Request IR-1:

Referring to the following statement "utilization of several generation units in NS Power's fleet will continue to change in the coming years because of the integration of intermittent renewable electricity" (p. 11), please identify the generation units that will continue to change and explain in detail how each unit will be impacted by the intermittent renewable electricity generation.

Response IR-1:

Please refer to NSUARB IR-48.

The following unit capacity factors were provided in the 2016 10 Year System Outlook Report submitted to the Board on June 30, 2016.

Unit	Actual 2015 (%)	Year to Date 2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)
Lingan 1	52	55	39	47	35	22
Lingan 2	29	18	26	23	0	0
Lingan 3	41	49	61	61	50	41
Lingan 4	58	33	74	71	57	36
Pt. Aconi	76	73	83	81	77	77
Pt. Tupper	74	74	82	83	60	73
Trenton 5	59	54	9	14	24	19
Trenton 6	78	75	72	79	53	57
Tufts Cove 1	23	6	17	6	7	23
Tufts Cove 2	39	22	34	36	16	21
Tufts Cove 3	41	47	31	26	7	8

Generator capacity factors have generally trended down from 2007 as a result of the integration of renewable generation, efficiency programming and industrial load decay. Some fluctuations of production can be seen year over year related to relative fuel pricing.

As the table reflects, Point Aconi and Point Tupper units continue to experience relatively high utilization; Lingan units 3 and 4 and Trenton 6 are forecasted for moderate utilization; other units are forecasted to be dispatched at lower utilization levels.

Request IR-2:

Please explain how the Federally-mandated phase-out of coal plants by 2030 will affect the operation of NS Power's coal units.

(a) Please provide any analysis NS Power has conducted regarding the operating or retirement schedule for its coal units, reflecting this mandate.

(b) Please explain whether the phase-out will affect the economics or rationale for any project in the 2017 ACE plan.

Response IR-2:

(a) Please refer to NSUARB IR-32 and NSUARB IR-48.

(b) Please refer to NSUARB IR-39.

Request IR-3:

Please provide supporting documents and EXCEL version for the table "Annual Capital Expenditures by Function" on page 22 of the ACE 2017 Plan.

Response IR-3:

Please refer to Attachment 1.

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

	2017 ACE	2018	2019	2020	2021
Base Capital Investment					
Thermal Generation	50.1	49.8	46.5	44.1	46.7
Combustion Turbines	11.3	8.5	5.5	8.0	5.5
Hydro Generation	34.5	35.1	21.1	20.3	22.2
Wind Generation	0.1	0.1	0.1	0.1	0.1
Transmission	55.8	56.2	52.3	53.4	54.4
Distribution	64.3	64.9	64.0	64.2	64.0
General Plant	45.5	27.1	25.9	26.1	30.7
Total Base Capital Expenditure	**261.6**	**241.8**	**215.4**	**216.2**	**223.7**
Notable Capital Investment					
Thermal:					
Trenton #6 Major Outage	9.7				
General Plant:					
IT - CIS Replacement	0.0	3.0	9.0	9.0	4.0
IT - Enterprise Resource Planning	54.4	4.7	1.3	0.5	2.5
IT - Maximo & GIS Integration	8.0	18.3			
IT - Security Investment	6.0	3.0	1.0	1.0	3.0
Replace Mobile Radio System	3.0	3.0			
Distribution:					
Advanced Metering Infrastructure	17.1	48.3	45.9	6.1	
LED Streetlights	2.5	4.8	8.2		
Transmission:					
Maritime Link Transmission	24.7	5.0			
Metro Transmission Upgrades	5.8				
Lingan GIS Replacement	4.8	7.1			
Hydro:					
Hydro Infrastructural Renewal					
Wreck Cove Overhaul		1.2	24.5	40.8	21.1
Annapolis Overhaul		2.9	2.4	2.4	0.8
Mersey Re-Development	0.3	14.8	36.7	45.6	31.1
Total Notable Capital	**136.4**	**116.1**	**129.0**	**105.4**	**62.5**
Total Annual Capital Investment	**398.0**	**357.8**	**344.4**	**321.6**	**286.2**

Investment Type	2017	2018	2019	2020	2021
Sustaining	225.5	223.4	172.2	172.3	176.3
Customer Driven	27.7	29.7	29.8	29.9	30.0
Regulatory / Compliance	38.7	23.0	23.5	23.9	24.4
Enterprise Resource Plan	54.4	4.7	1.3	0.5	2.5
LED Streetlight Replacement	2.5	4.8	8.2	0.0	0.0
Maritime Link Transmission	24.7	5.0	0.0	0.0	0.0
Metro Transmission Upgrades	5.8	0.0	0.0	0.0	0.0
Smart Grid Technologies	18.4	48.3	45.9	6.1	0.0
Hydro Infrastructure Investment	0.3	19.0	63.6	88.8	53.0
	398.0	**357.8**	**344.4**	**321.6**	**286.2**

Request IR-4:

Referring to the increased technology requirement drivers, please explain and provide any supporting analysis and reports showing how NSPI has determined customer expectations to access information, control services, and conduct business with NS power have increased (p. 14).

Response IR-4:

NS Power leverages several sources of information to stay focused on customer expectations. These include direct feedback from customers, customer engagement in pilot projects, feedback through social media, focus groups and research, monitoring the customer service improvements of other electric utilities and meeting with industry vendors who forecast and develop solutions for the market.

The increased use of social media and the internet are now commonplace with customers when interacting with NS Power during outage events, for example. Feedback from customers indicates they would utilize those channels for other interactions as well. Customers have also told NS Power that they would like to have access to more information about their energy use and costs and easier access to their NS Power service.

Other utilities in Canada such as NB Power, Hydro Ottawa, Manitoba Hydro and SaskPower have started introducing on-line, self-service capabilities for service connection, moving locations, payments and collections and other regular service requests. Reports from vendors and industry consultants show that the trend towards more customer self-service and easier access to information when and where customers need it will continue.

Request IR-5:

Please describe the new controls NSPI requires to comply with the new NERC reliability standards that fall under the CIP program (p. 14) and the estimated costs to comply with the new requirements.

Response IR-5:

NS Power was citing NERC reliability standards as an example of the increase in pace of change with technology. Version 1 of NERC CIP standards became effective in 2007 for NS Power with 3 version upgrades over the next 8 years. With the increased threats to the bulk electric system, Version 5 became effective in 2016, Version 6 is effective in 2017 and Version 7 is under development. Since the scope and timing of Version 7 is unknown at this time, NS Power is unable to estimate costs to comply.

Request IR-6:

Referring to page 8 of the ACE 2017 Plan, please discuss the meaning of "strategic capital projects" and explain how the identified projects are determined to be strategic.

Response IR-6:

Strategic capital projects include those investments which meet the following criteria:

- Fundamentally change the way NS Power delivers service to our customers;
- Represent a significant improvement/extension to a large capital asset; or
- Represent a significant change to the Company's business processes.

A description of why NS Power has categorized each of the cited projects as strategic follows:

- Enterprise Resource Planning - The ERP Project will replace the Company's finance, human resource and capital reporting systems and transform its related business processes. The ERP project is the largest IT investment undertaken by NS Power and lays the foundation for effective and efficient management of the Utility over the next decade. (Criteria 2 & 3)

- LED Streetlights - With the completion of the LED streetlight project in 2019, NS Power will have changed approximately 43,000 streetlights from old street light technology to LEDs. This project represents a dramatic change to Unmetered Service delivery within Nova Scotia. (Criteria 1)

- Maritime Link Transmission Upgrades – These investments include a significant upgrade to NS Power's transmission system in order to facilitate the delivery of energy across the Maritime Link. Completion of the Maritime Link is central to NS Power's realization of its renewable electricity requirements and represents a fundamental change to the provincial and regional power system. (Criteria 1)

- Metro Transmission Upgrades – This investment includes transmission upgrades which will reduce the frequency of uneconomic dispatch of the Tufts Cove Generating Station in order to meet system stability requirements. This investment will achieve fuel savings from avoiding generating energy at Tufts Cove with more costly fuel. (Criteria 2)

- Smart Grid / Advanced Metering Infrastructure - The AMI project will include the implementation of advanced metering infrastructure that will enable much improved customer experience through; greater customer choice, allow customers more control over how they use electricity and provide data that will help us achieve faster outage restoration times. Access to this information will allow the Company to deliver significant customer benefits in the near and long-term. (Criteria 1,2 & 3)

- Hydro Infrastructure Investment – This investment includes the re-development of the Mersey Hydro System and life extension of the Wreck Cove Hydro System. Both of these efforts represent significant investment in order to continue the generation of renewable energy at these Hydro facilities. (Criteria 2)

Request IR-7:

Please identify the CI#'s for each transmission project that is related to the economic dispatch of Tuft's Cove.

Response IR-7:

The two projects included in the 2017 ACE Plan related to the economic dispatch of Tuft's Cove are:

- 48022 - Spider Lake Substation Addition – listed in Section 4.2 Transmission Carry-Over Projects.

- 46587 - Metro Voltage Support Add Capacitor – listed in Section 4.2 Transmission Carry-Over Projects.

Request IR-8:

NSPI recognizes that the "acceleration in technology has resulted in increased technology obsolescence."

(a) Please explain how this acceleration impacts the useful life of specific existing assets.

(b) Please explain whether this acceleration is likely to impact the useful life of investments in the 2017 ACE plan.

Response IR-8:

(a) The acceleration of technology is not expected to impact the useful life of any specific existing IT asset. The expected impact of acceleration in technology is the required increased incremental investments throughout the life of the assets to keep them secure, supported and integrated with adjoining technology. This could mean more frequent updates to key technology components such as operating systems to enable new security features.

(b) The acceleration of technology is not expected to impact the useful life of the investments in the 2017 ACE Plan. However, to achieve the useful life of the assets it will mean more frequent updates will occur to technical components such as operating systems, middleware, storage devices, hardware and interfaces while major investments in software solutions will be expected to achieve the asset's useful life.

Request IR-9:

Please provide a detailed explanation of Enterprise Resource Planning and an itemization of the specific projects, including CI#'s.

Response IR-9:

Please refer to CA IR-12.

Request IR-10:

Please explain how NSPI is updating its approach to managing technology and what actions have been implemented to minimize stranded IT investments.

Response IR-10:

NS Power is updating its approach to managing technology by following these principles:

- Rationalizing (standardize and consolidate) the number of vendors that supply technology. This will reduce the number of interfaces, increase opportunity for volume discounts during acquisition and maintenance, and reduce complexity to support the technology.

- Standardizing the type of technology utilized across the business. This will reduce the complexity to support the technology, increase opportunity for volume discounts during acquisition and maintenance, reduce the time and effort to connect systems, and move information more quickly, cost-effectively, and more securely.

- Maintaining more current versions of technology by completing smaller updates between major releases. This will reduce the risk of a long duration technical outage, reduce the complexity of the IT technical environment, and reduce the time and effort to integrate and secure information.

NS Power has minimized stranded IT investments by utilizing current IT assets until or beyond the point when they are fully depreciated, whenever possible. This is the case for the replacement of the Enterprise Resource Planning IT assets, the T&D Work and Asset Management IT Assets, and the Customer Information System IT assets.

Request IR-11:

Referring to page 15 of the 2017 ACE Plan, please identify the "major technology assets that are at or near end-of life" and provide the following information for each asset:

(a) Functionality category

(b) Brief description of technology asset role

(c) Initial deployment

(d) Annual costs including licensing and operation

(e) Reason for technology asset termination

(f) Expected date of technology asset termination.

Response IR-11:

Functional Category	Brief Description of Technology Asset Role	Initial Deployment	Annual Costs	Reason for Technology Asset Termination	Expected Date of Technology Asset Termination
Enterprise Resource Planning (ERP) Re-implementation	Supports the key Finance, Human Resource Management and Supply Chain (including Procurement) business process. Please also refer to CI 4671 (ERP Application) which was submitted to the UARB on November 10, 2016.	1993 – Oracle E-business 1995 - PeopleSoft 2008- Powerplan	$898,800	At or near end of useful life and no longer supported by the vendor	2017

Functional Category	Brief Description of Technology Asset Role	Initial Deployment	Annual Costs	Reason for Technology Asset Termination	Expected Date of Technology Asset Termination
Cyber security enhancements	Provides enterprise level detection, identification, protection, response and recovery capabilities against cyber related threats	These assets are net new			
T&D Work and Asset Management	Supports the work management (including service, maintenance and construction work) and asset management (acquisition through to retirement) business processes for the T&D assets.	2010	$785,700	At or near end of useful life and no longer supported by the vendor.	2018
Customer Information System (CIS) replacement	Supports the customer lifecycle management, billing, collections, service order initiation and meter reading and inventory business processes	1997	$61,000	At or near end of useful life and no longer supported by the vendor.	2022

1

Request IR-12:

Please provide a detailed description of the projects included in the Enterprise Resource Planning Re-implementation in table format, including the following information:

(a) Functionality category

(b) Brief description of technology asset role

(c) Initial deployment

(d) Asset life

(e) Project cost included in ACE 2017

Response IR-12:

The Enterprise Resource Planning Re-implementation, as noted on page 14 of the 2017 ACE Plan, refers to Capital Work Order 44671, submitted to the UARB on November 10, 2016.[1] A detailed description of the technology assets involved, their initial deployment, asset life and project costs are set out in in the Capital Work Order Application.

(a) The functionality category is Enterprise Resource Planning (ERP). For asset classification purposes it will include both hardware and software assets

(b) ERP systems are the broad set of business functions, and related hardware and software, which enable an organization to effectively manage its finance, human resources and supply chain (procurement) activities. A description of the project scope is provided in

[1] M07746, Exhibit N-1 and N-2, NS Power ERP Application, November 10, 2016.

Section 4 of the Application. The breakdown of the project elements and costs is also provided in Section 5 of the Application.

(c) If approved, the Company expects to place the asset in service in August 2017.

(d) The Company forecasts the ERP systems will have a 10 year life.

(e) The ERP project cost included in the 2017 ACE Plan is $89.7 million.

Request IR-13:

Referring to the total annual capital expenditures by function table on page 22, please explain in detail the reasons for the increased 2017 budget between the 2016 ACE Plan and 2017 ACE Plan for the following functional areas:

(a) Transmission

(b) Distribution

(c) General Plant

Response IR-13:

(a) The increase of $35 million ($91 million - $56 million) between 2017 and 2016 is largely due to Maritime Link Transmission Upgrades of $25 million, a larger investment in transmission line component replacement projects of $6 million found during the annual inspection program and the Lingan GIS investment of $3.5 million. The increase in Maritime Link is due to construction occurring in 2017 where minimal construction occurred in 2016.

(b) The increase of $9 million ($84 million - $75 million) between 2017 and 2016 is due to an increased investment in Advanced Metering Infrastructure from $7 million in 2016 to $17 million in 2017.

(c) The increase of $73 million ($117 million - $44 million) between 2017 and 2016 is largely driven by the investment in Enterprise Resource Planning of $54 million, an increase of $13 million in IT related investment, largely driven by cyber security and aging applications, and an increase in facility investment of $3 million due to large scale

roof replacement projects. The remaining variance is spread across multiple projects in many areas of the business.

Request IR-14:

Referring to Section 9.8 of the Plan:

(a) Please explain what NS Power means by "new customer additions."

(b) Please provide reasons for increased customer accounts.

(c) Please provide the updated load forecast for each year through 2024 in an EXCEL format and include all supporting worksheets.

(d) Please explain how the data used to forecast 2017 differs from the data and methodology used to forecast all other years.

