

EB-2016-0061

**Canadian Niagara Power Inc.
Application for electricity distribution rates
beginning January 1, 2017**

**VULNERABLE ENERGY CONSUMERS COALITION
("VECC")
CROSS-EXAMINATION
COMPENDIUM**

January 4, 2017

TAB 1

Appendix 2-JA
Summary of Recoverable OM&A Expenses

	Last Rebasing Year (2013 Board- Approved)	Last Rebasing Year (2013 Actuals)	2014 Actuals	2015 Actuals	2016 Bridge Year	2017 Test Year
Reporting Basis = ASPE						
Operations	\$ 1,464,548	\$ 1,533,641	\$ 1,726,744	\$ 1,702,685	\$ 1,658,103	\$ 1,847,897
Maintenance	\$ 1,912,478	\$ 1,939,325	\$ 1,893,749	\$ 1,912,871	\$ 2,203,670	\$ 2,259,049
SubTotal	\$ 3,377,025	\$ 3,472,966	\$ 3,620,493	\$ 3,615,556	\$ 3,861,773	\$ 4,106,946
%Change (year over year)			4.2%	-0.1%	6.8%	6.3%
%Change (Test Year vs Last Rebasing Year - Actual)						18.3%
Billing and Collecting	\$ 2,061,053	\$ 1,874,779	\$ 1,768,363	\$ 1,754,606	\$ 1,874,259	\$ 1,960,026
Community Relations	\$ 35,700	\$ 22,685	\$ 14,503	\$ 22,126	\$ 25,300	\$ 40,150
Administrative and General	\$ 4,362,183	\$ 3,493,634	\$ 4,031,454	\$ 4,126,646	\$ 4,369,484	\$ 4,437,601
SubTotal	\$ 6,458,936	\$ 5,391,097	\$ 5,814,320	\$ 5,903,378	\$ 6,269,043	\$ 6,437,777
%Change (year over year)			7.9%	1.5%	6.2%	2.7%
%Change (Test Year vs Last Rebasing Year - Actual)						19.4%
Total	\$ 9,835,961	\$ 8,864,063	\$ 9,434,813	\$ 9,518,933	\$ 10,130,816	\$ 10,544,723
%Change (year over year)			6.4%	0.9%	6.4%	4.1%

	Last Rebasing Year (2013 Board- Approved)	Last Rebasing Year (2013 Actuals)	2014 Actuals	2015 Actuals	2016 Bridge Year	2017 Test Year
Operations	\$ 1,464,548	\$ 1,533,641	\$ 1,726,744	\$ 1,702,685	\$ 1,658,103	\$ 1,847,897
Maintenance	\$ 1,912,478	\$ 1,939,325	\$ 1,893,749	\$ 1,912,871	\$ 2,203,670	\$ 2,259,049
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Community Relations	\$ 35,700	\$ 22,685	\$ 14,503	\$ 22,126	\$ 25,300	\$ 40,150
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Total	\$ 9,835,961	\$ 8,864,063	\$ 9,434,813	\$ 9,518,933	\$ 10,130,816	\$ 10,544,723
%Change (year over year)			6.4%	0.9%	6.4%	4.1%

TAB 2

<u>OM&A Annual Comparison</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
Actual/Forecast OM&A Per Application	8,864,063	9,434,813	9,518,933	10,160,816	10,574,723
CDM Staffing	85,000	29,000	29,000	3,000	3,000
Vehicle Depreciation Credit	351,000				
Approved IFRS Cost	85,000				
Port Colborne Service Centre Closure	35,000	55,000	55,000	55,000	55,000
Regulatory Staffing	100,000	100,000	100,000	100,000	100,000
Customer Service Staffing and Charge-Outs	92,000	162,000	192,000	162,000	162,000
Collections and Bad Debts	8,000	107,000	78,000	29,000	(9,000)
Shared Service Allocation		(63,000)	(63,000)	(108,000)	(97,000)
ON1Call Initiative		(40,000)	(40,000)	(40,000)	(40,000)
Vacant IT Position			40,000		
IT Billable Costs			28,000		
Pole Testing Program				(150,000)	(150,000)
MIST O&M				(44,000)	(44,000)
EAB Program					(100,000)
Load Dispatching					(65,000)
Asset Management					(30,000)
Adjusted OM&A	9,620,063	9,784,813	9,937,933	10,167,816	10,359,723
Variance vs Prior Year (Adjusted - \$)		164,750	153,120	229,883	191,907
Variance vs Prior Year (Adjusted - %)		1.7%	1.6%	2.3%	1.9%
OEB Determined Inflation Rate		1.7%	1.6%	2.1%	1.9%
Difference - Adjusted % Variance vs OEB Inflation Rate		0.0%	0.0%	0.2%	0.0%

APPENDIX A

Supplemental Discussion on Program Delivery Costs

Variance Analysis 2017 Test Year budget vs. 2013 Board Approved budget

Operations: Overhead

Last Rebasing Year (2013 BA)	2017 Test Year	Variance (Test year vs. 2013 Board Approved)
90,368	202,592	112,224

These costs were all within CNPI's control.

Approximately \$45,000 of the variance is related to the Power Quality Program initiated in 2014. During the development of this program, a review of internal processes was conducted to identify and ensure the cost effectiveness and efficiencies of deployed CNPI resources. During this review, it was determined that the most cost effective and comprehensive methodology would see initial investigation of customer inquiries completed by Meter department staff as opposed to Line department staff. This initial investigation includes all diagnostic testing; including inspection of equipment condition, instantaneous voltage testing, current testing and data logging, providing CNPI with a complete overview of the inquiry. All collected data is recorded and stored within CNPI's SAP database and is provided to the customer, detailing any CNPI equipment repair or customer equipment deficiency as identified. This response and encompassing approach mitigates further customer inquiries, ensuring customer satisfaction and one call resolution. Alternatively, CNPI could have maintained its previous approach to responding to customer power quality inquiries, however that approach was more reactive, and at times allowed for duplication of effort and inconsistent methodologies. Due to the ad-hoc nature of response to power quality concerns prior to the initiation of this program in 2014, costs in 2013 and prior years would have been distributed across a variety of departments, including Lines, Metering and Customer Service. As a result, CNPI cannot identify discrete costs for comparison of alternatives, however

Additionally a cost/benefit analysis was conducted based on the annual expense of infrared scanning versus the reactive replacement of 20 critical components, 15 of which were calculated with consideration of overtime premiums and 5 during regular working hours. The following is a representation of CNPI's cost/benefit analysis:

Infrared Scanning Annual Expense: \$5500					
Annual Reactive Costs of Critical Component Replacement					
	Rate	# Components	# Line Crew	# Hours/Components/ Crew Member	Total Cost
Reactive Replacement (Regular Time)	\$ 99	5	3	3	\$ 4,455
Reactive Replacement Overtime (double time)	\$ 142	15	3	3	\$ 19,170
					\$ 23,625
Planned Replacement (Regular Time)	\$ 99	20	3	3	\$ 17,820
					\$ 17,820

Operations: Meters

Last Rebasings Year (2013 BA)	2017 Test Year	Variance (Test year vs. 2013 Board Approved)
324,504	484,963	160,459

The majority of cost increases in this area are generally outside of CNPI's control and are due to a combination of the following factors:

- \$77,000 of increases in communications and settlement expenses related in MIST metering and increase interval customer counts; and
- \$40,000 of anticipated increase in customer disconnections as a result of local economic conditions.

