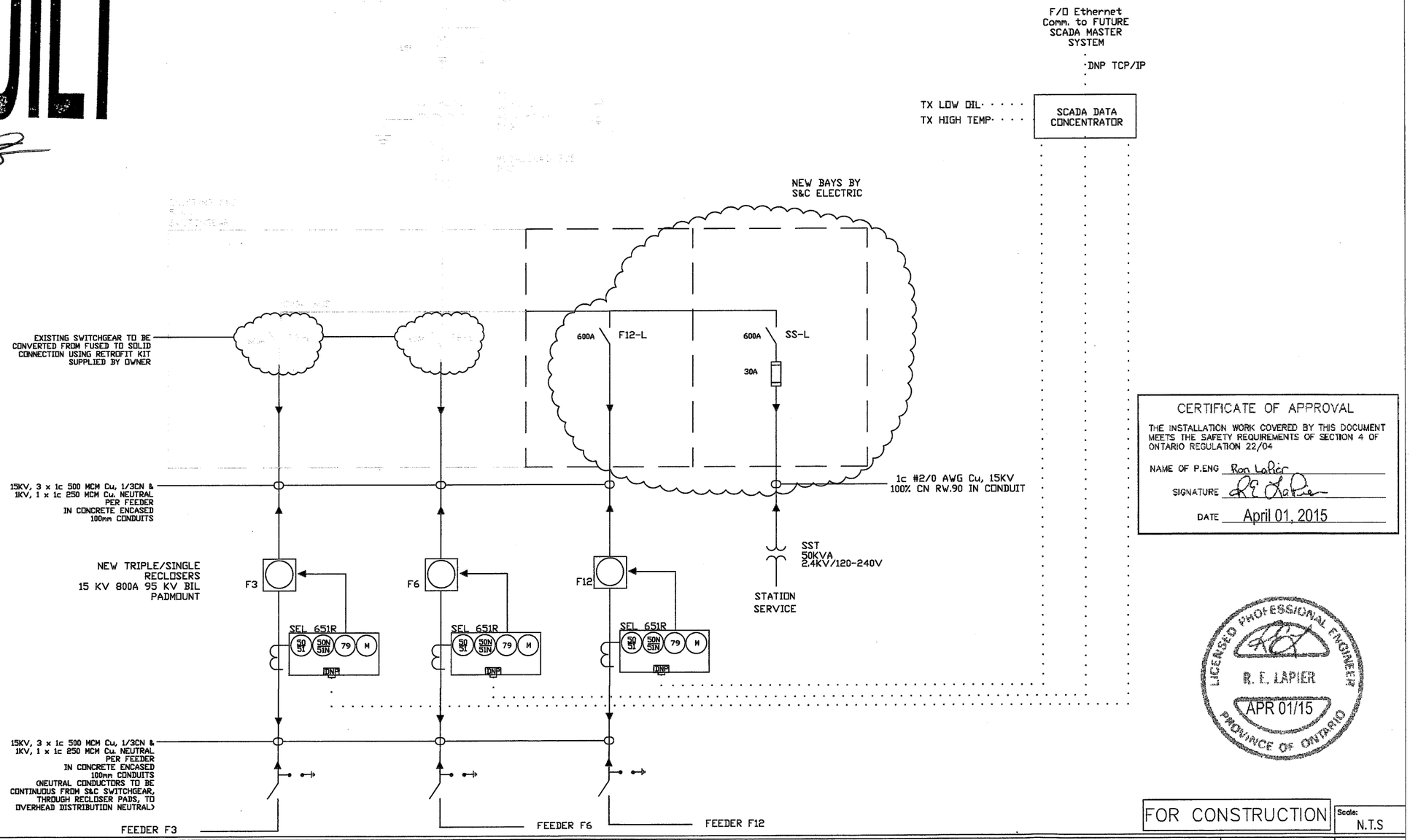
SCALE:	PROJ. NO.	DWG. NO.	REV. NO.
NTS	12106-01	12106-01-70-9000	C

4 Inches | 3 | 2 | 1 | 50 | 100 Millimeters

KNOWLEDGE + EXPERIENCE + INNOVATION = SOLUTIONS

AS BUILT

No Changes



CERTIFICATE OF APPROVAL

THE INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF ONTARIO REGULATION 22/04