(e) Please provide the forecast model used to estimate 2017.

(f) Please provide the forecast model used to estimate all years post 2017.

Response IR-14:

Please note that the section referred to above should be to Section 8.1.1 - Impact of 2017 ACE Plan on Revenue Requirement and Affordability.

(a) New customer additions are new premises NS Power is supplying service to.

(b) NS Power uses the Conference Board of Canada's forecast for housing starts to forecast the number of new customers for a year.

(c) Please refer to Attachment 1 for NS Power's 10 Year Load Forecast Report (M07448) filed with the Board on May 2, 2016, for full details on NS Powers load forecast. Appendix A, Table A1: Energy Forecast with Future DSM Effects, provides a breakdown of the forecast, by year, and by sector.

(d) The data used to forecast 2017 does not differ from the data used to forecast all other years.

(e-f) Please refer to part (c).

2016 Load Forecast Report

May 2, 2016

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Appendices

1.0 EXECUTIVE SUMMARY

Nova Scotia Power's (NS Power or the Company) 2016 Load Forecast provides an outlook on the energy and peak demand requirements of in-province customers for the period 2016 to 2026. As well, it describes the considerations, assumptions, and methodology used in the preparation of the forecast. The NS Power Forecast provides the basis for the planning and overall operating activities of the Company.

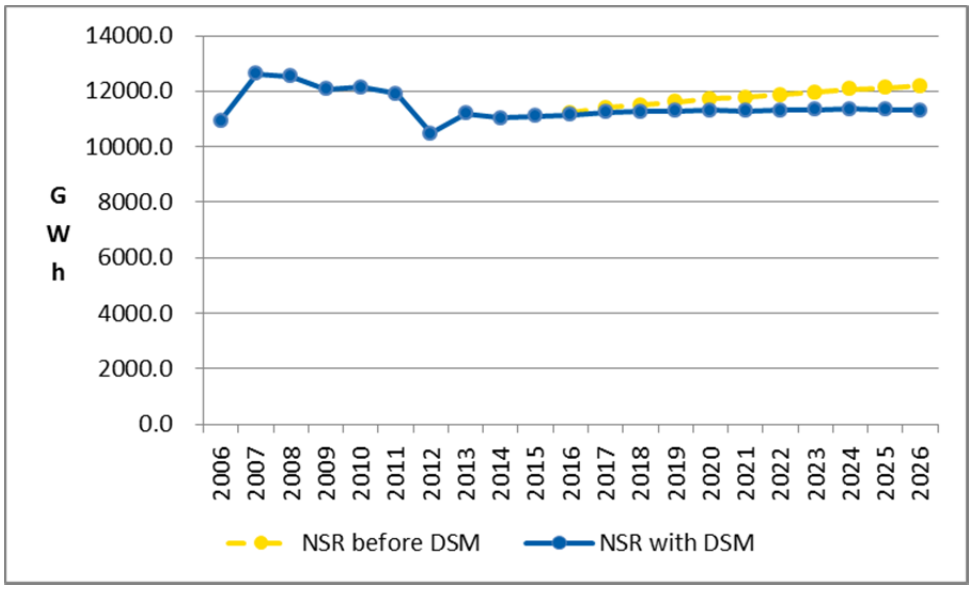
The forecast is based on analyses of sales history, weather, end-use saturations and efficiencies, economic indicators, customer surveys, technological and demographic changes in the market and the price and availability of other energy sources.

As with any forecast, there is a degree of uncertainty around actual future outcomes. In electricity forecasting, much of this uncertainty is due to the impact of variations in weather, efficiency program savings, the health of the economy, changes in large customer loads, the number of electric appliances and end-use equipment installed, as well as the manner and degree to which they are used.

This year, NS Power used Statistically Adjusted End-Use Models (SAE) to forecast the residential and commercial rate classes. The SAE models explicitly incorporate end-use energy intensity projections into the forecast. End-use energy forecasts derived from the residential and commercial SAE models are then combined with an econometric based industrial forecast and customer specific forecasts for NS Power's large customers to develop an energy forecast for the province, also referred to as a Net System Requirement (NSR).

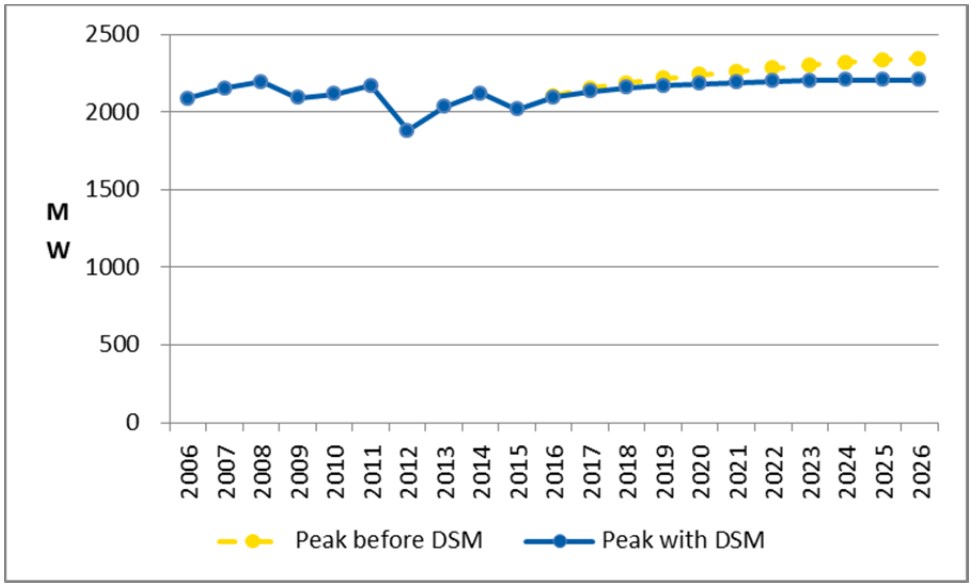
In general, the NSR is expected to grow slowly over the forecast period. Anticipated growth is expected to be partially offset by Demand Side Management (DSM) initiatives. Annual NSR is shown below in **Figure 1**.

Figure 1: Historical and Predicted Annual Net System Requirement



In addition to annual energy requirements, NS Power forecasts system peak demand. After accounting for the effects of DSM savings, system peak is expected to increase 0.5% annually over the forecast period.

Figure 2: Historical and Predicted Annual System Peak



2.0 INTRODUCTION

NS Power annually develops a forecast of energy sales and peak demand requirements to assess the effects of customer, demographic and economic factors on the future power system load. It is a fundamental input to the overall planning, budgeting and operating activities of the Company. Produced in the winter of 2015-2016 and using information available at the time, this forecast covers the period of 2016-2026. Unless otherwise noted, reported average annual growth rates are for the 2016 and 2026 period.

In 2015, the Nova Scotia Utility and Review Board (UARB or Board) engaged Synapse Energy Economics (Synapse) to review and provide a report on NS Power's 2015 Load Forecast Report. Synapse provided their report to the Board on September 30, which contained the following comments and recommendations:

(a) Closer evaluation of the factors affecting space heating loads, and the actions that might moderate those impacts -- especially on peak loads. The assumptions behind these load changes should be given greater discussion in the next load forecast report. [Page 9]

(b) The commercial forecast methodology and results appears reasonable. Future forecasts and DSM efforts should focus on the dominant end uses of miscellaneous and heating, which account for more than half of the total load. [Page 11]

(c) The overall growth rate for medium industrial sales is 2.44 percent, driven by Manufacturing Employment (1.99 percent growth rate) and Exports (1.89 percent growth rate). The medium sales growth seems high given that both drivers have lower rates. [Page 13]

(d) The fact that peak load growth is less than energy load growth may reflect both changes in peak and non-peak uses. It would be useful in future load forecast reports to explore and discuss the reasons for the different growth rates in the energy and peak forecasts. [Page 15]

(e) Update the 2015 forecast to represent the higher levels of DSM recently approved.

(f) Continue to collaborate with Efficiency One in developing common assumptions and understanding of the end-use components and continue to refine the SAE models. [Page 18][1]

In the Board's decision letter dated October 21, 2015,[2] the Board directed NS Power to incorporate Synapse's comments and recommendations or provide reasons for not doing so.

With respect to Synapse recommendations (a) and (b) above, please refer to section 4, Discussion of Major Inputs, subsection End-Use Intensity Trends, for additional information on residential heating loads and commercial miscellaneous load.

With respect to Synapse recommendation (c) above, please refer to section 8, Industrial Sector.

With respect to Synapse recommendation (d) above, please refer to section 11, Peak Demand for information comparing growth in the total load to that of peak.

With respect to Synapse recommendation (e) above, within this report where the 2015 forecast is presented, the values shown have been updated to include the approved levels of DSM.

With respect to Synapse directive (f) above, NS Power obtained from Efficiency Nova Scotia Corporation (ENSC) information on historical and forecast DSM savings for incorporation into the forecast.

[1] M06858, Exhibit N-3, Findings Regarding the NSPI 2015 Load Forecast, Synapse Energy Economics, September 30, 2015.
[2] M06858, Letter, Doreen Friis (UARB) to David Landrigan (NS Power), October 21, 2015.

In addition, in its letter dated February 26, 2016, in response to NS Power's 2015 10-Year System Outlook Report, the Board also provided the following further direction:

> In response to IR-9, NS Power stated that the new end-use load forecasting showed a lower system peak than the previous econometric load forecast, so a further understanding of this and monitoring of future trends is needed before making a decision on reducing firm capacity. NSPI is directed to provide a more fulsome explanation and analysis of this load forecasting concern in its April 30th filing of the 2016 Load Forecast Report, as well as a more definitive response in the 2016 SO Report regarding retirement of a second generating unit.[3]

With respect to this directive, please refer to section 11, Peak Demand, for information on the enhancements NS Power has made to the peak model.

[3] M06966, Letter, Doreen Friis (UARB) to Mark Peachey (NS Power), February 26, 2016.

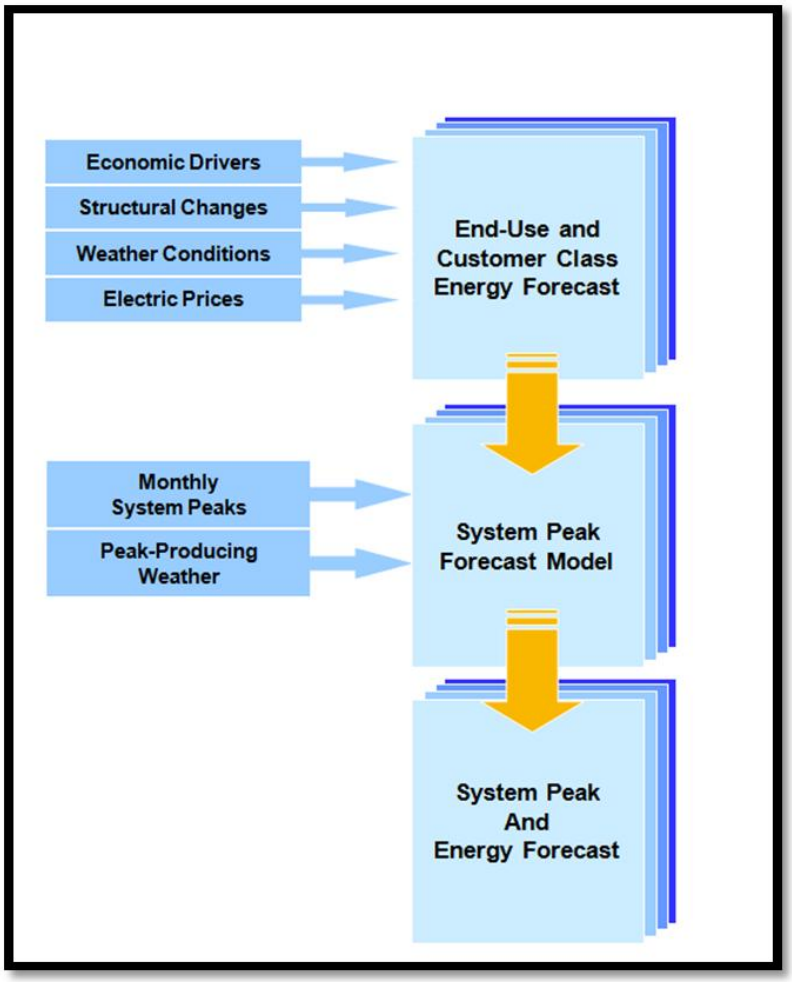
3.0 FORECASTING APPROACH

In compliance with the Board's directive, NS Power has adopted a set of SAE models for the residential and commercial rate classes.

The SAE model is a hybrid of the econometric and end-use methodologies, incorporating economic and end-use forecast variables into one model. An end-use model is a bottom-up approach that estimates the energy consumption of a customer group by summing the energy usage of all the appliances and equipment used by those customers. End-use forecasts are driven by trends in appliance usage and efficiency trends for that equipment. An econometric model imposes the historical relationship between electricity consumption and independent economic indicators, onto provincial economic forecasts to forecast future electricity sales.

The SAE model variables explicitly incorporate end-use saturation and efficiency projections, as well as changes in population, economic conditions, price, and weather. End-use efficiency projections include the expected impact of new standards and naturally-occurring efficiency gains. In the long-term, both economics and structural changes drive energy and demand growth. Structural changes are captured in the residential forecast model through the SAE model specifications. **Figure 3** shows the general forecast approach used in the SAE models.

Figure 3: Forecast Approach



4.0 DISCUSSION OF MAJOR INPUTS

Historical Class Sales and Energy Data

The load forecast is developed using NS Power "billed" sales rather than "accrued" sales. Billed sales refer to the amount of energy billed to customers in a given time period such as a calendar month or a year. Accrued sales recognize the amount of energy actually generated and consumed during that specific time period. Due to the periodic nature and delays inherent in any meter reading and billing process, billed sales will vary from accrued sales.

Historical monthly billed sales are the primary dependent variables in the linear regression models used in developing the forecast. For the 2016 forecast, all energy forecasts are estimated using monthly billed sales data for the period January 2003 to November 2015.

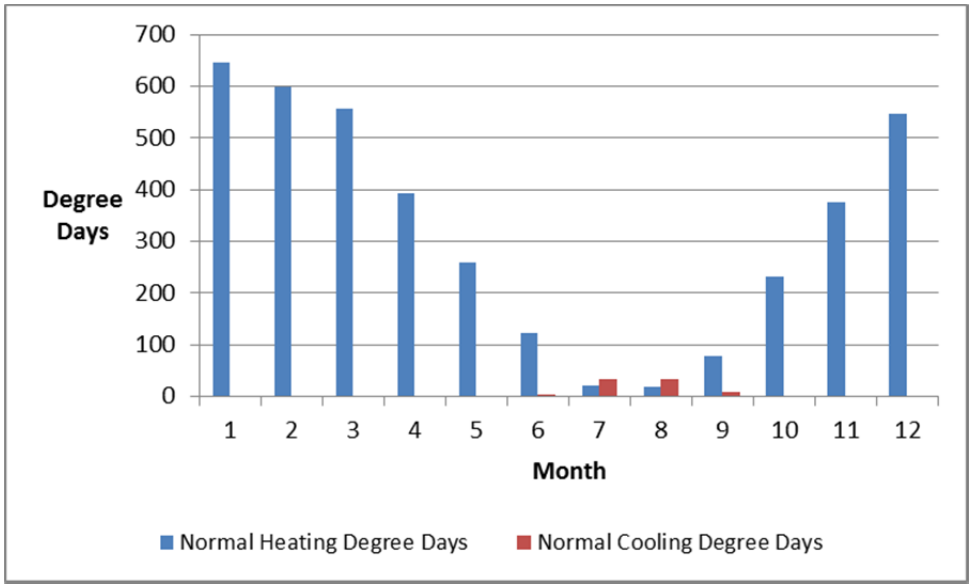
For the peak demand forecast, historical system monthly energy and monthly demand data is derived from system hourly load data for the period January 2005 to November 2015. Given the size and irregularity of the paper mill load, its data is excluded from the load data and the resulting energy and demand forecasts. Paper mill energy and peak demand requirements are forecast separately.