Additionally, approximately \$12,000 of the variance can be attributed to labour rate increases within CNPI's control. Employee compensation is discussed further in Exhibit 4, Tab 4 of the Application.

Operations: Miscellaneous Distribution Expenses

Last Rebasing Year (2013 BA)	2017 Test Year	Variance (Test Year vs. 2013 Board Approved)
216,778	373,291	156,513

Costs increases in this area are generally within CNPI's control, however as described in E4.T3.S1 of the Application, the majority of the variance can be attributed to a review and reallocation of costs between accounts. Increases to this area are generally offset by reductions to other areas such as Maintenance – Supervision and Engineering, Customer Service – Billing and Collections, and other programs to a lesser degree.

Maintenance: Overhead

Last Rebasing Year (2013 BA)	2017 Test Year	Variance (Test Year vs. 2013 Board Approved)
1,060,695	1,504,565	443,870

Cost increases are related to a number of items that are generally within CNPI's control:

- \$100,000 related to the Emerald Ash Borer (EAB) Program (the impact of the EAB is outside of CNPI's control, however CNPI's decision to initiate a proactive response to mitigate impacts on its distribution system was within its control);
- \$75,000 related to a proactive wood pole inspection and testing program;
- \$75,000 related to priority repairs that are identified through the wood pole inspection and testing program;
- \$100,000 related to labour rate increases; and
- \$30,000 related to a review and reallocation of costs between accounts.

Administrative: Salaries and Related Expenses

Last Rebasing Year (2013 BA)	2017 Test Year	Variance (Test Year vs. 2013 Board Approved)
1,147,470	1,499,684	352,214

These costs were all within CNPI's control.

The creation of the Niagara operating center which resulted in an increase of \$186,000 in Salaries and Related Expenses was a reclassification of costs; \$133,000 was reduced in Rent and Maintenance of Property and the remaining \$53,000 was reduced in Regulatory Expenses.

The remaining \$166,000 increase was primarily due to general salaries and related expense increases year-over-year. Employee compensation is discussed further in Exhibit 4 Tab 4 of the Application. Management's decision to offer market competitive salaries to its employees is intended to attract and retain qualified personnel.

Administrative: General Admin

Last Rebasing Year (2013 BA)	2017 Test Year	Variance (Test Year vs. 2013 Board Approved)
1,208,049	1,054,361	(153,688)

A \$209,000 decrease in IT related maintenance agreement costs were within CNPI's control, while general inflationary and other related increases were not, netting out to an overall decrease of \$153,688. In 2013, a review of the IT related agreements with 3rd parties was conducted and based on this review, it was concluded that certain agreements contained components that met the criteria of being capital in nature.

Administrative: Rent and Maintenance of Property

Last Rebasing Year (2013 BA)	2017 Test Year	Variance (Test Year vs. 2013 Board Approved)
1,082,478	952,915	(129,563)

The \$133,000 decrease relating to the creation of the Niagara operating center and the \$35,000 decrease relating to the closure of the Port Colborne service center were both within CNPI's control, while general inflationary and other related increases were not.

See Administration – Salaries and Related Expenses variances above for discussion about reclassification of costs with the creation of the Niagara operating center.

In assessing whether to keep the Port Colborne service center open in 2013, management considered both quantitative and qualitative costs. The closure of the service center resulted in an annualized decrease in center operating costs of approximately \$55,000. Although the service center closure meant that there would no longer be a customer facing office located in the Port Colborne service territory (nearest service center located in Fort Erie which is 25km away), CNPI took steps to ensure a smooth transition including: providing bill inserts leading up to the closure and allowing customers to drop off cheques in a lockbox located on Port Colborne city property until March 31, 2016. Additionally, with the closure of the Port Colborne office, CNPI continued to stay engaged with its customers by: maintaining a local customer service calling number, creating a public email address (customer.service@cnpower.com), keeping CNPI's website regularly updated with customer service specific information, communicating information to customers via Facebook and Twitter, attending road shows and city of Port Colborne board/council meetings, communicating important relevant information in local newspapers and in bill inserts, and distributing a bi-annual newsletter.

TAB 3

1-Energy Probe-3

Ref: Exhibit 1, Tab 1, Schedule 2, page 24

Please update the total cost per km of line to reflect actual data for 2015, along with the forecast for 2016 and 2017 based on the evidence in the application.

RESPONSE:

The total cost per km of line data has been updated, using the results of the revised version of the OEB's Benchmarking Spreadsheet Forecast Model filed in conjunction with CNPI's interrogatory responses:

2010	2011	2012	2013	2014	2015	2016	2017
\$19,893	\$20,204	\$18,790	\$20,275	\$21,202	\$21,726	\$23,088	\$25,009

1-Energy Probe-2

Ref: Exhibit 1, Tab 1, Schedule 2, pages 20 & 21

- a) Please confirm that based on 2015 data, CNPI remains in Group 4 based on the PEG efficiency assessment.**
- b) Please update the total cost per customer to reflect actual data for 2015, along with the forecast for 2016 and 2017 based on the evidence in the application.**

RESPONSE:

- a) Confirmed.**
- b) The total cost per customer data has been updated, using the results of the OEB's Benchmarking Spreadsheet Forecast Model:**

2010	2011	2012	2013	2014	2015	2016	2017
\$715	\$727	\$679	\$726	\$749	\$778	\$824	\$891

1 improvements. We will also have cost drivers that are in
2 excess of inflation. So our assumption 2018 forward is
3 that 2 percent is a reasonable balance between those two
4 items.

5 MR. WALSH: Okay. Thank you.

6 MR. SHEPHERD: So I have a follow-up on that as well.
7 I had the same thing. It looks like it is zero
8 productivity, right? The net of the additional cost
9 drivers and the productivity benefits is zero.

10 MR. BEHARRIELL: That's what we have assumed for the
11 purpose of presenting O&M costs 2018 forward, yes.

12 MR. SHEPHERD: But then you have things like these
13 additional programs that you are saying are additional cost
14 drivers. And they're not offset by productivity benefits,
15 right? You have a list of additional cost drivers that you
16 are saying are pushing your costs up and you are adding
17 those.