NAME OF P.ENG Ron Lapier

SIGNATURE

DATE April 01, 2015

LICENSED PROFESSIONAL ENGINEER
R. E. LAPIER
APR 01/15
PROVINCE OF ONTARIO

FOR CONSTRUCTION

Scale: N.T.S

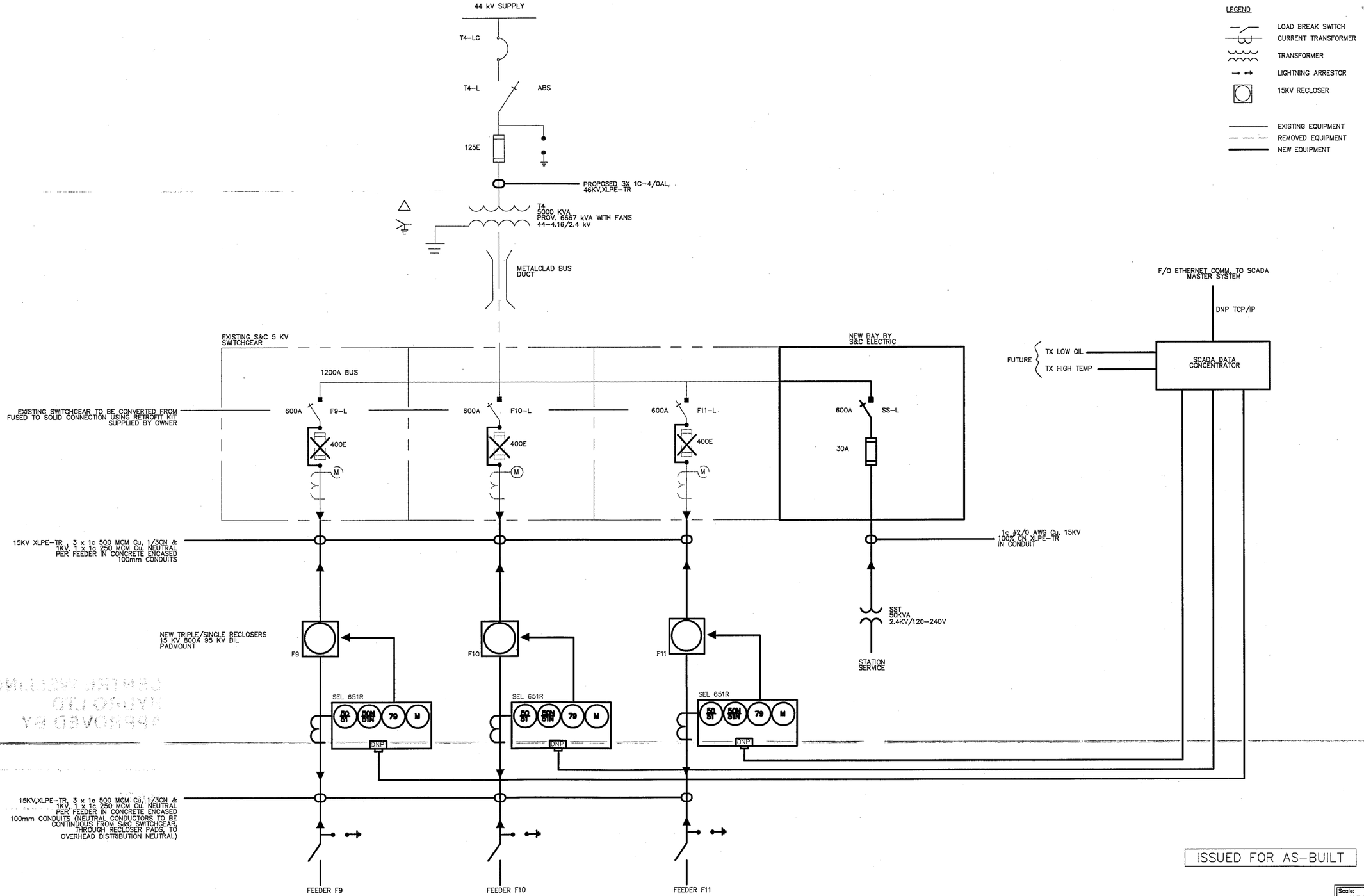
No.	Revision	Date	Initial
1	ISSUED FOR CONSTRUCTION	01/04/15	S.R.

costello Utility Consultants

Centre Wellington Hydro

FERGUS MS-3 SUBSTATION
STATION MODERNIZATION PROJECT
SINGLE LINE DIAGRAM

Drawn by: S.ROBILLARD	Date: 19/11/2014		
Checked by: S.COSTELLO	Date: 19/11/2014		
Approved by: R.LAPIER	Date: 01/04/2015		
Drawing Number: 14192-01		Rev. 1	



ISSUED FOR AS–BUILT

No.	Reference Drawing	No.	Revision	Date	By	Appr.
		2	ISSUED FOR AS–BUILT	12/05/2017	KL	REL
		1	ISSUED FOR CONSTRUCTION	12/04/2016	REL	REL
		0	ISSUED FOR TENDER		KL	REL

costello Utility Consultants

Costello Utility Consultants
11 Mary Street, Suite L
Sudbury, Ontario P3C 1B4
Ph: 705–470–3090

4053 Meadowbrook Drive, Unit 102
London, Ontario N6L 1E8
Ph: 519–203–1222

www.costelloassociates.ca

CERTIFICATE OF APPROVAL

THIS INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF ONTARIO REGULATION 22/04

NAME OF P.ENG.: RON E. LAPIER
SIGNATURE:
DATED: MAY 12, 2017

R. E. LAPIER
2017 05 12
PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

CENTRE WELLINGTON HYDRO

FERGUS MS#4
SUBSTATION MODERNIZATION
SINGLE LINE DIAGRAM

Drawn by: K.LAPIER	Date: 26/01/2016	
Designed by: R.LAPIER	Date: 26/01/2016	
Checked by: R.LAPIER	Date: 26/01/2016	
Approved by: R.LAPIER	Date: 12/04/2016	
Drawing Number: 15196–01		Rev. 2

Scale: N.T.S.