Weather Data

Weather conditions have the largest single impact on month-to-month variation in electric sales. The impacts of temperature are captured by monthly heating degree-day (HDD) and cooling degree-day (CDD) variables. HDDs are a common measure of heating requirement based on the degree departure between the daily mean temperature and a given reference temperature. The reference temperature of 18°C is used for these calculations. 18°C is assumed to be a comfortable room temperature below which space

heating is generally required and above which space cooling is also required. Monthly HDD and CDD are calculated from Environment Canada hourly temperature information for the Shearwater Airport. Normal monthly HDD and CDD are calculated using 10-years of actual weather data covering the period January 2006 to November 2015.

Figure 4: Normal Monthly HDDs and CDDs



Economic Information

Economic and other provincial statistics used in the load forecast are from the Conference Board of Canada's *Economic Outlook*. This forecast provides a provincial perspective and considers specific Nova Scotia projects and demographics.

In the SAE framework, economic data drives the utilization of the end-use stock over the forecast period. The key economic drivers are household income (RPDI) in the residential sector, and GDP and employment (EMP) in the non-residential models. New housing starts are used in generating monthly residential customer forecasts. In the Industrial sector rate classes are forecast using an Econometric framework. GDP, exports, and manufacturing employment (MANEMP) are used as economic variables for

the industrial classes. **Figures 5, 6,** and **7** summarize the economic drivers, on an annual basis, used in the 2016 forecast. For financial measures, the variables have been adjusted to constant dollars, eliminating the inflation effects from the series.

Figure 5: Residential Economic Drivers

Year	New Construction	% Change	RPDI (mil $02)	% Change
2006	4,896		19,163	
2007	4,750	-3.0%	19,552	2.0%
2008	3,982	-16.2%	19,920	1.9%
2009	3,438	-13.7%	20,488	2.8%
2010	4,309	25.3%	20,670	0.9%
2011	4,644	7.8%	20,837	0.8%
2012	4,522	-2.6%	20,377	-2.2%
2013	3,919	-13.3%	20,565	0.9%
2014	3,056	-22.0%	20,690	0.6%
2015	4,103	34.2%	21,187	2.4%
2016	3,183	-22.4%	21,306	0.6%
2017	3,200	0.5%	21,434	0.6%
2018	3,041	-5.0%	21,554	0.6%
2019	2,883	-5.2%	21,670	0.5%
2020	2,757	-4.4%	21,741	0.3%
2021	2,718	-1.4%	21,793	0.2%
2022	2,721	0.1%	21,843	0.2%
2023	2,725	0.1%	21,913	0.3%
2024	2,728	0.1%	21,887	-0.1%
2025	2,691	-1.4%	21,838	-0.2%
2026	2,586	-3.9%	21,797	-0.2%
06-15		-1.95%		1.12%
16-26		-2.06%		0.23%

Figure 6: Commercial Economic Drivers

Year	GDP (mil $02)	% Change	EMP (thou)	% Change
2006	30,606		441	
2007	31,111	1.6%	447	1.4%
2008	31,765	2.1%	452	0.9%
2009	31,807	0.1%	449	-0.5%
2010	32,698	2.8%	451	0.4%
2011	32,849	0.5%	453	0.3%
2012	32,823	-0.1%	457	1.0%
2013	32,961	0.4%	453	-1.0%
2014	33,480	1.6%	448	-1.1%
2015	34,099	1.8%	448	0.1%
2016	34,869	2.3%	453	1.0%
2017	35,468	1.7%	456	0.8%
2018	35,921	1.3%	458	0.4%
2019	36,449	1.5%	460	0.4%
2020	37,013	1.5%	462	0.4%
2021	37,680	1.8%	462	0.0%
2022	38,303	1.7%	462	-0.1%
2023	38,909	1.6%	462	0.0%
2024	39,300	1.0%	459	-0.6%
2025	39,725	1.1%	456	-0.7%
2026	40,157	1.1%	453	-0.5%
06-15		1.21%		0.17%
16-26		1.42%		0.01%

Figure 7: Industrial Economic Drivers

Year	GDP (mil $02)	% Change	MANEMP (thou)	% Change	EXPORTS (mil $07)	% Change
2006	30,606		39		13,062	
2007	31,111	1.6%	41	5.6%	13,929	6.6%
2008	31,765	2.1%	39	-5.2%	13,756	-1.2%
2009	31,807	0.1%	35	-9.2%	12,529	-8.9%
2010	32,698	2.8%	33	-7.7%	13,290	6.1%
2011	32,849	0.5%	33	1.1%	13,297	0.1%
2012	32,823	-0.1%	33	-0.8%	13,470	1.3%
2013	32,961	0.4%	31	-5.9%	13,208	-1.9%
2014	33,480	1.6%	30	-2.6%	14,002	6.0%
2015	34,099	1.8%	29	-4.5%	14,596	4.2%
2016	34,869	2.3%	29	0.2%	14,851	1.7%
2017	35,468	1.7%	29	1.9%	15,194	2.3%
2018	35,921	1.3%	30	1.6%	15,557	2.4%
2019	36,449	1.5%	30	1.2%	15,936	2.4%
2020	37,013	1.5%	30	0.2%	16,292	2.2%
2021	37,680	1.8%	30	0.9%	16,719	2.6%
2022	38,303	1.7%	31	1.8%	17,119	2.4%
2023	38,909	1.6%	32	4.6%	17,526	2.4%
2024	39,300	1.0%	33	1.7%	17,821	1.7%
2025	39,725	1.1%	33	-0.8%	18,101	1.6%
2026	40,157	1.1%	32	-1.2%	18,390	1.6%
06-15		1.21%		-3.35%		1.24%
16-26		1.42%		1.16%		2.16%

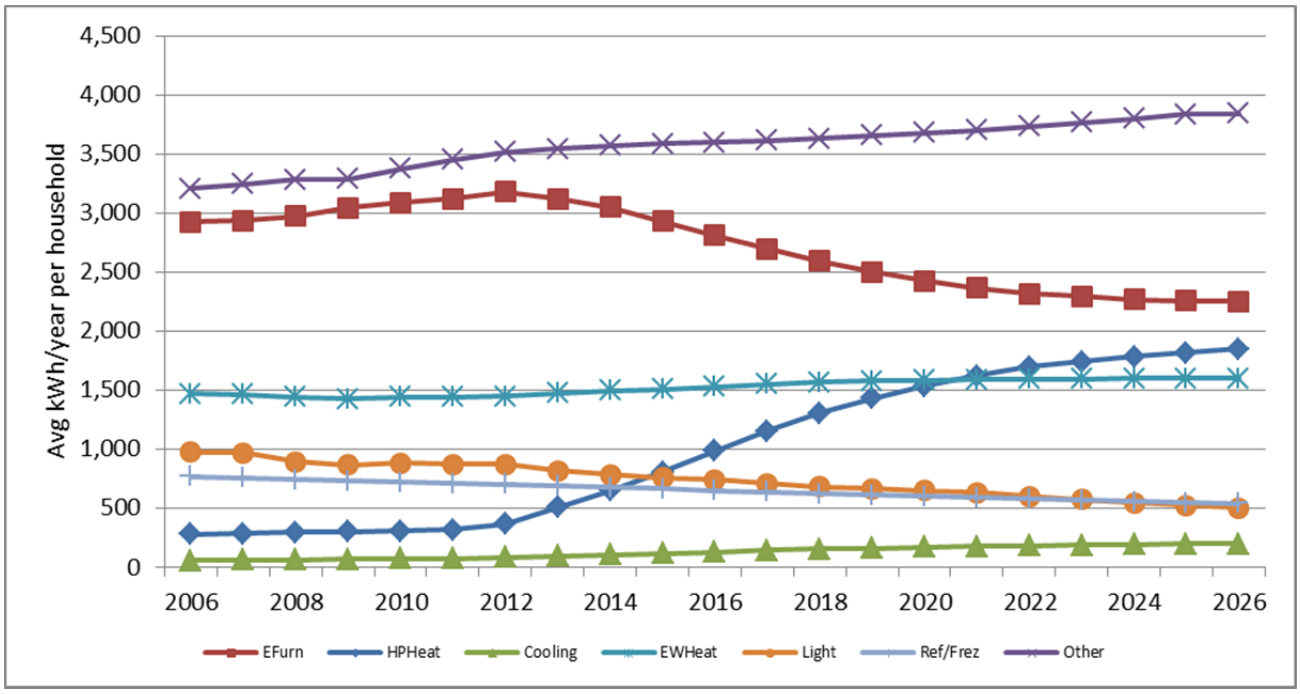
End-Use Intensity Trends

In addition to the economic variables listed above, the SAE model also uses end-use data, in the form of saturations and efficiencies, from Natural Resources Canada (NRCan) and the US Energy Information Agency (EIA). NRCan data for the Residential sector is specific to Nova Scotia, while NRCan data for the Commercial sector is for Atlantic Canada. EIA data is for New England and is calibrated to fit existing Nova Scotia data.

The approach to developing the individual end-use intensities is to start with NRCan end-use saturation trends and combine saturation projections with end-use efficiency estimates (both historical and forecast) for the New England Census Division. The resulting end-use intensity trend is then compared with end-use energy estimates from NRCan. If necessary, it is then adjusted so that the resulting intensities are consistent with NRCan reported end-use sales and actual average use derived from NS Power billing data. The forecast for the end use intensities is shown in **Figure 8** below. The end uses listed include:

- EFurn: electric baseboard and electric forced air furnaces and secondary electric heaters
- HPHeat: heat pump electric heat
- Cooling: room and central air conditioners, as well as heat pump cooling
- EWHeat: electric water heaters
- Lights: indoor lighting
- Ref/Frez: primary and secondary refrigerators and deep freezes
- Other: all other major appliances (stoves, dishwashers, clothes washers and dryers, televisions) as well as smaller appliances such as computers, dehumidifiers, microwaves, etc.

Figure 8: Historical and Projected Residential End-Use Intensities (kWh per household)



Electric heating is forecast to increase with heat pump market penetration adding to the overall electric heat base and replacing electric baseboard and electric forced air furnaces. The increase in electric heat saturation will be partly offset by the fact that newly installed heat pumps are more efficient than existing electric heating appliances. Along with the increase in heat pump penetration will come a corresponding increase in electric water heating as customers switch from hot water boilers. In addition, the air conditioning capabilities of heat pumps will increase the overall space cooling intensity in the province. Lighting is forecast to decline as consumers continue to switch to more efficient bulbs. The largest intensity after electric heating is Other, which includes all other appliances and small plug loads. Other end-use sales will grow slowly as improvements in efficiency offset increased appliance purchases.

In 2015 NS Power conducted a customer survey to better understand the change taking place in the home heating market and the drivers behind the strong uptake in heat pumps as a primary heating source for homes. The survey found 11% of homes are using heat

pumps as the primary heating source. This is a contrast to the most recent information available from Natural Resources Canada which shows heat pumps comprising 4.5% of the heating system stock in Nova Scotia, and highlights the degree of change which has happened within the home heating sector in the last few years. The primary drivers for customers to install heat pumps are cost savings on their home heating bill and the additional benefit of air conditioning.

Figure 9: 2015 Nova Scotia Primary Home Heating

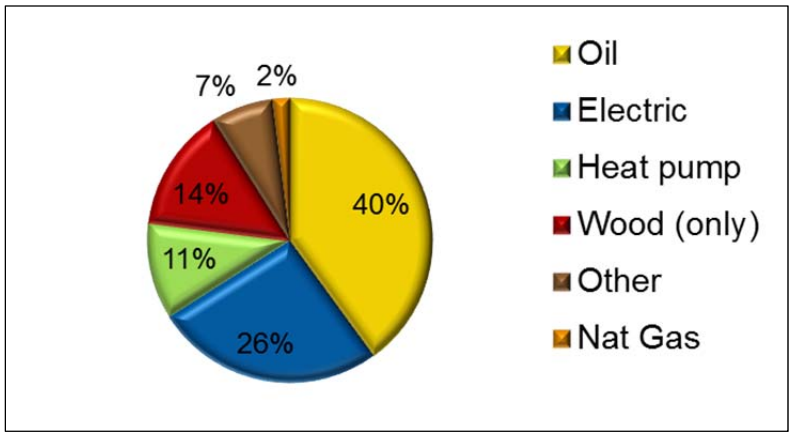
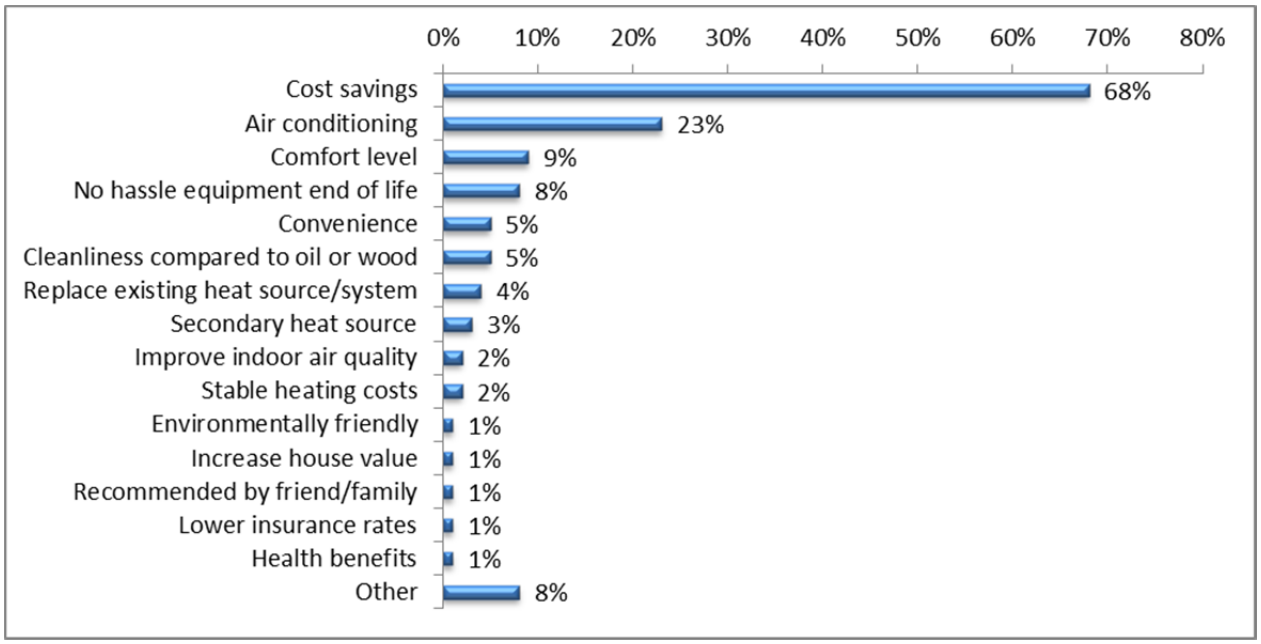