18 MR. BEHARRIELL: Yes, we are.

19 MR. SHEPHERD: But I thought you said they are offset
20 by productivity improvements.

21 MR. BEHARRIELL: That is our forecast for 2018
22 forward.

23 MR. SHEPHERD: Okay. So 2016 and 2017, that is not
24 true?

25 MR. BEHARRIELL: For 2016 and 2017 we have identified
26 additional programs, such as the emerald ash borer, missed
27 metering, et cetera, pole testing, that are additional cost
28 drivers for various reasons that are not offset by

1 productivity improvements.

2 MR. SHEPHERD: Okay, thanks.

3 MR. WALSH: I just have a clarifying question. On the
4 emerald ash borer program, how many years do you expect
5 that is to last, and does it dissipate over -- are the
6 costs higher in the initial years? Or is it sort of a five
7 years and -- what does the anticipated spend on addressing
8 that issue look like?

9 MR. HAN: We hired a consultant. They did a study on
10 that. And my understanding is, once a tree is infected, it
11 is predicted in three years the tree will be dead. But
12 whether the tree owner decides to remove the tree or not is
13 up to the tree owner. That's one piece of information.

14 The other piece of information, there is a projection
15 of the next seven years -- seven to eight years most of the
16 trees in the Niagara region will be dead, in the -- you
17 know, emerald ash tree will be dead.

18 So we're thinking it is a prudent -- we don't really
19 know. This is a new program. We really don't know what it
20 is going to cost us if we go into this field at the end of
21 the day. But we feel it is providing the tree owner a
22 safety working zone for them to remove tree or improve
23 public safety, because this is not a one-person or two-
24 persons issue. This is a system-wide issue. It is similar
25 to underground locates. We do not charge people for
26 underground locates, but this is a safety issue. If we
27 charge them, they may not report. They may not ask. So
28 this is a similar thing.

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2 excess of inflation. So our assumption 2018 forward is
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26 underground locates, but this is a safety issue. If we
27 charge them, they may not report. They may not ask. So
28 this is a similar thing.

TAB 4

CDM Staffing

2013 Board Approved vs 2013 Actuals, 2014 Actuals vs 2013 Actuals, 2016 Bridge vs 2015 Actuals

Decrease of \$85k, Increase of \$56k, Increase of \$26k

As the CDM initiatives evolved and became more comprehensive, certain CNPI resources were required on a temporary basis to focus a portion of their effort on CDM related programs and initiatives. The decrease of \$85k represents costs taken out of distribution and entered into CDM to account for the effort required to work on the roll-out of CDM including the establishment of a CDM department. The CDM costs have been tracked outside of OM&A reported within this Application; hence the decrease in 2013 Actuals as compared to 2013 Board Approved. The subsequent increase of \$56k and \$26k recognizes reduction of distribution staff effort with the establishment of a permanent CDM department and the return of those OM&A costs back to distribution.

Vehicle Depreciation Credit

2013 Board Approved vs 2013 Actuals, 2014 Actuals vs 2013 Actuals

Decrease of \$351k, Increase of \$351k

CNPI adopted MIFRS accounting effective January 1, 2013 as submitted with the last Cost of Service Application (EB-2012-0112). This accounting policy change resulted in the inclusion of vehicle depreciation within the burden rates calculated for operational departments. For 2013 Board Approved, CNPI classified the offsetting credit as a reduction in depreciation expense, whereas for 2013 Actuals, the credit was recorded within General and Administrative expenses. Per Board staff direction, in 2014, the vehicle credit was recorded as a reduction in depreciation expenses; hence the decrease of \$351k and then the subsequent reversal of this amount the following year.

1 initiative resulted in a \$40k increase; most of which has been incurred as third party
2 contracted services.

3
4 **Vacant IT Position**

5
6 2015 Actuals vs 2014 Actuals, 2016 Bridge vs 2015 Actuals

7
8 *Decrease of \$40k, Increase of \$40k*

9
10 During 2015, an IT position (IT Technician) position became vacant. This position is
11 expected to be filled during 2016 which will restore operating costs back to normalized
12 values.

13
14 **IT Billable Costs**

15
16 2015 Actuals vs 2014 Actuals, 2016 Bridge vs 2015 Actuals

17
18 *Decrease of \$28k, Increase of \$28k*

19
20 During 2015, the IT function performed additional billable support as part of a five year IT
21 services agreement between CNPI and two associate companies. This effort is variable in
22 nature and as a result 2015 operating expenses are approximately \$28k lower than
23 expected for 2016 Bridge and 2017 Test.

4-Energy Probe-15

Ref: Exhibit 4, Tab 2, Schedule 2, Table 4.2.2.1



- a) Please explain the vehicle depreciation credit driver shown in 2013 and 2014.
- b) Please provide the total vehicle depreciation included in each of 2013 through 2017 and included in OM&A costs.

RESPONSE:

- a) As explained within Exhibit 4, Tab 2, Schedule 2 of the Application, in 2013 CNPI changed accounting policies effective January 1, 2013. Effective January 1, 2013, vehicle depreciation was included in the burden rates calculated for operational departments within CNPI. Therefore, in effect, a portion of vehicle depreciation has been capitalized and the remaining portion has been included in OM&A costs. The offset to the total of these debits, \$351,000 in 2013, was recorded in General and Administrative expenses within OM&A costs. In 2014 and going forward, in accordance with OEB direction, this credit was classified under depreciation expenses. Therefore, due to this one time classification of the vehicle depreciation credit in General and Administrative expenses, Table 4.2.2.1 shows a reduction in OM&A of \$351,000 in 2013 and then an offset equal to that amount in 2014.
- b) See table below.

	2013 Act	2014 Act	2015 Act	2016 Bridge	2017 Test
Total Vehicle Depreciation	351,000	387,000	395,000	378,000	366,000
Total Vehicle Depreciation included in OM&A (Debit amount)	154,000	178,000	160,000	165,000	169,000
Total Vehicle Depreciation included in OM&A (Credit amount)	(351,000)				
Total OM&A impact of Vehicle Depreciation	(197,000)	178,000	160,000	165,000	169,000
NOTE: As outlined in Exhibit 4, Tab 2, Schedule 2, \$351k relating to vehicle depreciation expenses included in burden rates was credited to General and Admin expenses. In subsequent years, per Board direction, the credit was recorded in depreciation expenses.					

TAB 5

4.0 – VECC - 26

Reference: E4/T2/S2/Table 4.2.2.1

- a) Please provide a description/explanation of the \$199k and \$191k in miscellaneous OM&A increases in 2016 and 2017 respectively.