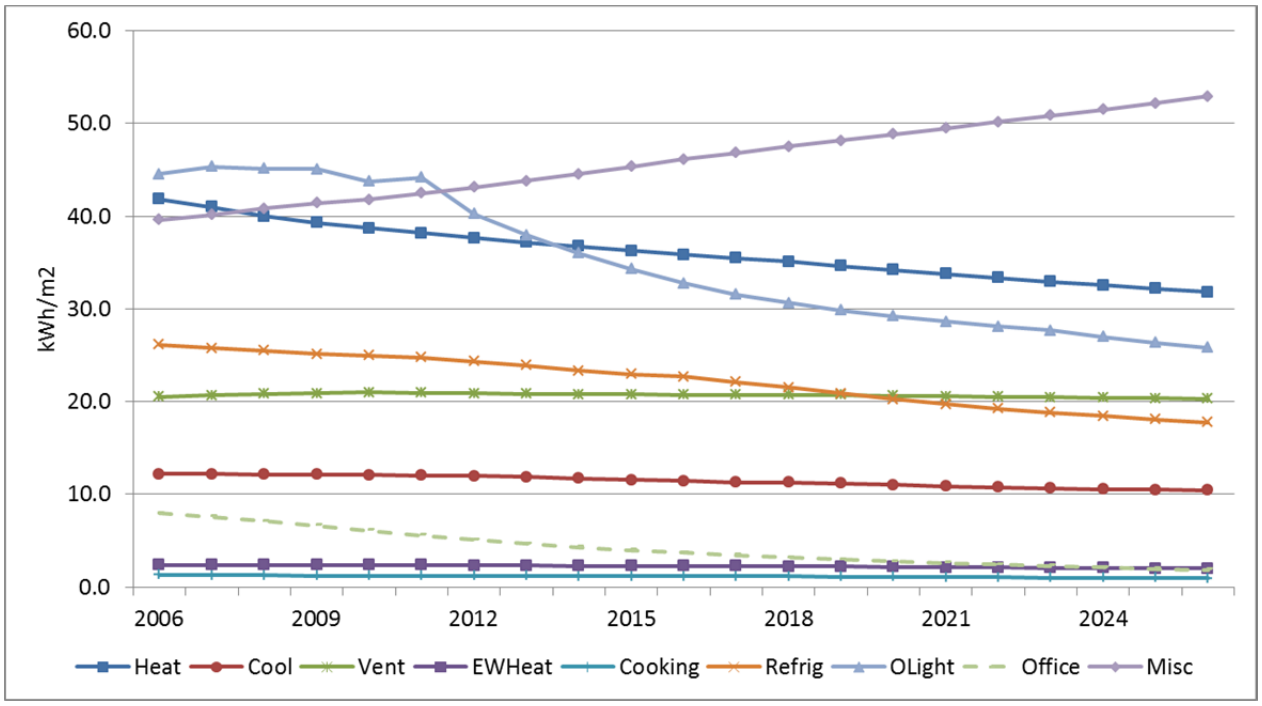
Figure 10: Heat Pump Demand Drivers



The end use intensities for the commercial models are done on a per square meter basis, rather than per customer. The forecast for the end use intensities is shown in **Figure 11** below. The end uses listed include:

- Heat: electric heating
- Cool: air conditioning
- Vent: ventilation
- EWHeat: electric water heaters
- Cooking: electric stoves
- Refrig: refrigerators
- OLight: indoor and outdoor lighting
- Office: computers and printers
- Misc: other loads including motors, servers, escalators, medical equipment, etc.

Figure 11: Historical and Projected Commercial End-Use Intensity (kWh/m^2)



Space heating intensity in the commercial sector has been declining since 2004 and is expected to continue declining for the forecast due to increased equipment efficiency. Lighting and refrigeration intensity will also decline. Cooling, ventilation, electric water heat, stoves and office equipment are forecast to remain at present levels due to minimal forecast changes in efficiency and penetration. The miscellaneous category shows strong growth over the forecast period. The miscellaneous category includes (but is not limited to) escalators, elevators, office equipment (computers), laundry equipment, fume hoods, video boards, medical imaging equipment, coffee brewers, off-road electric vehicles, water pumping and filtration and security systems. The growth in the miscellaneous category is due to growing commercial floor space driving a greater need for all these devices as well as the growth in electronic devices.

Price Data

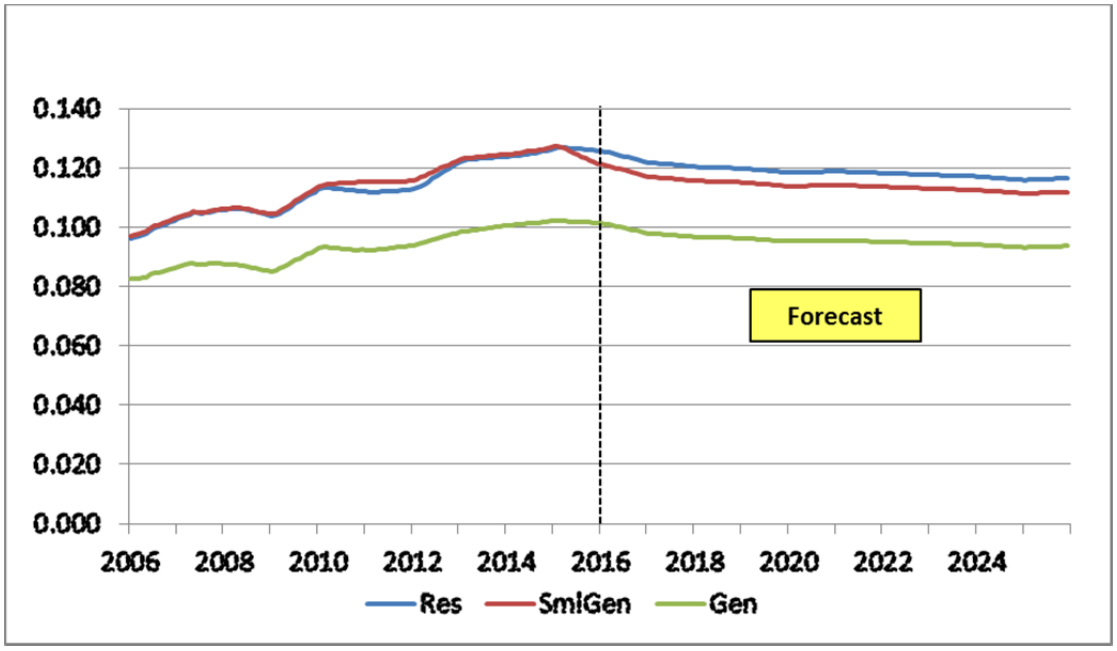
The price series is calculated from historical billed sales and billed revenues. Revenue per kWh is first calculated and translated to a real dollar basis; the price variable itself is then derived as a 12-month moving average of the real revenue per kWh series. The 12-month moving average uncouples the current-month sales/revenue relationship, smooths-out the price series, and provides a reasonable expectation as to how customers respond to price over time.

In the forecast period the nominal price of electricity in 2016 is based on the rates included in the Company's Base Cost of Fuel Refresh dated October 7, 2015.[4] From 2017 to 2019 the nominal price is increased at 1% per year. Beyond 2019 the nominal price of electricity changes at the same rate as the annual percentage electricity rate

[4] M06962, Exhibit N-14, 2016 Base Cost of Fuel Reset, NS Power Reply Evidence and Fuel Refresh, October 7, 2015,

increase from the 2014 Integrated Resource Plan (IRP) Preferred Plan. **Figure 12** shows price forecasts by class.

Figure 12: Historical and projected real electricity prices (dollars per kWh)



Prices impact the class sales through imposed price elasticities. The SAE models are estimated using a -0.15 price elasticity. This elasticity estimate was provided by Itron Inc. (Itron) during the development of the SAE model and is based on studies and their experience working with other utilities and developing forecasting models. Though the elasticities are small, relatively strong price increases will have a measurable impact on sales.

Demand Side Management

Demand Side Management and conservation plans continue to play a role in the use of electricity in Nova Scotia. DSM is taken into account in the load forecast by adjusting the forecast for DSM savings. NS Power uses the DSM targets approved by the Board to

modify its forecast. In August 2015 the Board approved a DSM plan covering the 2016–2018 period.[5]

2019 DSM savings are held equal to 2018 levels in order to best align with Section 20 of the Electricity Plan Implementation (2015) Act which caps DSM spending for the calendar year 2019 at an amount not greater than $34,050,000. Beyond 2019 DSM savings equal the base DSM scenario from the 2014 IRP. The base DSM scenario was chosen as the 2021 – 2026 DSM forecast because the average annual savings in the base DSM forecast best match the expected average annual DSM savings from the 2016 to 2019 period.

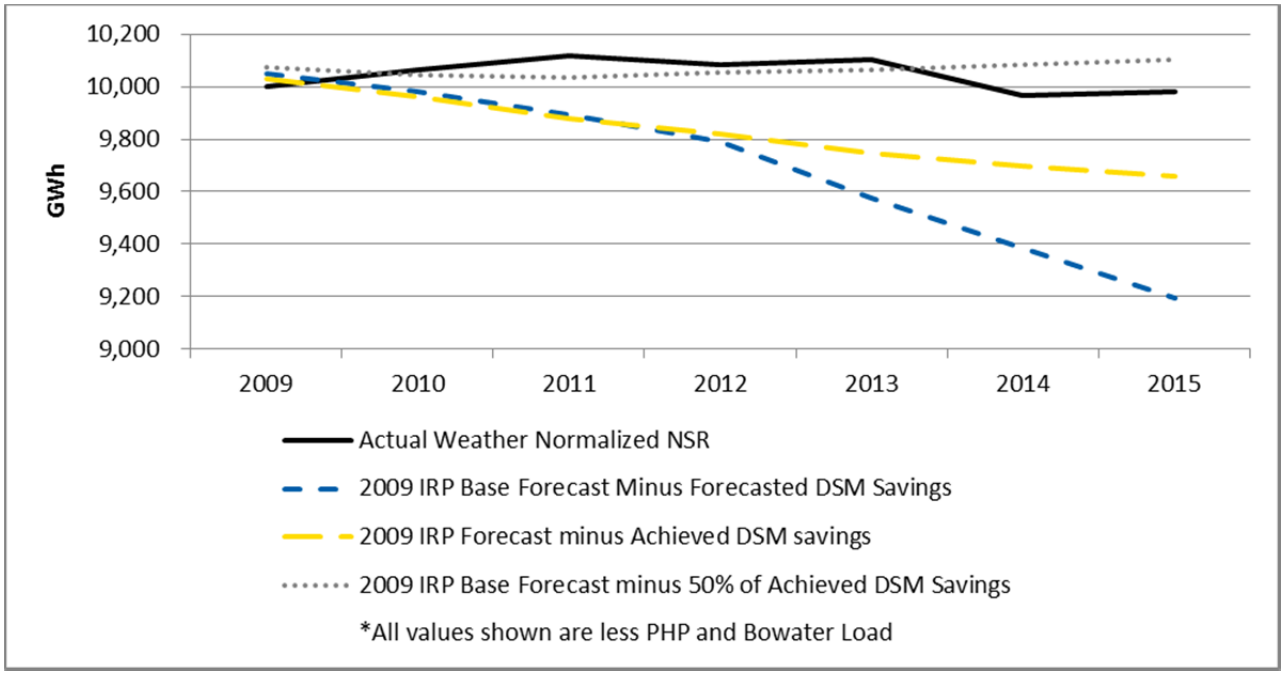
One of the challenges with integrating DSM into the forecast is the fact that past DSM has an influence on many inputs to the load forecast, including sales, price, and overall appliance efficiency. Since the inputs to the regression model are impacted by DSM, the model output is potentially lower than it would be if the inputs had not been impacted by DSM. Subtracting 100 percent of any future DSM savings may result in double counting the impact of such DSM savings because the "no DSM" forecast has some level of DSM savings inherent in it and therefore is already on a lower trajectory. This problem is not unique to Nova Scotia; all utilities with significant DSM activity are trying to determine how best to address this issue in their forecasts.

Now that DSM has been established in Nova Scotia for more than 8 years, it is possible to look back at past forecasts and evaluate if adjusting the forecast for expected DSM savings is appropriate or if double counting exists. All of NS Power's long term forecasts since 2008, have shown load declining over time, but what has transpired is a relatively flat load profile. **Figure 13** compares the forecast from the 2009 IRP to historical sales

[5] Decision 2015 NSUARB 204, M06733, Application for approval of a Supply Agreement for Electricity Efficiency and Conservation Activities between Efficiency One and Nova Scotia Power Inc., August 12, 2015.

and shows that, historically speaking, modifying the forecast by the full DSM amount understates load.

Figure 13: 2009 IRP Forecast Compared to Actuals



NS Power worked with its forecasting consultant, Itron, to statistically determine what level of DSM is already captured in the load forecast. The approach taken was to introduce cumulative historical DSM savings to the regression model, as a load modifying variable, and allow the model to determine what level of DSM was already being captured by other variables. To do this DSM was provided to the model in the same unit of measure, kWh per customer, as the model output. By doing this the value of the DSM variable coefficient, determined by the regression model, is an indication of the level of double counted DSM. If the coefficient is -1, no DSM is double counted, or in practical terms, the regression model determined 100% of the DSM savings were required to explain the annual change in historical load levels. If the coefficient is 0, 100% is double counted. As can be seen in the residential model results, the coefficient on the DSM variable is -0.622 meaning future years in the load forecast should only be

adjusted by 62.2% of the forecast DSM amounts. The remaining 37.8% of savings is already accounted for in the forecast.

For the commercial and industrial classes a combined model was created to identify the level of DSM double counting. By creating a combined model for all classes the level of uncertainty around allocating historical DSM savings across rate classes and months of the year is reduced. The DSM variable coefficient of this model was -0.517 meaning future years in the load forecast should only be adjusted by 51.7% of the forecast DSM amounts. **Figure 14** shows the DSM levels incorporated into the forecast.

Figure 14: Annual Forecast DSM Savings and Load Forecast Modifying GWh

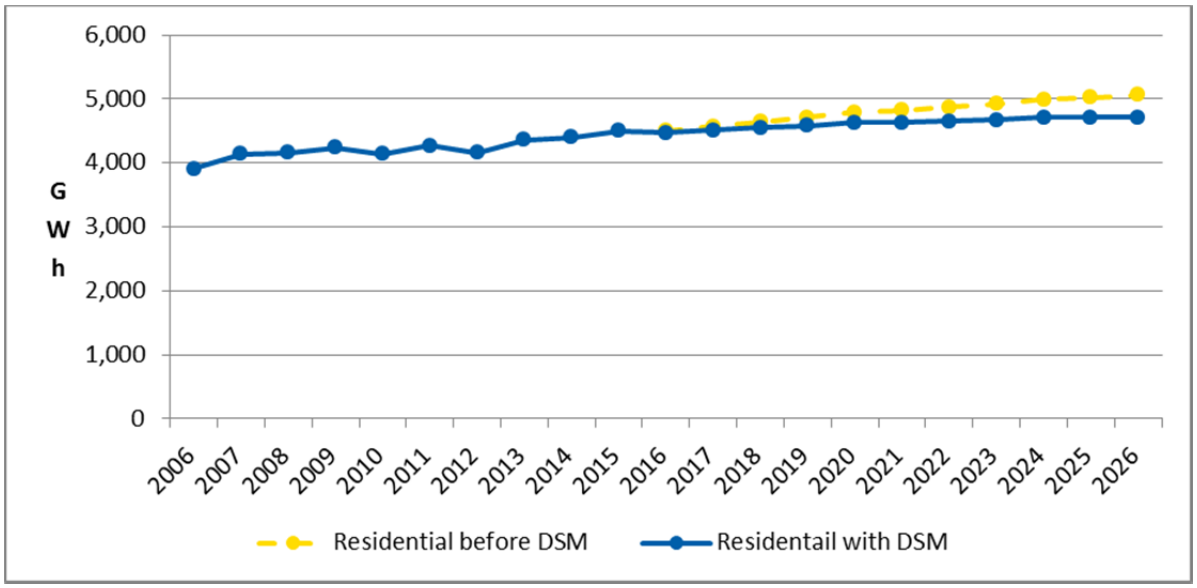
Year	Forecast Residential DSM savings (GWh)	Forecast Commercial and Industrial DSM savings (GWh)	DSM Adjustment for Residential Load Forecast (GWh)	DSM Adjustment for Commercial and Industrial Load Forecast (GWh)
2016	55.5	77.6	34.5	40.1
2017	59.8	76.7	37.2	39.7
2018	59.3	76.6	36.9	39.6
2019	59.3	76.6	36.9	39.6
2020	57.7	76.2	35.9	39.4
2021	56.0	74.1	34.8	38.3
2022	54.9	72.7	34.1	37.6
2023	54.5	72.1	33.9	37.3
2024	54.9	72.5	34.1	37.5
2025	56.0	74.1	34.8	38.3
2026	58.4	77.2	36.3	39.9

5.0 RESIDENTIAL SECTOR

The residential sales forecast is generated as the product of a residential average use forecast and a customer count forecast. The residential average use model is specified using an SAE model structure and the customer forecast is based on a monthly regression model that relates the number of customers to population projections. Full details on the residential SAE model can be found in **Appendix B**.

Historical and forecast annual residential sector loads are shown in **Figure 15**. Residential sector load is anticipated to grow slowly during the 10 year forecast period. Increasing load driven by a growing customer base and increasing electric heat saturation, augmented by a growing number of heat pump installs, is expected to be partially offset by DSM savings. Over the 10 year forecast period, the residential load is expected to increase by 0.5 percent annually.

Figure 15: Historical and Forecast Annual Residential Sales



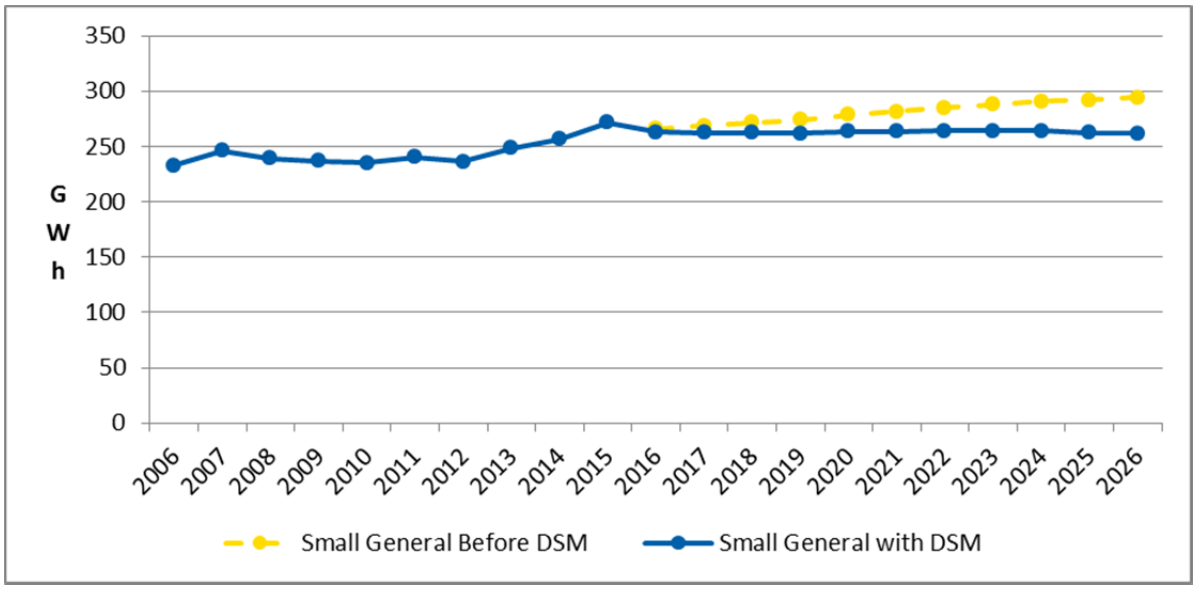
6.0 COMMERCIAL SECTOR

The Commercial SAE model creates a unique forecast for the Small General and General Service rate classes. Like the residential model, the commercial SAE models express monthly sales as a function of heating, cooling, and other loads. The Small General service forecast is based on a monthly SAE average use model and a separate customer forecast. The General service rate class model is estimated on a total monthly sales basis where total monthly billed sales is a function of total monthly heating requirements, cooling requirements, and other use. The end-use variables are constructed by interacting annual end-use intensity projections (EI) that capture end-use intensity trends, with GDP and employment, real price, monthly HDD and CDD and a variable accounting for the number of days in a given month. A detailed breakdown of the two commercial SAE models is provided in **Appendix B.**

Small General Service

Historical and forecast Small General service loads are shown in **Figure 16**. Small General Service load is expected to decline during the 10 year forecast period. DSM savings are expected to be greater than the slow underlying growth rate driven by an increasing customer count and growing Information Technology (IT) energy use.

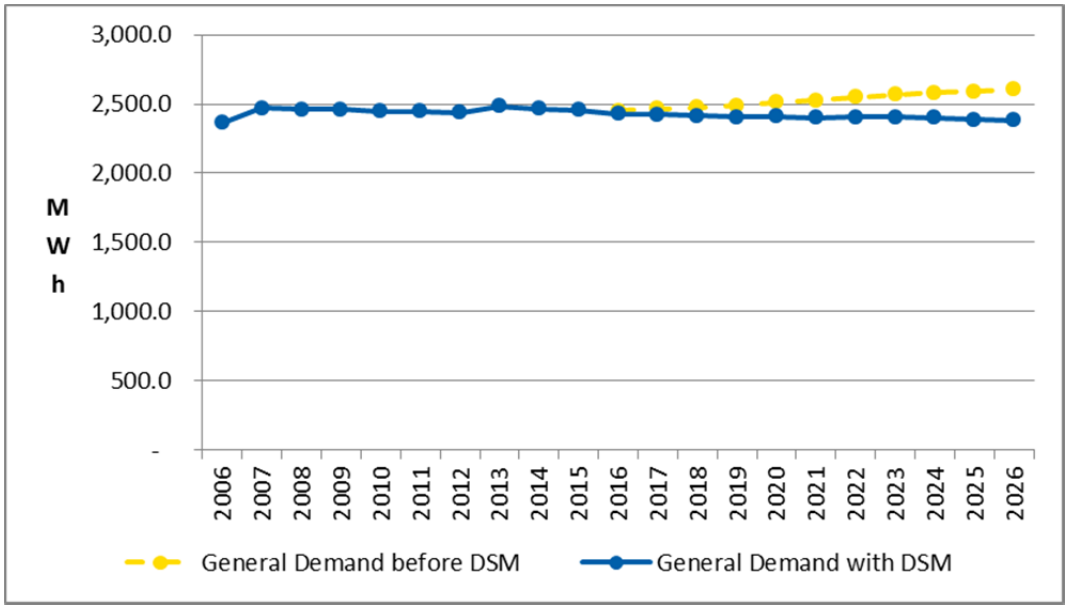
Figure 16: Historical and Forecast Annual Small General Sales



7.0 GENERAL SERVICE

Historical and forecast General service sales are shown in **Figure 17**. General service load is expected to decline during the 10 year forecast period. Declining load is due to diminishing heating intensity in the commercial sector due to increased equipment efficiency and declining lighting and refrigeration intensities over the 10 year forecast period, the General service load is expected to decrease by 0.2 percent annually.

Figure 17: Historical and Forecast Annual General Demand Sales



Large General Service

Large General Service is forecast using a combination of customer survey and historical sales information. Customers are surveyed regularly to determine their electricity requirements over the next three year period. Details on planned production levels or equipment changes help inform energy requirement expectations. In absence of any survey or general public information load levels are forecast as being flat.

8.0 INDUSTRIAL SECTOR

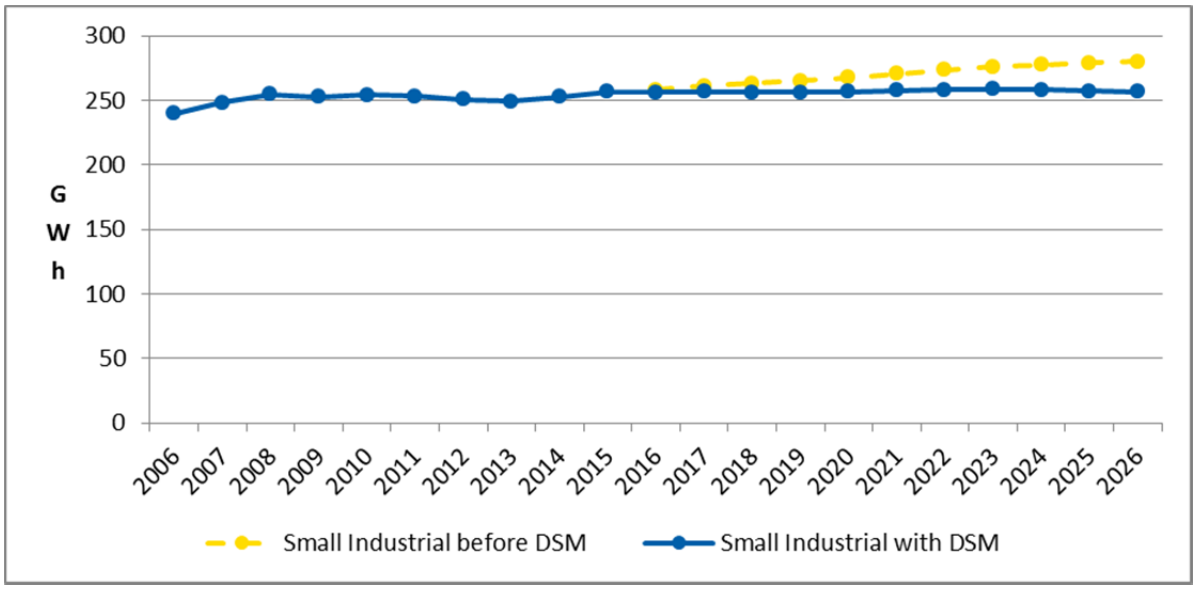
The forecast models for the Small Industrial and Medium Industrial rate classes are econometric based models (i.e. dependant on economic variables). Provincial GDP is used as the primary economic variable in the Small Industrial forecast and for the Medium Industrial class a composite exports variable and provincial employment in the manufacturing sector were used as the economic variables.

The Small and Medium Industrial rate class models are developed using monthly sales information, as opposed to annual sales, in order to align the timeframes of industrial models with those of the residential and commercial forecast models. This is required to in order to implement an end-use based peak forecast for the commercial and residential sectors.

Small Industrial

Figure 18 depicts historical and projected sales for the Small Industrial rate class. Sales in this class have been flat for the last 10 years and are forecast to remain such over the 10 year forecast period.

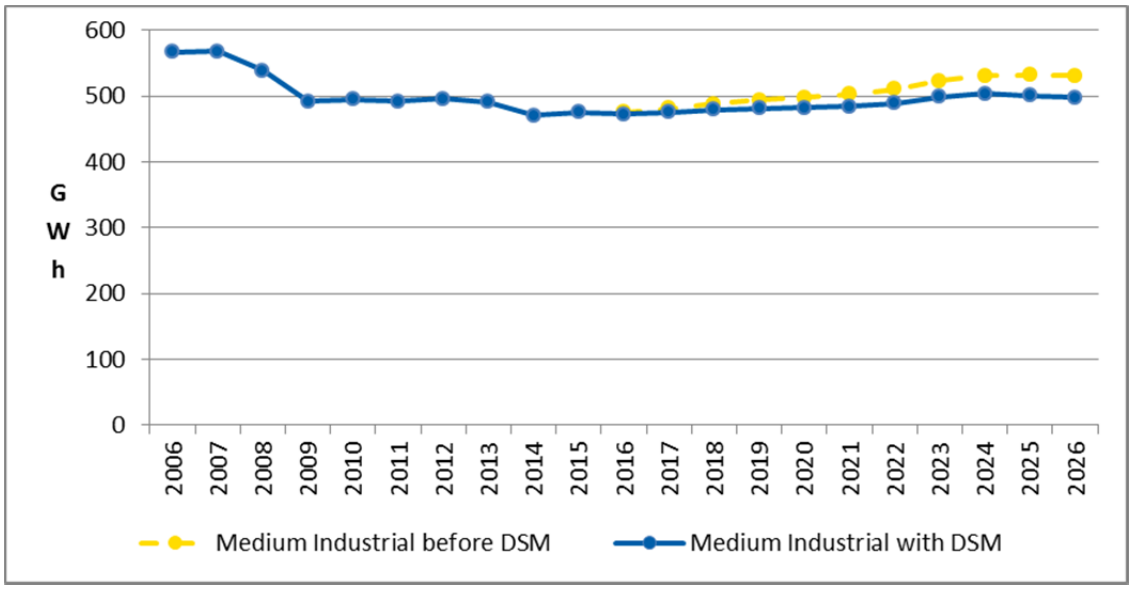
Figure 18: Historical and Forecast Annual Small Industrial Sales



Medium Industrial

Figure 19 depicts historical and projected sales for the Medium Industrial rate class. Load in this class has been decreasing since the 2008 recession, primarily due to the closures or reduced operations of the class participants. This trend is expected to continue in 2016, but slow growth is forecast beyond 2016. This growth is driven by a forecast increase in economic activity in the manufacturing sector in NS. While this sector continues to show long term growth, this forecast is more modest than last year's forecast.

Figure 19: Historical and Forecast Annual Medium Industrial Sales



Other Industrial Rate Classes

Other Industrial rate classes include Large Industrial, Large Industrial Interruptible, Generation Replacement and Load Following, One-Part Real Time Pricing, Load Retention Tariff.

Like the Large General Service rate class, load for these rate classes is forecast using a combination of customer survey and historical sales information. Customers are surveyed regularly in order to gather their forecast monthly electricity requirements over the next three year period. Details on planned production levels or equipment changes help inform energy requirements expectations. In the absence of any survey or general public information, load levels are forecast as being flat.

Municipal

This class comprises municipal electric utilities that purchase wholesale electricity from NS Power and distribute it within their own service territories. The six municipalities

are: Antigonish, Berwick, Canso, Lunenburg, Mahone Bay and Riverport. Utility loads within these municipalities include customers in residential, commercial and industrial sectors, and are included in NS Power's total sector sales estimates. Energy in this class also includes the losses incurred by the municipal utilities in meeting their electricity requirements. These losses are estimated to average approximately four percent of sales.

An Open Access Transmission Tariff (OATT) is available to the six municipal utilities. Beginning in 2007, it has been possible for these municipalities to source their electricity from providers other than NS Power. This forecast currently assumes several Municipal customers will source part of their energy requirement from suppliers other than NS Power.