RESPONSE:

- a) In preparing Table 4.2.2.1, CNPI identified specific significant items that have driven operating expenses from the 2013 Rebase Year to the 2017 Test Year. There is not one significant driver/item within the miscellaneous balance in each of the respective years other than that CNPI estimates the large majority of this balance is due to the general inflationary increases of expenses on a year-over-year basis. For example, 2015 operating expenses totalled \$9,518,933. All other things being equal, a 2% inflationary adjustment would mean an expected increase in operating expenses of \$190,379 for a 2016 expected operating expense balance of \$9,709,312. Therefore, CNPI estimates that the \$199,883 and \$191,906 recorded as miscellaneous in the 2016 Bridge Year and 2017 Test Year columns are largely related to inflationary increases in operating expenses year-over-year.

OM&A COST DRIVER ANALYSIS

See Table 4.2.2.1 below for Appendix 2-JB of the Filing Requirements, along with explanations subsequent to the table. Within Table 4.2.2.1, CNPI has identified specific significant items that drive operating expenses either upwards or downwards. CNPI notes that in addition to the specific items in the table below, there is a general increase in operating expenses period over period that can be attributable to inflationary and related upwards pressures on expenses.

Table 4.2.2.1 Recoverable OM&A Cost Driver Table
Appendix 2-JB

OM&A	Last Rebasing Year (2013 Actuals)	2014 Actuals	2015 Actuals	2016 Bridge Year	2017 Test Year
<i>Reporting Basis = ASPE</i>					
Opening Balance	\$ 9,835,961	\$ 8,864,063	\$ 9,434,813	\$ 9,518,933	\$ 10,130,816
CDM Staffing	\$ (85,000)	\$ 56,000		\$ 26,000	
Vehicle Depreciation Credit	\$ (351,000)	\$ 351,000			
Approved IFRS Costs	\$ (85,000)	\$ 85,000			
Port Colborne Service Center Closure	\$ (35,000)	\$ (20,000)			
Regulatory Staffing	\$ (100,000)				
Customer Service Staffing and Charge-outs	\$ (92,000)	\$ (70,000)	\$ (30,000)	\$ 30,000	
Collections and Bad Debts	\$ (8,000)	\$ (99,000)	\$ 29,000	\$ 49,000	\$ 38,000
Shared Service Allocation		\$ 63,000		\$ 45,000	\$ (11,000)
ON1Call Initiative		\$ 40,000			
Vacant IT Position			\$ (40,000)	\$ 40,000	
IT Billable Costs			\$ (28,000)	\$ 28,000	
Pole Testing Program				\$ 150,000	
MIST O&M				\$ 44,000	
EAB Program					\$ 100,000
Load Dispatching					\$ 65,000
Asset Management					\$ 30,000
Miscellaneous	(215,898)	164,750	153,120	199,883	191,906
Closing Balance	\$ 8,864,063	\$ 9,434,813	\$ 9,518,933	\$ 10,130,816	\$ 10,544,723

TAB 6

Ref: E4/T2/S2/p. 8

RESPONSE:

	Number of Trees	Internal Labour/Tree		Contracted Services	Materials	2017 Total Cost
		Hours	\$/Hour			
Completion of risk assessment	N/A			\$ 5,000		\$ 5,000
Removal of infested trees on CNPI owned rights-of-ways and land*	25			\$ 1,100		\$ 27,500
Assisting customers and stakeholders - Creation of electrically safe work zones (Including but not limited to switching, installation of isolating devices, grounding, etc.)	35	6	\$ 100			\$ 21,000
Assisting customers and stakeholders - Additional ash tree trimming in support of clearances for the purpose of removal	25	6	\$ 100			\$ 15,000
Asset repairs as a result of ash tree failure	20	6	\$ 100		\$ 15,000	\$ 27,000
						\$ 95,500
* Contracted tree removal costs range between \$800-\$1600 depending on tree location, size, and interaction with electrical equipment.						

1-Staff-8

Ref: E1/T10/S1, App. A, p.6

The above reference is CNPI's Scorecard dated September 28, 2015. In the Scorecard MD&A – General Overview," CNPI discusses its Total Cost per Customer and notes that:

Historical cost measures are reflective of the fact that 80% of CNPI's service territory is located in rural areas, subject to more severe weather due to its location on the shore of Lake Erie (Lake Ontario for Eastern Ontario Power's service territory) with its prevailing winds and lake effect precipitation, and the operation and maintenance of several distribution substations.

- a) Please elaborate on how severe weather in CNPI's service territory impacts on its costs on both a historic and forward-looking basis and provide any quantification CNPI may have of the impacts of such costs. If CNPI does not have any quantification, please explain the basis for its conclusion as to the impact of severe weather.
- b) Please state whether or not CNPI has undertaken any comparisons of the impact of severe weather on its costs as compared to other Ontario distributors with service territories located on the shores of lakes and if so what those comparisons showed.

RESPONSE:

- a) In CNPI's response to 2.0 - VECC – 13, charts summarizing SAIDI and SAIFI by outage cause code have been included for the historical period 2011 to 2015. In each of the five years, the combination of outages caused by weather, lightning, and tree contact, account for a significant percentage of CNPI's overall SAIDI and SAIFI. The table below summarizes the percentage of SAIDI attributed to these three causes over the historical period:

Cause Code	SAIDI (hrs.)					Average
	2011	2012	2013	2014	2015	
0 - Unknown/Other	0.03	0.25	0.06	0.30	0.09	0.15
1 - Planned, Utility	0.07	0.13	0.17	0.23	0.18	0.16
2 - Loss of Supply	0.11	5.89	0.24	0.00	3.51	1.95
3 - Tree Contact	0.47	0.62	1.30	0.19	0.61	0.64
4 - Lightning	0.50	0.14	0.16	0.26	0.07	0.23
5 - Equipment Failure	1.15	0.35	0.81	0.48	0.41	0.64
6 - Weather	0.06	0.10	0.30	0.38	0.72	0.31
7 - Corrosion	0.00	0.00	0.12	0.00	0.09	0.04
8 - Internal Human Error	0.03	0.07	0.00	0.00	0.01	0.02
9 - Foreign Interference	0.10	0.21	0.30	0.12	0.17	0.18
Total	2.52	7.76	3.46	1.96	5.87	4.32
Combined Weather Related SAIDI (hrs.)	1.03	0.87	1.77	0.83	1.40	1.18
Total SAIDI (hrs.) Excluding Loss of Supply	2.41	1.88	3.23	1.96	2.36	2.37
Percentage of SAIDI (hrs.) Due to Weather	43%	46%	55%	42%	59%	49%

As evident in this table, 49% of SAIDI in the historical period is attributed to outages with weather related causes. CNPI has assumed that the majority of tree contact issues are related to inclement weather for this analysis.

The statement referenced in this interrogatory above, is meant to highlight the fact that CNPI has experienced a greater significance of damage, during severe weather events, in exposed areas along the Great Lakes shoreline boundary of its service territory. In addition to negatively impacting outage indices, these events have contributed to increased expenditure for storm response and post-event repair/replacement activities.