9.0 SYSTEM LOSSES AND UNBILLED SALES

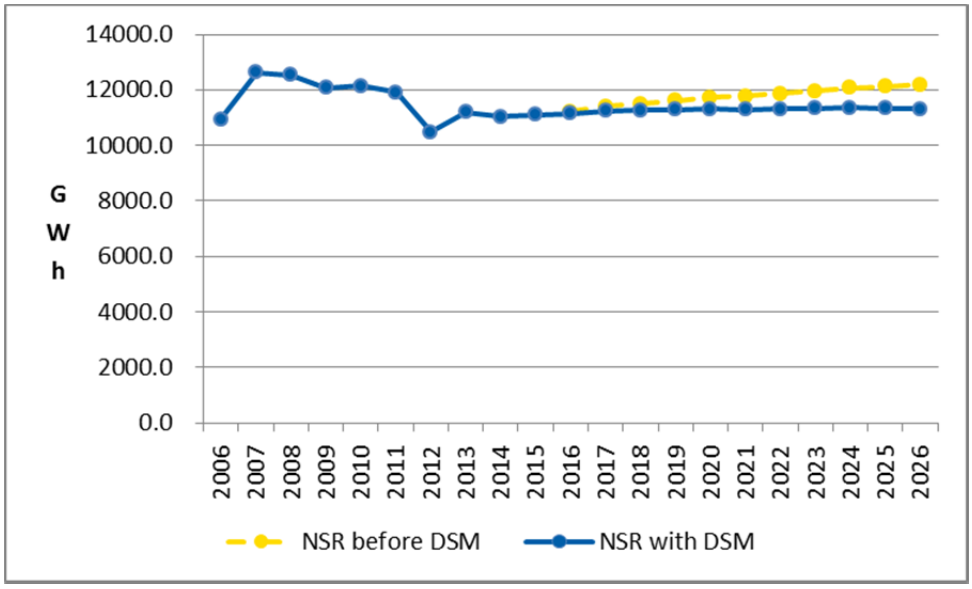
The difference between energy generated for use within provincial borders and the total NS Power billed sales comprises transmission and distribution system losses as well as changes to the level of unbilled sales. Energy generated and sold but not yet billed, is referred to as "Unbilled" sales. System losses averaged 6.6 percent of NSR over the past five years and are forecast to remain in the 6.0 to 7.0 percent range over the 10 year forecast period.

10.0 NET SYSTEM REQUIREMENT

The NSR is the energy required to supply the sum of residential, commercial, and industrial electricity sales, plus the associated system losses within the province of Nova Scotia. Loads served by industrial self-generation, exports, and transmission losses associated with energy exports are not included.

In 2015 the NSR for the province increased by 0.6 percent primarily due to growth in residential sales and favourable weather. From 2016 to 2026 NSR is forecast to grow slowly at a rate of 0.1% annually. Without DSM effects, growth is forecast to average 0.8 percent annually. Annual NSR is shown in **Figure 20**. Forecast NSR values and the contribution to NSR from the different sectors can be found in Appendix A.

Figure 20: Historical and Forecast Annual NSR



11.0 PEAK DEMAND

The total system peak is defined as the highest single hourly average demand experienced in a year. It includes both firm and interruptible loads. Due to the weather-sensitive load component in Nova Scotia, the total system peak occurs in the period from December through February.

In 2015, NS Power employed an end-use approach to deriving the peak forecast for the first time in response to Board feedback to previous Load Forecast reports. As with any new process, NS Power learned from this experience and worked on refining the model in 2016. In 2015, energy forecasts derived from the residential and commercial SAE models were combined with end-use peak fractions (from the Vermont electrical system) and peak-day weather conditions to generate monthly peak demand forecasts through an estimated monthly peak demand regression model. In 2016, NS Power refined its peak forecasting approach and removed the peak fractions as an input to the peak model and used them to help derive the peak components from the forecast outputs.

There are two advantages to this approach:

(1) On the input side, it removes any uncertainty in the forecast model attributed to the peak fractions

(2) On the output side, the disaggregation of the peak, allows for a better understanding of the components making up the peak

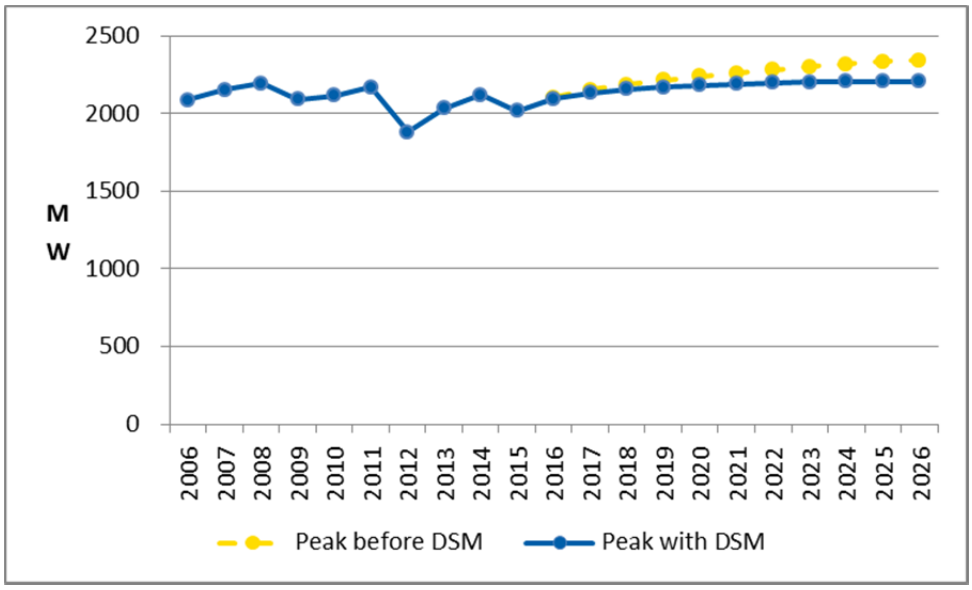
The breakdown of energy into heating, cooling, and other load components was maintained from the energy SAE forecasts into the peak forecast allowing for the impact of changing heating and cooling requirements, which drive the peak in most months, to be reflected in the peak forecast.

The result of these changes was a statistically better peak model. Looking at the historical 10 year period from 2005 to 2015, the average percentage error between the 2016 model predicted monthly peak, and the actual monthly peak, was +/- 2.51%, compared to average percent error of +/- 3.19% for the 2015 model (using the same inputs). Full details about the peak forecast can be found in **Appendix B**.

The peak contribution from large customer classes continues to be calculated from historical coincident load factors for each of the rate classes and the large customer forecast is added to the accrued class forecast to get the total system peak. The forecast system peak for 2016 to 2026 is shown below in **Figure 21**. After accounting for DSM savings the system peak is forecast to grow at a rate of 0.5% annually which is greater than the forecast annual growth rate for total system sales of 0.2% annual growth. The difference in growth rates is because the majority of the forecast growth is from increasing residential sales and the residential class constitutes a greater percentage of system peak (58%[6]) than NSR (44%[6]).

[6] Based on the 2017 forecast breakdown by rate class provided in the 2017 – 2019 Fuel Stability Plan Application, M07348, March 7, 2016, Appendix G, Page 1

Figure 21: Historical and Forecast System Peak



Forecast peak values, along with firm peak and interruptible peak information can be found in **Appendix A**.

End-use coincident peak fractions are used in disaggregating the system peak forecast into end-use coincident peak demand load estimates. End-use coincident peak fractions are based on end-use profiles developed by Itron. **Figure 22** shows the break down in contribution to peak by residential end use. Over the forecast period the peak contribution from heating, hot water heating, cooking, and miscellaneous end-uses grow, while all other end-uses decline.

Figure 22: Residential End-Use Peak Shares

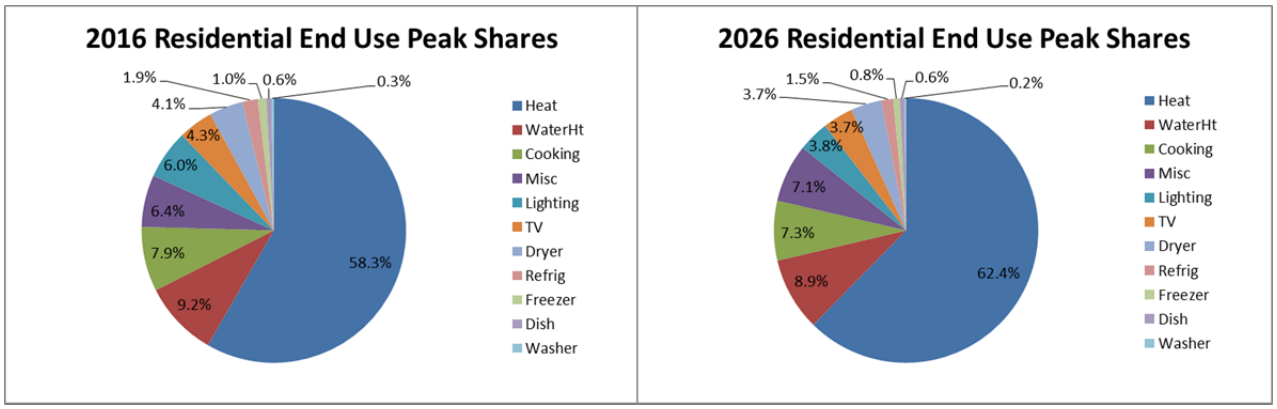
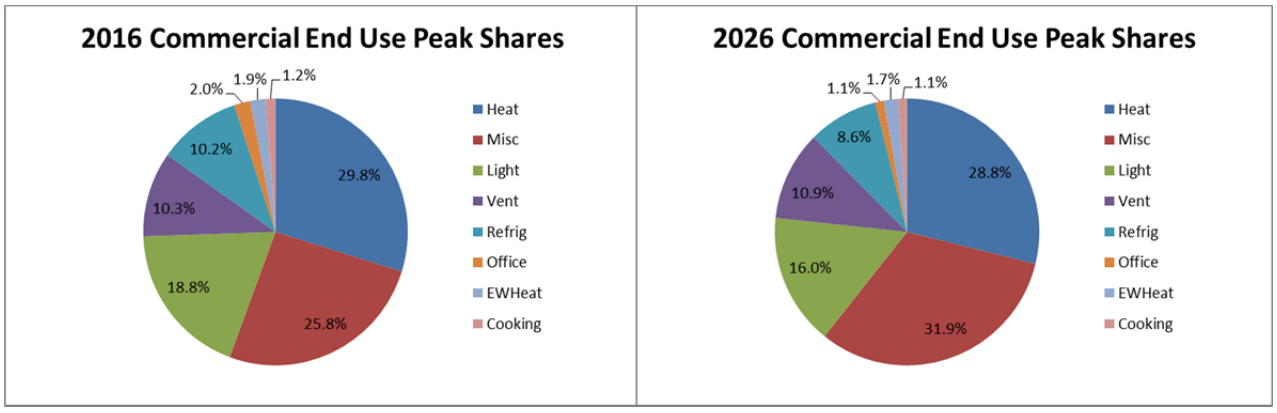


Figure 23 shows the break down in the contribution to peak by commercial end use. The largest change in the commercial sector is the peak contribution from miscellaneous end-use growing and lighting declining.

Figure 23: Commercial End-Use Peak Shares



Load Forecast

Appendices

Appendix A – Forecast Values

2016 NS Power Forecast

Table A1: Energy Requirement – 2016 NS Power Forecast
Energy Forecast with Future DSM Program Effects

Year	Residential Sector	Growth	Commercial Sector	Growth	Industrial Sector	Growth	Losses	Total Energy	Growth
	GWh	%	GWh	%	GWh	%	GWh	GWh	%
2006	3,979	-3.2%	3,211	-0.4%	2,888	-31.5%	868	10,946	-11.3%
2007	4,218	6.0%	3,343	4.1%	4,205	45.6%	872	12,638	15.5%
2008	4,232	0.3%	3,327	-0.5%	4,161	-1.0%	819	12,539	-0.8%
2009	4,318	2.0%	3,320	-0.2%	3,658	-12.1%	777	12,073	-3.7%
2010	4,216	-2.4%	3,305	-0.5%	3,932	7.5%	704	12,158	0.7%
2011	4,346	3.1%	3,310	0.1%	3,535	-10.1%	717	11,907	-2.1%
2012	4,231	-2.6%	3,289	-0.6%	2,184	-38.2%	771	10,475	-12.0%
2013	4,436	4.8%	3,341	1.6%	2,625	20.2%	792	11,194	6.9%
2014	4,478	0.9%	3,318	-0.7%	2,543	-3.1%	699	11,037	-1.4%
2015	4,578	2.2%	3,347	0.9%	2,477	-2.6%	696	11,098	0.5%
2016	4,533	-1.0%	3,303	-1.3%	2,552	3.0%	755	11,143	0.4%
2017	4,576	0.9%	3,293	-0.3%	2,624	2.8%	743	11,236	0.8%
2018	4,616	0.9%	3,277	-0.5%	2,640	0.6%	728	11,260	0.2%
2019	4,648	0.7%	3,261	-0.5%	2,640	0.0%	732	11,282	0.2%
2020	4,690	0.9%	3,258	-0.1%	2,636	-0.2%	729	11,313	0.3%
2021	4,693	0.1%	3,249	-0.3%	2,635	0.0%	719	11,296	-0.1%
2022	4,714	0.4%	3,250	0.0%	2,637	0.1%	715	11,315	0.2%
2023	4,734	0.4%	3,246	-0.1%	2,643	0.2%	712	11,334	0.2%
2024	4,771	0.8%	3,240	-0.2%	2,642	0.0%	709	11,362	0.2%
2025	4,771	0.0%	3,222	-0.6%	2,635	-0.3%	701	11,328	-0.3%
2026	4,777	0.1%	3,213	-0.3%	2,626	-0.3%	694	11,310	-0.2%

2016 Load Forecast Report

Table A2: Energy Requirement – 2016 NS Power Forecast

Energy Forecast before Future DSM Program Effects

Year	Residential Sector	Growth	Commercial Sector	Growth	Industrial Sector	Growth	Losses	Total Energy	Growth
	GWh	%	GWh	%	GWh	%	GWh	GWh	%
2006	3,979	-3.2%	3,211	-0.4%	2,888	-31.5%	868	10,946	-11.3%
2007	4,218	6.0%	3,343	4.1%	4,205	45.6%	872	12,638	15.5%
2008	4,232	0.3%	3,327	-0.5%	4,161	-1.0%	819	12,539	-0.8%
2009	4,318	2.0%	3,320	-0.2%	3,658	-12.1%	777	12,073	-3.7%
2010	4,216	-2.4%	3,305	-0.5%	3,932	7.5%	704	12,158	0.7%
2011	4,346	3.1%	3,310	0.1%	3,535	-10.1%	717	11,907	-2.1%
2012	4,231	-2.6%	3,289	-0.6%	2,184	-38.2%	771	10,475	-12.0%
2013	4,436	4.8%	3,341	1.6%	2,625	20.2%	792	11,194	6.9%
2014	4,478	0.9%	3,318	-0.7%	2,543	-3.1%	699	11,037	-1.4%
2015	4,578	2.2%	3,347	0.9%	2,477	-2.6%	696	11,098	0.5%
2016	4,564	-0.3%	3,332	-0.4%	2,562	3.4%	766	11,224	1.1%
2017	4,640	1.7%	3,352	0.6%	2,643	3.2%	765	11,400	1.6%
2018	4,714	1.6%	3,364	0.4%	2,669	1.0%	761	11,508	0.9%
2019	4,779	1.4%	3,377	0.4%	2,679	0.4%	776	11,611	0.9%
2020	4,853	1.6%	3,401	0.7%	2,685	0.2%	783	11,722	1.0%
2021	4,888	0.7%	3,418	0.5%	2,693	0.3%	784	11,783	0.5%
2022	4,939	1.1%	3,445	0.8%	2,704	0.4%	790	11,878	0.8%
2023	4,990	1.0%	3,466	0.6%	2,720	0.6%	798	11,973	0.8%
2024	5,057	1.4%	3,487	0.6%	2,728	0.3%	804	12,077	0.9%
2025	5,089	0.6%	3,495	0.2%	2,730	0.1%	807	12,121	0.4%
2026	5,127	0.8%	3,513	0.5%	2,732	0.0%	811	12,183	0.5%