- b) CNPI has not undertaken any comparisons of the impact of severe weather on its costs as compared to other Ontario distributors.

1 MR. BEHARRIELL: Unless in a case where perhaps it was
2 an imminent hazard. But, yes, generally speaking.

3 MR. GARNER: Okay. And then what you also have is a
4 total of the last row, \$27,000 for asset repair. So this
5 is you are presuming that so many trees fall and hit your
6 equipment?

7 MR. BEHARRIELL: Right. We expect to see an increase
8 in tree related failures that do impact our line. We
9 intend to make best efforts to encourage municipalities --

10 MR. GARNER: Where did you get the number from? This
11 started in 2009, I understand. So how did you come to the
12 conclusion that you would be spending 27,000 a year on
13 trees that are hitting your equipment?

14 MR. BEHARRIELL: It was an estimate, you know, based
15 on the Emerald ash borer impact assessment that was
16 provided by the consultant. That is an estimate that our
17 operations managers reviewed that information and because
18 we don't have a history --

19 MR. GARNER: How many Emerald ash bore trees hit your
20 equipment last year?

21 MR. BEHARRIELL: I don't know that I have that
22 specific number for that. I mean, it's a study that we do
23 expect some delay from the initial impact to the trees
24 actually, you know, dying and failing.

25 MR. GARNER: But this isn't a new problem. I mean,
26 this ash problem apparently is now in its eighth year, I
27 guess, right, 2009 --

28 MR. BEHARRIELL: I don't know that it's in the eighth



Emerald Ash Borer Impact Assessment

Performed for Canadian Niagara Power Inc. January 2015

Purpose

The purpose of this assessment is to identify the Ash tree population that will or may impact Canadian Niagara Power Inc. (CNPI) transmission and distribution systems within its service territories and the defined areas of this assessment.

Scope

This assessment of the sampled areas included CNPI owned lands and rights-of-ways, Municipal and Regional allowances which CNPI assets occupy and/or abut, and any other Ash trees which may pose risk to CNPI assets. CNPI's Port Colborne distribution system was the primary focus of the assessment. In late 2013, a fatality occurred resulting from a failure of a decayed Maple tree. Subsequent bylaw amendments require homeowners and landowners to remove identified hazard trees within 30 days of discovery.

Background

Emerald Ash borer (EAB), is an invasive beetle that was discovered in southeastern Michigan near Detroit in the summer of 2002. The adult beetle nibbles on Ash foliage but cause little damage. The larvae (the immature stage) feed on the inner bark of Ash trees, disrupting the tree's ability to transport water and nutrients. Emerald Ash borer probably arrived in the United States on solid wood packing material carried in cargo ships or airplanes originating in its native Asia.

Since its discovery, EAB has: Killed tens of millions of Ash trees in southeastern Michigan alone, with tens of millions more lost in Arkansas, Colorado, Connecticut, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Maryland, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Ontario, Pennsylvania, Tennessee, Quebec, Virginia, West Virginia, and Wisconsin. Needless to say, this Beetle is spreading fast, and is very destructive as an invasive species.

What to know about the Emerald Ash Borer:

- It attacks only Ash trees (*Fraxinus* spp.).
- Adult Beetles are metallic green and about 1/2-inch long.
- Adults leave a D-shaped exit hole in the bark when they emerge in spring.

Appendix M. 2016 EAB Impact Assessment





- Woodpeckers like EAB larvae; heavy woodpecker damage on Ash trees may be a sign of infestation
- Trees die within 2-3 years of infestation, leaving them brittle and prone to failure.
- Tree stumps are still a viable food source

Trees left behind after EAB have fed and moved on, have quickly dried out and no longer have the ability to bend and move in the wind which allows them to stand tall. This lack of movement makes the trees very prone to cracking, or breaking either one branch at a time, or often right at the base of the tree. Many trees have been reported recently of uprooting, as the roots die and break away from themselves.

Identification

Adult beetles are metallic blue-green, narrow, hairless, elongate, 8.5 to 14.0 mm long and 3.1 to 3.4 mm wide. The head is flat and the vertex is shield-shaped. The eyes are bronze or black and kidney shaped. The prothorax is slightly wider than the head and is transversely rectangular, but is the same width as the anterior margin of the elytra. The posterior margins of the elytra are round and obtuse with small tooth-like projections on the edge.

Mature larvae are 26 to 32 mm long and creamy white. The body is flat and broad shaped. The posterior ends of some segments are bell-shaped. The abdomen is 10-segmented. The 1st 8 segments each have one pair of spiracles and the last segment has one pair of brownish, pincer-like appendages.



- Adult *A. planipennis* (8.5-14 mm long). Metallic, green-blue body.
- Various larval instars of *A. planipennis*.
- S-shaped larval galleries of *A. planipennis*.



Host Trees

Fraxinus, *Juglans*, *Pterocarya* and *Ulmus*. In North America, only *Fraxinus* has been found infested to date.

Location of Infestation within the Tree

Larvae feed on the inner bark and sapwood along the entire bole and larger branches (greater than 2.5 cm diameter) in the crown. In addition to mature trees, galleries can occur in young saplings. Immature beetles' maturation feed on leaves.

Host Condition

Healthy or weakened trees.

Signs and Symptoms

Immature beetles maturation feed on host tree foliage, creating irregular notches in the leaves. Eggs are laid singly on the bole or branches. First instar larvae bore through the bark and feed on the inner bark and the outer sapwood, eventually forming flat and wide (6 mm), "S-shaped" galleries that are filled with a fine brownish frass. Galleries are 9 to 16 cm long (up to 20 to 30 cm) and increase in width from the beginning to the end. Galleries can occur along the entire bole and in branches that are at least 2.5 cm in diameter. Callus tissue may be produced by the tree in response to larval feeding and may cause vertical bark cracks to occur over a gallery.

Pupation takes place at the end of a gallery just beneath the bark, or near the surface of the sapwood (5 to 10 mm) and even in the corky tissue of thick-barked trees. Beetles emerge through "D-shaped" exit holes, 3.5 by 4.1 mm in size. These holes are very difficult to find so careful inspection is required. Woodpecker activity may also indicate the presence of this beetle. Dying or dead trees, particularly with bark sloughing off and crown die-back can also be used as indicators of attack. Other signs of attack include a thinning crown, epicormic shoots, and vertical cracks on the trunk.



Adult EAB beetles typically begin to emerge from the tree in May, creating small D-shaped exit holes. These adults will then fly to the next available Ash tree and feed on leaves until they lay eggs on the bark, which eventually become larvae and then the cycle begins again. [See Figure 5.](#)



Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 1: Size comparison of EAB larva to a penny - Jerry Dowding, CFIA staff

Figure 2: 'S'-shaped galleries between the bark and the wood caused by larvae feeding - CFIA

Figure 3: Declining crown resulting from EAB infestation - Ches Caister, CFIA staff

Figure 4: 'S'-shaped galleries between the bark and the wood caused by larvae feeding and sprouts or epicormic shoots - CFIA

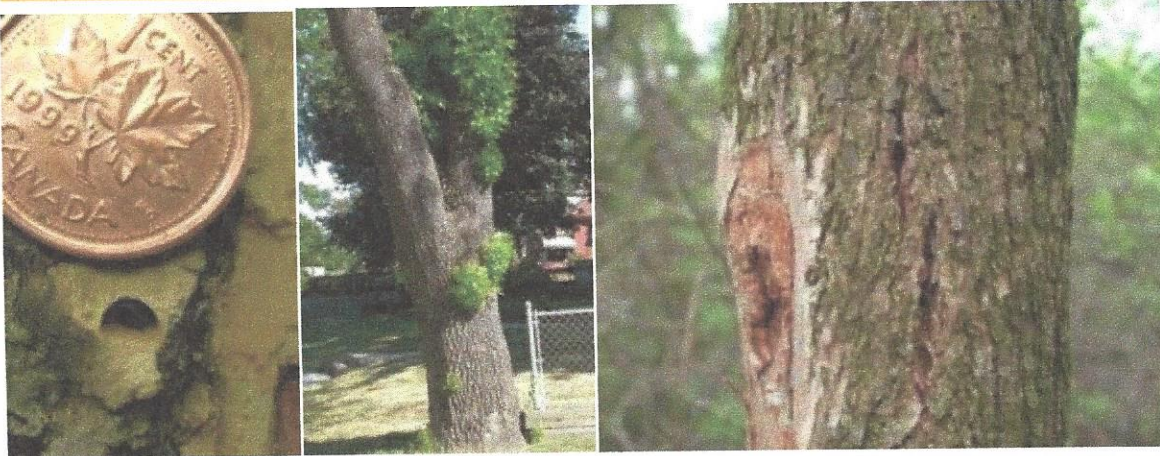
Figure 5: 'S'-shaped galleries between the bark and the wood caused by larvae feeding and 'D'-shaped exit holes - Troy Kimoto, CFIA staff

Transporting regulated articles

EAB regulated articles moving out of a regulated area must be accompanied by a Movement Certificate issued by the CFIA.

All vehicles used to transport regulated articles must be cleaned of debris prior to loading at origin and prior to departure from the receiving facility. The required treatment will depend upon the regulated article transported, but may include sweeping or power washing.

For more information about transporting regulated articles, [contact your local CFIA office.](#)



- D-shaped exit hole (3.5 by 4.1 mm) of *A. planipennis*.
- Epicormic shoots caused by *A. planipennis*.
- Vertical bark cracks over larval galleries caused by callus tissue production.

How To Identify Infested Trees

EAB only attacks Ash trees of the genus *Fraxinus*. This does not include Mountain Ash. The most tree damage is caused by the EAB larvae, which destroy the layer under the bark (the cambium) that is responsible for transporting nutrients and water throughout the tree. [See Figure 1.](#)

With this transport system blocked, an otherwise healthy tree may die in 2 to 5 years, depending on its age and the extent of infestation. Damage to the tree from the larvae will be apparent under the bark. The feeding larvae create distinctive serpentine (or S-shaped) galleries in the wood as they feed. [See Figure 2.](#)

Signs of EAB infestation usually only become apparent once a tree has been heavily infested. These signs include the loss of green colour in the uppermost leaves (chlorosis) and thinning and dieback of the crown. [See Figure 3.](#)

As the infestation continues, the tree may develop sprouts (epicormic shoots) from the roots, trunk or branches, in an effort to find new ways to transport nutrients. Eventually however, with more and more of the crown dying, the tree will starve to death. [See Figure 4.](#)



Tree trimmings and yard waste

Movement of yard waste outside of regulated areas is also prohibited, as it may contain Ash tree bark, branches or trimmings.

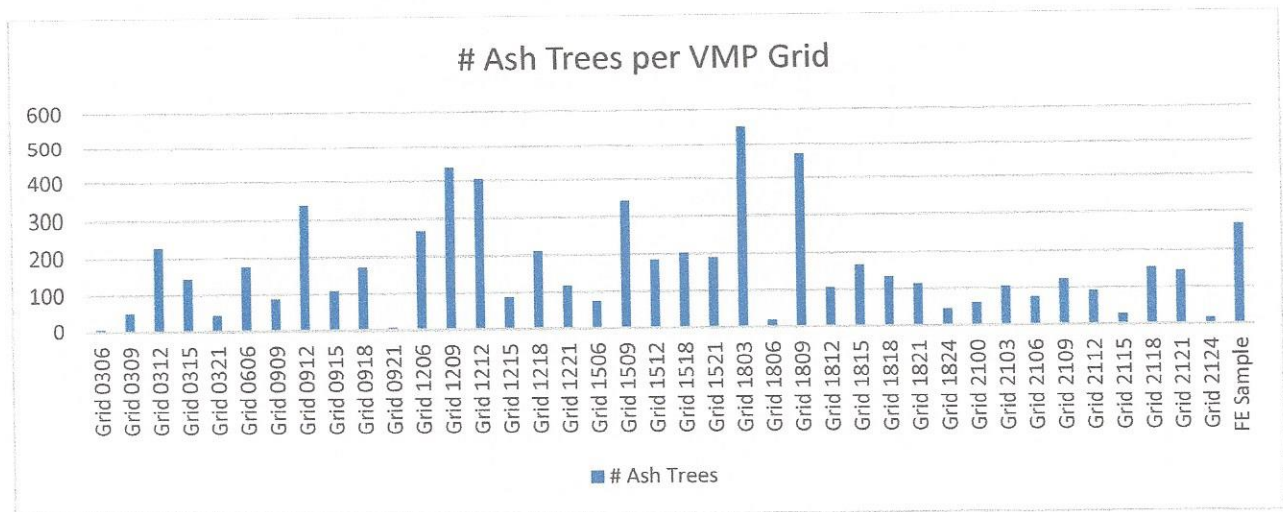
Municipalities with EAB infestations may have established special procedures for handling yard waste from regulated areas. Contact your municipality for the latest information on disposal of regulated yard waste. If you live in a regulated area or have been issued a Notice of Prohibition of Movement, please contact your local government for more information on what to do with any yard waste.

Findings

1. A total of 6590 Ash trees were identified during the assessment of sampled areas. An excerpt of the assessed area and data collected is shown below.

# of Ash trees	Address/Location	City tree/Private owned/CNPI Owned Land	Accessible by truck(Y/N)	DBH over 1'
Grid 0306				
1	383 Sugarloaf(tree is across the street from lines)	City	Y	N
1	19 Bayview	Private	Y	N
2	Across from city yard on King Stl	City	Y	N
2	South end of Catharines St	City	Y	Y

2. Summary of assessment below represents the total findings of the sample areas on a per grid basis, in accordance with CNPI's Vegetation Management Program.





Conclusion

All Ash trees in the Niagara Region are considered infested and a potential hazard. Even though their appearance may look healthy, they should be treated with caution. Aside from the fact that so many Ash trees are now dead, these trees are obviously, very dangerous. Not only do they present hazards simply from falling on people, but also from falling onto objects such as utility equipment, vehicles, dwellings, etc. It is because of these reasons reason we recommend immediate removal of all infested Ash on Properties owned and operated by CNPI. Consideration should be given to the removal of trees that still have some life in them allowing for improved worker safety. Or additional safety protocols and potential costs may be incurred. Trees near CNPI equipment that are located on road allowance, easement rights, of way, private property etc. should also be considered infested and a potential hazard.

It should be noted that a portion which could be as high as 40% of the 6590 Ash trees identified throughout this assessment may or may not have any negative impact on CNPI owned plant and may be excluded from budgeting with respect to mitigation and removal.

References

Dobesberger, E. J. 2002. Agrilus planipennis. Emerald Ash Borer. Pest Facts Sheet. Plant Health Risk Assessment Unit. Science Division. Canadian Food Inspection Agency. 10 p.

A handwritten signature in black ink, appearing to read 'Rachel Bowery', written over a horizontal line.

Signature

Rachel Bowery, BAppSc
President, Certified ISA Arborist and Utility Arborist #ON-1409AU, Ontario Arborist
#400155620 and Ontario Utility Arborist #400184823, TRAQ Qualified

TAB 7

4-Staff-60

Ref: E4/T3/S1/p. 2

At the above reference, it is stated that CNPI is anticipating an increase in customer disconnections in 2017 over 2013 and in response has refined its credit, collection and customer disconnection processes.

- a) Please state the magnitude of the increase in customer disconnections CNPI is anticipating in 2017.
- b) Please discuss any efforts CNPI has undertaken to reduce the level of customer disconnections.
- c) Please elaborate on how CNPI has refined its credit, collection and customer disconnection processes. Please explain CNPI's disconnection policy, specifically discussing when a customer with unpaid bills would be disconnected.

RESPONSE:

- a) The magnitude of the increase in customer disconnections is estimated to be approximately \$40,000 and is attributed to increased labour hours associated with customer disconnections from 500 hours to 1000 hours from 2013 to 2017.
- b) CNPI has undertaken to reduce the level of customer disconnections through its participation in the OESP program, developing relationships with its social agencies who administer LEAP, providing customers access to Arrears Management Programs (AMP) and Low Income Arrears Management Programs (LAMP), when applicable. In addition, CNPI installs load limiting devices during a winter window to allow residential customers additional time to make payment arrangements prior to full disconnection of electrical service.
- c) CNPI has refined its credit and collection process by implementing an automated phone call reminder when a bill becomes overdue and also

implementing a second automated call one week prior to the commencement of the disconnection window to provide customers with the opportunity to make payment arrangements. In addition, extensive CSR training was completed in 2015 to provide staff with more in-depth training in programs such as the OESP, AMPs and LAMPs to better assist customers.

Please see attached flowchart that outlines CNPI's collection process which adheres to all the OEB's prescribed collection and disconnection processes.

TAB 8

4-Staff-61

Ref: E4/T3/S1/p. 4

At the above reference, it is noted that CNPI's detailed wood pole inspection and testing program which started in 2016 will have an annual cost of approximately \$75,000.

Please explain how this cost was determined.

RESPONSE:

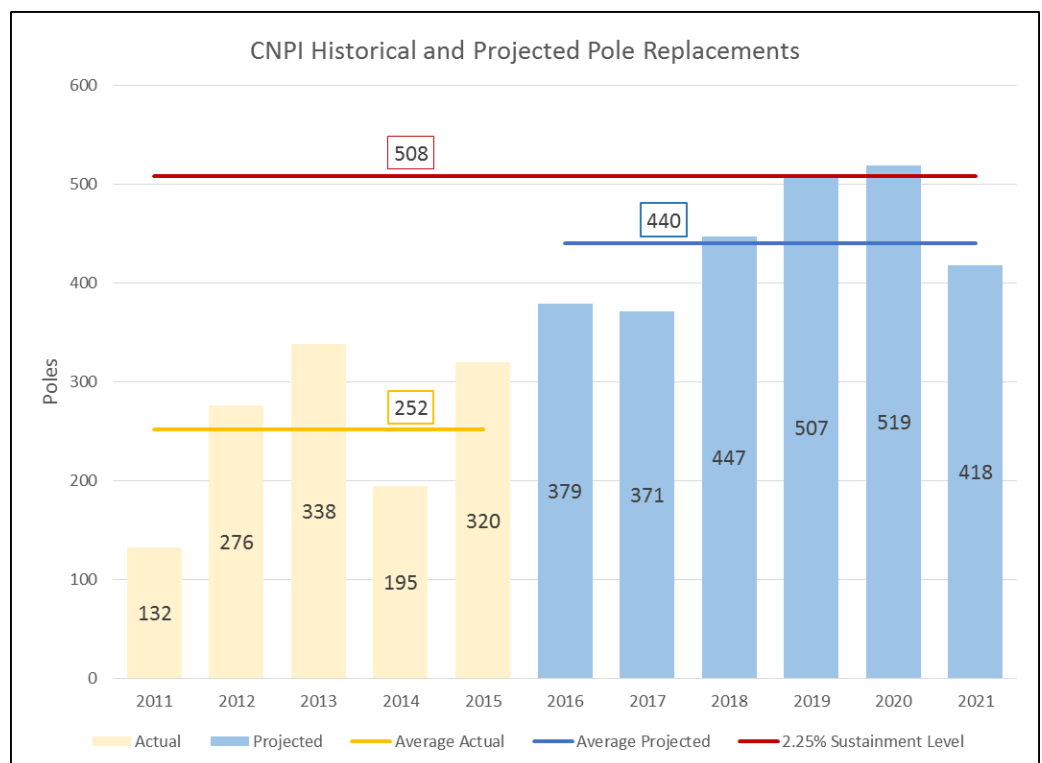
CNPI intends to assess and test all of the 22,900 in-service wood poles in its asset inventory over a five year period, or approximately 4580 poles per year.

The estimated cost for this was derived as follows:

Cost Estimate for 2016 CNPI Pole Testing

Description	Qty	Unit Cost	Cost
Poles near road	2400	\$ 12.50	\$ 30,000
Poles off road	2180	\$ 17.00	\$ 37,060
Tendering and Administration	1	\$ 2,500.00	\$ 2,500
One-time GIS interface preparation	1	\$ 3,000.00	\$ 3,000
Contingencies	1	\$ 2,500.00	\$ 2,500
TOTAL			\$ 75,060

- i) Section 8.2.1 of the CNPI DAMP and section 5.4.6.17 of the DSP shows both the historical and forward-looking pole replacement rates. These numbers are combined in the graph below:



The average number of poles replaced annually at CNPI from 2011 to 2015 was 252 poles (yellow line on graph).

The average number of poles changed in the forecast period is projected to be 440 poles, an increase of 188 poles per year (blue line on graph).

TAB 9

4-Staff-62Ref: E4/T3/S1/p. 5

At the above reference, CNPI discusses the variance in the category “Administrative: Salaries and Related Expenses” which are shown as increasing by over 30% in the 2017 Test year from the 2013 OEB approved level, or \$352,214. This increase was attributed to two factors: (1) \$166,000 to general salaries and related expense increases year-over-year and (2) \$186,000 due to the creation of a Niagara operating centre arising from the merger of the Fort Erie and Port Colborne operating centres.

An explanation of the \$186,000 factor is provided which stated that the tracking of operating costs specific to each of Fort Erie and Port Colborne service territories was discontinued and went on as follows:

The impact that this had on Salaries and Related Expenses is that formerly the intercompany shared service allocations to Port Colborne (from Fort Erie) were credited out of Salaries and Related Expenses, and then with offsetting debits were recorded partially within this same category, and remaining debits recorded in Rent and Maintenance of Property, and Regulatory Expenses. The impact of this accounting change in 2014 (as compared to 2013 Board Approved) was a net debit (increase in Salaries and Related Expenses) of \$186,000, a credit of \$133,000 in Rent and Maintenance of Property, and a credit of \$53,000 in Regulatory Expenses.

Please provide a clearer explanation of the reasons for this change including why salaries would increase as a result and why it would result in an increase in regulatory expenses since the creation of a consolidated operating centre would not seem to be an action that would be expected to impact these expenses.

RESPONSE:

CNPI would like to mention that, all other things being equal (i.e. not including consideration of the \$55,000 in annual savings from the closing of the Port Colborne service centre discussed in Exhibit 4, Tab 3, Schedule 1 of the Application), the total operating expenses for CNPI was unchanged with the creation of the Niagara operating centre. Rather, this change meant a

reclassification of costs based on the discontinuation of certain accounting journal entries.

Prior to the creation of a single Niagara regional operating centre, CNPI used its shared service allocation methodology to allocate a portion of Fort Erie costs, including regulatory expenses, to Port Colborne for accounting purposes. As outlined in CNPI's application, the full credit of this allocation out of Fort Erie was recorded in the Salaries and Related Expenses program line within Appendix 2-JC of Exhibit 4, Tab 3, Schedule 1 of the Application. The offsetting debit was recorded in Port Colborne and was recorded over multiple program lines within Appendix 2-JC including Salaries and Related Expenses, Regulatory Expenses and Rent and Maintenance of Property. The discontinuation of recording the shared service allocations to Port Colborne meant that this set of accounting journal entries was no longer being recorded. See below for a table outlining the impact, at the CNPI distribution consolidated level, of the discontinuation of the shared service allocation journal entries to Port Colborne in 2014.

Program	\$ Reclass
Salaries and Related Expenses (net of transfers)	687,000
Salaries and Related Expenses (net of transfers)	(501,000)
Regulatory Expenses	(53,000)
Rent and Maintenance of Property	(133,000)
Total CNPI Operating Expense Impact	-

TAB 10

4-Energy Probe-14

Ref: Exhibit 4, Tab 1, Schedule 1

- a) How many months of actual data are included in the 2016 bridge year figures shown in Table 4.1.1.1?
- b) Please provide the most recent year-to-date actuals for the 2016 in the same level of detail as found in Table 4.1.1.1. Please also provide the figures for the corresponding period in 2015.
- c) Based on the response to part (b) what is the most current forecast of OM&A expenses for 2016, based on the most recent year-to-date actuals?
- d) Please confirm that the figures in Table 4.1.1.1 include both LEAP and property taxes for all years shown.

RESPONSE:

- a) There was no actual data included in the 2016 Bridge Year figures shown in Table 4.1.1.1.
- b) See table below for September 2015 and September 2016 year-to-date activity.

	2015 Sept YTD Actuals	2016 Sept YTD Actuals
Operations	1,314,287	1,285,676
Maintenance	1,372,033	1,265,670
Billing and Collecting	1,291,013	1,291,069
Community Relations	961	347
Administrative and General	3,131,050	3,238,749
Total	7,109,345	7,081,510

TAB 11

Administrative: Salaries and Related Expenses

Last Rebasing Year (2013 BA)	2017 Test Year	Variance (Test Year vs. 2013 Board Approved)
1,147,470	1,499,684	352,214

These costs were all within CNPI's control.

The creation of the Niagara operating center which resulted in an increase of \$186,000 in Salaries and Related Expenses was a reclassification of costs; \$133,000 was reduced in Rent and Maintenance of Property and the remaining \$53,000 was reduced in Regulatory Expenses.

The remaining \$166,000 increase was primarily due to general salaries and related expense increases year-over-year. Employee compensation is discussed further in Exhibit 4 Tab 4 of the Application. Management's decision to offer market competitive salaries to its employees is intended to attract and retain qualified personnel.

Administrative: General Admin

Last Rebasing Year (2013 BA)	2017 Test Year	Variance (Test Year vs. 2013 Board Approved)
1,208,049	1,054,361	(153,688)

A \$209,000 decrease in IT related maintenance agreement costs were within CNPI's control, while general inflationary and other related increases were not, netting out to an overall decrease of \$153,688. In 2013, a review of the IT related agreements with 3rd parties was conducted and based on this review, it was concluded that certain agreements contained components that met the criteria of being capital in nature.

4.0 – VECC - 30

Reference: E2/T1/S1/pg.3

- a) Please confirm that the reference to Exhibit 4, Tab 7, Schedule 1 at Exhibit 2 (pg.3 of 3 lines 17-18) is meant to refer to E4/T5/S1 and not E4/T7/S1.
- b) Please show the comparable costs for the \$1,139,217 in IT and shared equipment as between 2013 Board approved and the 2017 test year. In doing so please distinguish as between IT and equipment costs.

RESPONSE:

- a) Confirmed.
- b) See table below.

	2013 BA	2013 Act	2014 Act	2015 Act	2016 Bridge	2017 Test
IT Charges	873,541	873,541	878,569	1,010,492	1,124,508	1,081,645
Shared Equipment Charges	107,147	107,147	78,742	150,005	161,252	57,572
Total	980,688	980,688	957,311	1,160,497	1,285,760	1,139,217