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Table A3: Coincident Peak Demand - 2016 NS Power Forecast

Peak Forecast with Future DSM Program Effects

Year	Interruptible Contribution to Peak (MW)	Firm Contribution to Peak (MW)	Net System Peak (MW)	Growth (%)
2006	417	1,668	2,085	-2.7%
2007	381	1,774	2,154	3.3%
2008	352	1,840	2,192	1.7%
2009	268	1,824	2,092	-4.5%
2010	295	1,820	2,114	1.0%
2011	265	1,903	2,168	2.5%
2012	141	1,740	1,882	-13.2%
2013	136	1,897	2,033	8.0%
2014	83	2,036	2,118	4.2%
2015	141	1,874	2,015	-4.9%
2016	139	1,954	2,093	3.9%
2017	143	1,987	2,130	1.8%
2018	147	2,009	2,156	1.2%
2019	147	2,023	2,170	0.6%
2020	147	2,033	2,180	0.5%
2021	146	2,041	2,188	0.4%
2022	146	2,051	2,197	0.4%
2023	146	2,057	2,203	0.3%
2024	146	2,060	2,205	0.1%
2025	146	2,062	2,208	0.1%
2026	145	2,059	2,204	-0.2%

Table A4: Coincident Peak Demand - 2016 NS Power Forecast

Peak Forecast before Future DSM Program Effects

Year	Interruptible Contribution to Peak (MW)	Firm Contribution to Peak (MW)	Net System Peak (MW)	Growth (%)
2006	417	1,668	2,085	-2.7%
2007	381	1,774	2,154	3.3%
2008	352	1,840	2,192	1.7%
2009	268	1,824	2,092	-4.5%
2010	295	1,820	2,114	1.0%
2011	265	1,903	2,168	2.5%
2012	141	1,740	1,882	-13.2%
2013	136	1,897	2,033	8.0%
2014	83	2,036	2,118	4.2%
2015	141	1,874	2,015	-4.9%
2016	141	1,962	2,103	4.4%
2017	144	2,006	2,151	2.3%
2018	149	2,039	2,187	1.7%
2019	149	2,065	2,214	1.2%
2020	149	2,089	2,238	1.1%
2021	149	2,110	2,259	1.0%
2022	149	2,133	2,281	1.0%
2023	149	2,152	2,301	0.9%
2024	149	2,168	2,317	0.7%
2025	149	2,185	2,333	0.7%
2026	149	2,195	2,344	0.5%

Appendix B –Forecast Model Details

2016 NS Power Forecast

Residential Model Detail

The residential average use SAE model is defined as a function of the three primary end-uses – cooling (XCool), heating (XHeat) and other use (XOther):

$$ResAvgUse_m = b_1 \times XHeat_m + b_2 \times XCool_m + b_3 \times XOther_m$$

The end-use variables incorporate both a variable that captures short-term utilization (Use) and a variable that captures changes in end-use efficiency and saturation trends (Index). The heating variable is calculated as:

XHeat = HeatUse × HeatIndex

Where

HeatUse = f(HDD, Household Income, Household Size, and Price)

HeatIndex = g(Heating Saturation, Efficiency, Shell Integrity, Square Footage)

The cooling variable is defined as:

XCool = CoolUse × CoolIndex

Where

CoolUse = f(CDD, Household Income, Household Size, and Price)

CoolIndex = g(Cooling Saturation, Efficiency, Shell Integrity, Square Footage)

XOther captures non-weather sensitive end-uses:

XOther = OtherUse × OtherIndex

Where

OtherUse = f(Seasonal Use Pattern, Household Income, Household Size, and Price)

OtherIndex = g(Other Appliance Saturation and Efficiency Trends)

Binary shift variables are added to the model for the February, March, April, and May of 2015 to compensate for an anomaly in the billing data during this period. In February and March of 2015 Nova Scotia experienced significantly higher than normal snowfall amounts which created difficulties reading meters and a greater than normal number of customer bills were estimated as a result. Actual meter reads were obtained in April and May after the snow melted.

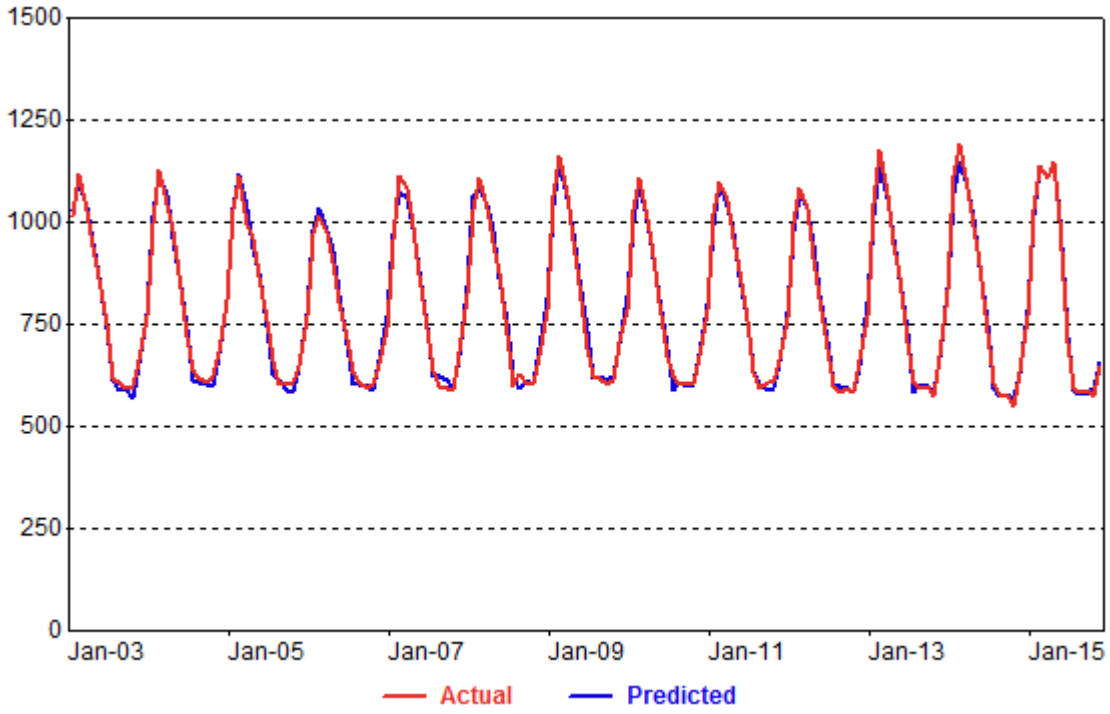
Variable	Coefficient	StdErr	T-Stat	P-Value
MStructRes.WtXHeat	0.921	0.017	55.504	0.00%
MStructRes.WtXCool	0.876	0.319	2.747	0.68%
MStructRes.WtXOther	0.938	0.013	74.441	0.00%
MBin.Sep	73.219	10.913	6.709	0.00%
MBin.Oct	42.65	7.669	5.561	0.00%
MBin.Aug	68.162	7.801	8.737	0.00%
MBin.Jan	66.615	5.19	12.836	0.00%
MSales.AvgEESavings	-0.622	0.119	-5.232	0.00%
MBin.Feb15	-12.394	19.9	-0.623	53.44%
MBin.Mar15	-22.067	22.279	-0.99	32.36%
MBin.Apr15	90.586	22.042	4.11	0.01%
MBin.May15	102.788	19.486	5.275	0.00%
MA(1)	0.443	0.083	5.346	0.00%

Residential Model Statistics

Model Statistics	
Iterations	15
Adjusted Observations	155
Deg. of Freedom for Error	142
R-Squared	0.991
Adjusted R-Squared	0.99
AIC	5.961
BIC	6.217
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-668.94
Model Sum of Squares	5,605,802.09
Sum of Squared Errors	50,869.41
Mean Squared Error	358.24
Std. Error of Regression	18.93
Mean Abs. Dev. (MAD)	14.41
Mean Abs. % Err. (MAPE)	1.84%
Durbin-Watson Statistic	2.049
Durbin-H Statistic	#NA
Ljung-Box Statistic	80.25
Prob (Ljung-Box)	0
Skewness	0.184
Kurtosis	2.81
Jarque-Bera	1.11
Prob (Jarque-Bera)	0.574

2016 Load Forecast Report

Residential SAE Model Fit



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Commercial Model Detail

Small General Service: Small General service is projected using an SAE average use model and a sales forecast is generated as the product of the average use and customer forecast.

Like the residential model, monthly Small General service average use is defined as function of monthly heating requirements (XHeat), cooling requirements (XCool), and other use (XOther). The end-use variables are constructed by interacting annual end-use intensity projections (EI) that capture end-use intensity trends, with GDP and employment (SmlGenVarm), real price (Pricem), monthly HDD and CDD and a variable accounting for the number of days in a given month:

$$XHeat_m = EI_{heat} \times Price_m^{-.15} \times SmlGenVar_m \times HDD_m$$
$$XCool_m = EI_{cool} \times Price_m^{-.15} \times SmlGenVar_m \times CDD_m$$
$$XOther_m = EI_{other} \times Price_m^{-.15} \times SmlGenVar_m \times Days_m$$

The coefficients on price are imposed short-term price elasticities.

Several binary shift variables are added to the model to:

(1) Compensate for the increase in class energy sales in 2004 and 2005 when the threshold for the Small General class was increased from 12,000 kWh per year to 32,000, kWh per year.
(2) Compensate for the change in the rate class specification, which came into effect in November 2014, allowing commercial customers consuming 32,000 to 42,000 kWh per year to choose whether to take service under the Small General rate or the General rate
(3) Correct for anomalies in the billing data in 2008 and 2015.

A monthly forecast average use sales model is then estimated as:

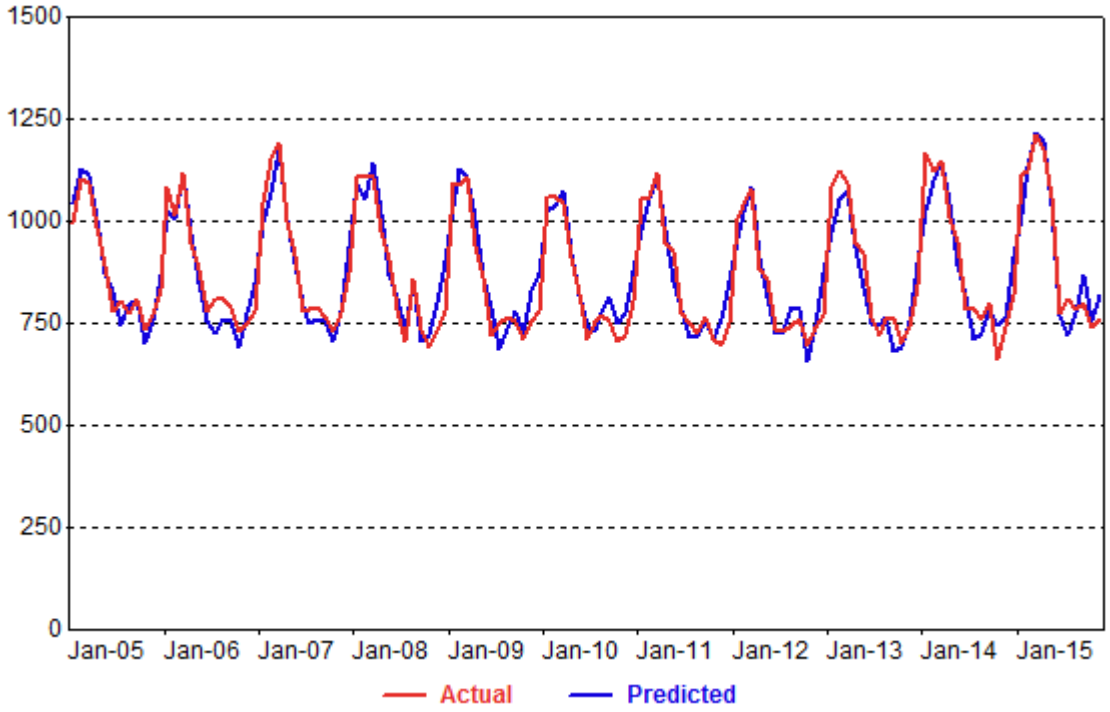
$$SmlGen\_AvgUse_m = b_1 \times XHeat_m + b_2 \times XCool_m + b_3 \times XOther_m + MBin.Aug08 + MBin.Yr15AprtoMay + MBin.AftNov14 + MStructSmlGen.XHeat\_Trend + MBin.Mar + MBin.Sep + MBin.Oct + MA(1)$$

Variable	Coefficient	StdErr	T-Stat	P-Value
MStructSmlGen.WtXOther	0.977	0.027	35.616	0.00%
MStructSmlGen.WtXCool	0.933	0.122	7.664	0.00%
MStructSmlGen.WtXHeat	1.11	0.059	18.97	0.00%
MBin.Aug08	175.105	50.278	3.483	0.07%
MBin.Yr15AprtoMay	134.001	39.92	3.357	0.11%
MStructSmlGen.XHeat_Trend	0.018	0.006	2.894	0.45%
MBin.Mar	99.826	16.385	6.093	0.00%
MBin.Sep	68.361	17.635	3.876	0.02%
MBin.Oct	30.794	17.833	1.727	8.68%
MBin.AftNov14	62.088	15.283	4.062	0.01%
MA(1)	0.155	0.093	1.661	9.94%

Small General Model Statistics

Model Statistics	
Iterations	14
Adjusted Observations	131
Deg. of Freedom for Error	120
R-Squared	0.9
Adjusted R-Squared	0.891
AIC	7.897
BIC	8.138
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-692.14
Model Sum of Squares	2,673,742.32
Sum of Squared Errors	297,831.36
Mean Squared Error	2,481.93
Std. Error of Regression	49.82
Mean Abs. Dev. (MAD)	37.57
Mean Abs. % Err. (MAPE)	4.42%
Durbin-Watson Statistic	1.992
Durbin-H Statistic	#NA
Ljung-Box Statistic	104.71
Prob (Ljung-Box)	0
Skewness	0.064
Kurtosis	3.025
Jarque-Bera	0.093

Small General Model Fit



General Service: The General service rate class model is estimated on a total monthly sales basis where total monthly billed sales is a function of total monthly heating requirements (XHeat), cooling requirements (XCool), and other use (XOther). The end-use variables are constructed by interacting annual end-use intensity projections (EI) that capture end-use intensity trends, with GDP and employment (GenVarm), real price (Pricem), monthly HDD and CDD and a variable accounting for the number of days in a given month:

$$XHeatm = EIheat \times Pricem^{-.15} \times GenVarm \times HDDm$$

$$XCoolm = EIcool \times Pricem^{-.15} \times GenVarm \times CDDm$$

$$XOtherm = EIother \times Pricem^{-.15} \times GenVarm \times Daysm$$

The coefficients on price are imposed short-term price elasticities. A monthly forecast sales model is then estimated as:

GenServicem = b1× XHeatm + b2× XCoolm + MBin.Aug08 + MBin.Feb13 + MBin.Jan + MBin.AftNov14 + MA(1) + SMA(1)

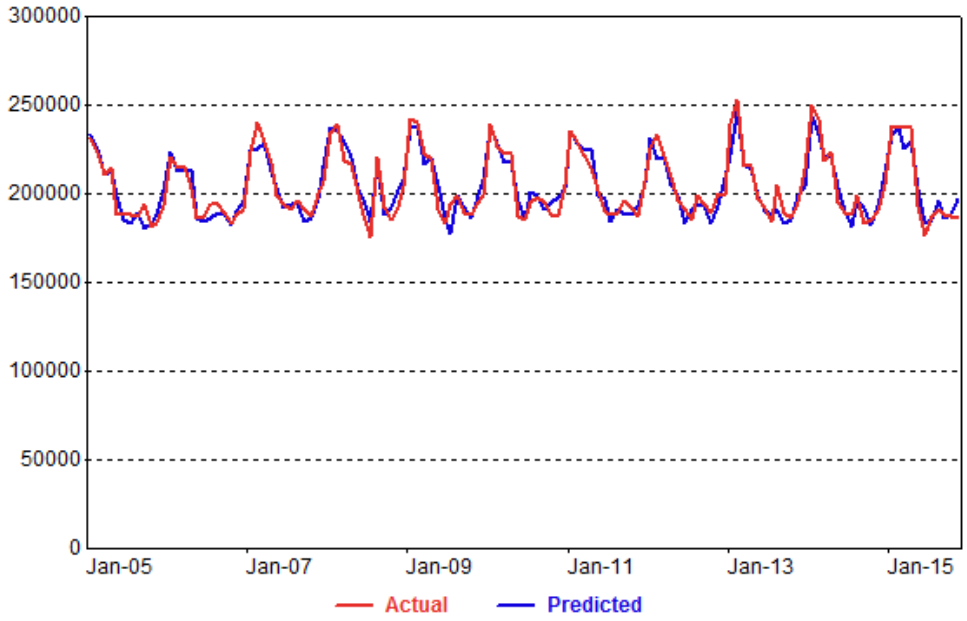
Variable	Coefficient	StdErr	T-Stat	P-Value
MStructGen.WtXHeat	0.647	0.044	14.78	0.00%
MStructGen.WtXCool	0.606	0.118	5.12	0.00%
MStructGen.WtXOther	1.046	0.017	61.07	0.00%
MBin.Aug08	33982.74	4879.644	6.964	0.00%
MBin.Feb13	11330.06	5216.147	2.172	3.18%
MBin.Jan	6978.575	2820.82	2.474	1.47%
MBin.AftNov14	5259.605	2624.847	2.004	4.73%
MA(1)	0.428	0.091	4.715	0.00%
SMA(1)	0.588	0.084	7.038	0.00%

General Service Model Statistics

Model Statistics	
Iterations	20
Adjusted Observations	131
Deg. of Freedom for Error	122
R-Squared	0.887
Adjusted R-Squared	0.880
AIC	17.613
BIC	17.811
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-1,330.54
Model Sum of Squares	40,089,628,536.02
Sum of Squared Errors	5,092,021,707.79
Mean Squared Error	41,737,882.85
Std. Error of Regression	6,460.49
Mean Abs. Dev. (MAD)	4,937.01
Mean Abs. % Err. (MAPE)	2.44%
Durbin-Watson Statistic	2.027
Durbin-H Statistic	#NA
Ljung-Box Statistic	45.84
Prob (Ljung-Box)	0.0046
Skewness	0.268
Kurtosis	3.069
Jarque-Bera	1.596
Prob (Jarque-Bera)	0.4503

2016 Load Forecast Report

General Service Model Fit



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Industrial Econometric Model Details

Small Industrial model

$SmlInd\_Sales_m = BinJan_m + BinFeb_m + BinMar_m + BinApr_m + BinMay_m + BinJun_m + BinJul_m + BinAug_m + BinSep_m + BinOct_m + BinNov_m + BinDec_m + BinJul08 + BinAug08 + b1 \times GDP + b2 \times SmIndEESavings$

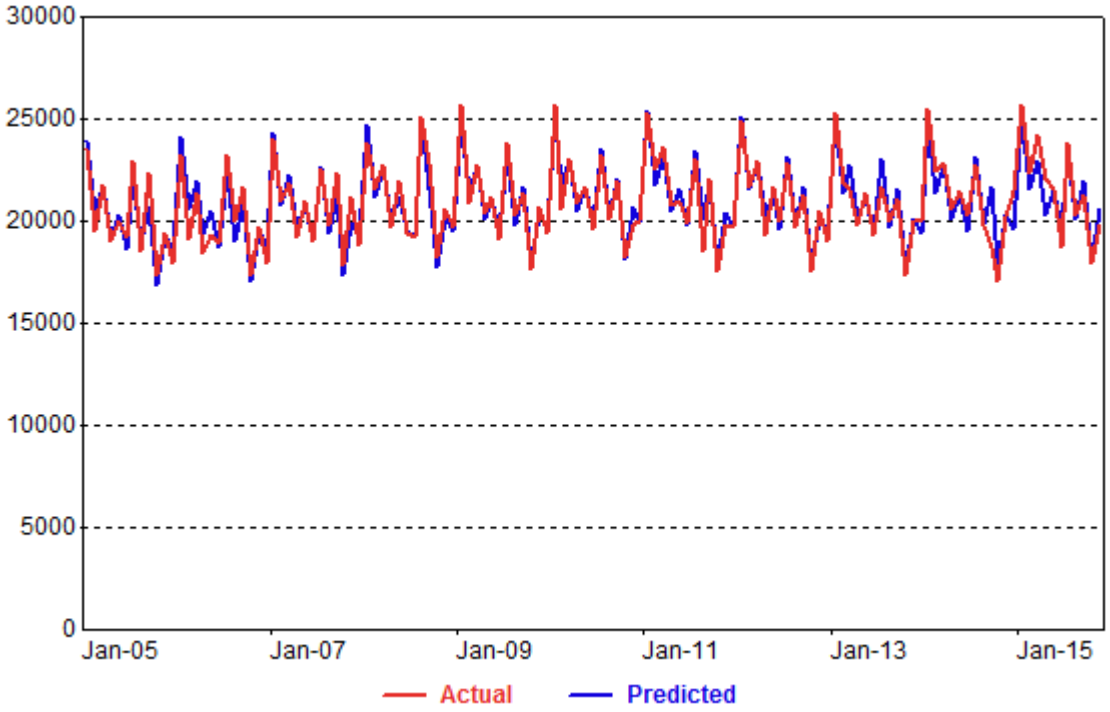
Binary variables for July and August 2008 were added to the model in order to isolate an anomaly in the billing data during this time. Class sales are lower than normal in July and higher than normal in August because billing which was supposed to occur on the last day of July was delayed and actually occurred on the first day of August.

Variable	Coefficient	StdErr	T-Stat	P-Value
MBin.Jan	3621.123	3641.008	0.995	32.20%
MBin.Feb	50.462	3642.240	0.014	98.90%
MBin.Mar	1428.292	3643.472	0.392	69.58%
MBin.Apr	-1190.418	3644.705	-0.327	74.46%
MBin.May	-88.380	3645.938	-0.024	98.07%
MBin.Jun	-1812.725	3647.172	-0.497	62.01%
MBin.Jul	1780.111	3644.502	0.488	62.62%
MBin.Aug	-1535.376	3646.207	-0.421	67.45%
MBin.Sep	282.200	3651.498	0.077	93.85%
MBin.Oct	-3610.806	3653.044	-0.988	32.50%
MBin.Nov	-1126.846	3654.591	-0.308	75.84%
MBin.Dec	-1833.480	3655.516	-0.502	61.69%
MBin.Jul08	-3870.473	758.987	-5.100	0.00%
MBin.Aug08	5270.134	758.971	6.944	0.00%
MEcon.GDPIdx	20362.533	3529.536	5.769	0.00%
MSales.SmIndEESavings	-0.815	0.230	-3.548	0.06%

Small Industrial Model Statistics

Model Statistics	
Iterations	1
Adjusted Observations	131
Deg. of Freedom for Error	115
R-Squared	0.890
Adjusted R-Squared	0.876
AIC	13.272
BIC	13.623
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-1,039.17
Model Sum of Squares	482,418,337.45
Sum of Squared Errors	59,558,006.59
Mean Squared Error	517,895.71
Std. Error of Regression	719.65
Mean Abs. Dev. (MAD)	500.18
Mean Abs. % Err. (MAPE)	2.42%
Durbin-Watson Statistic	1.487
Durbin-H Statistic	#NA
Ljung-Box Statistic	86.09
Prob (Ljung-Box)	0.0000
Skewness	-0.437
Kurtosis	5.268
Jarque-Bera	32.235
Prob (Jarque-Bera)	0.0000

Small Industrial Model Fit



Medium Industrial Model

$MedInd\_Sales_m = BinJan_m + BinFeb_m + BinMar_m + BinApr_m + BinMay_m + BinJun_m + BinJul_m + BinAug_m + BinSep_m + BinOct_m + BinNov_m + BinDec_m + Bin06 + BinJul08 + BinAug08 + BinAftMar2014 + b1 \times Exports + b2 \times ManEmp$

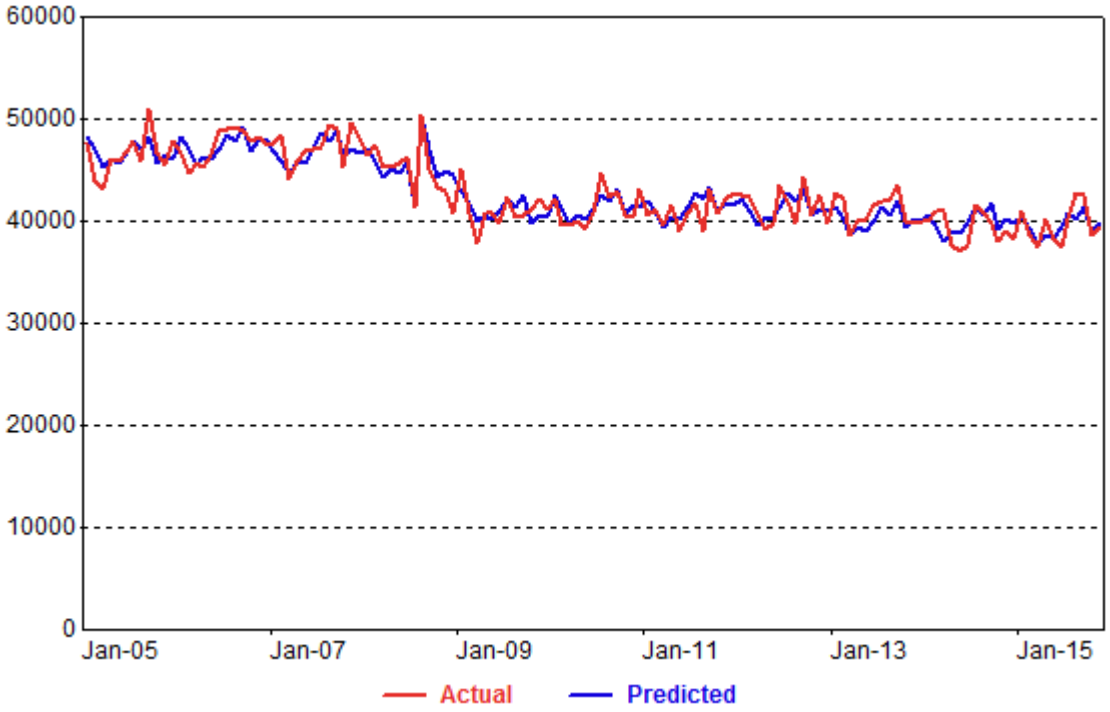
Binary variables for July and August 2008 were added to isolate an anomaly in the billing data during this period. Class sales are lower than normal in July and higher than normal in August because billing which was supposed to occur on the last day of July was delayed and actually occurred on the first day of August.

Variable	Coefficient	StdErr	T-Stat	P-Value
MBin.Jan	11570.948	5067.494	2.283	2.43%
MBin.Feb	10507.793	5068.343	2.073	4.04%
MBin.Mar	9029.923	5069.195	1.781	7.75%
MBin.Apr	9913.549	5070.050	1.955	5.30%
MBin.May	9746.887	5070.908	1.922	5.71%
MBin.Jun	10842.958	5071.769	2.138	3.47%
MBin.Jul	12292.885	5062.770	2.428	1.67%
MBin.Aug	11625.366	5069.263	2.293	2.37%
MBin.Sep	12869.191	5077.439	2.535	1.26%
MBin.Oct	10377.933	5079.846	2.043	4.34%
MBin.Nov	11241.091	5082.255	2.212	2.90%
MBin.Dec	11029.155	5059.565	2.180	3.13%
MBin.Yr06	1732.509	474.377	3.652	0.04%
MBin.Aug08	4235.264	1504.568	2.815	0.58%
MBin.Jul08	-5751.935	1507.547	-3.815	0.02%
MEcon.ManEmp	658.142	33.053	19.912	0.00%
MBin.Yr09	-1778.660	512.165	-3.473	0.07%
MEcon.Exports	7.907	4.108	1.925	5.68%

Medium Industrial Model Statistics

Model Statistics	
Iterations	1
Adjusted Observations	131
Deg. of Freedom for Error	113
R-Squared	0.849
Adjusted R-Squared	0.826
AIC	14.650
BIC	15.045
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-1,127.44
Model Sum of Squares	1,290,484,796.52
Sum of Squared Errors	229,211,448.24
Mean Squared Error	2,028,419.90
Std. Error of Regression	1,424.23
Mean Abs. Dev. (MAD)	1,061.20
Mean Abs. % Err. (MAPE)	2.50%
Durbin-Watson Statistic	1.708
Durbin-H Statistic	#NA
Ljung-Box Statistic	41.74
Prob (Ljung-Box)	0.0138
Skewness	-0.171
Kurtosis	2.730
Jarque-Bera	1.038
Prob (Jarque-Bera)	0.5952

Medium Industrial Model Fit



Peak Forecast (Accrued Classes)

The long-term system peak forecast for the accrued classes is derived through a monthly peak linear regression model that relates monthly peak demand (excluding large customer contribution) to heating, cooling, and base load requirements:

$$Peak_m = b1 \times HeatVar_m + b2 \times CoolVar_m + b3 \times BaseVar_m$$

The model variables (*$HeatVar_m$*, *$CoolVar_m$*, and *$BaseVar_m$*) incorporate changes in heating, cooling, and base-use energy requirements (which are derived from the class sales forecast models) as well as peak-day weather conditions.

The composition of the models allows us to estimate historical and forecast heating and cooling load requirement. The estimated model coefficients for the heating (XHeat) and cooling variables (XCool) combined with heating and cooling variable for calendar-month normal weather conditions gives us an estimate of the monthly heating and cooling load requirements.

Heating requirements are calculated as:

$$HeatLoadm = B1 \times ResXHeatm + C1 \times SmlGSXHeatm + D1 \times GSXHeatm$$

Where *B1*, *C1*, *D1* and are the coefficients on *XHeat* in the residential, small general service, and general service sales forecast models.

Cooling requirements are estimated in a similar manner. Cooling requirements are calculated as:

$$CoolLoad_m = B_2 \times ResXCool_m + C_2 \times SmlGSXCool_m + D_2 \times GSCool_m$$

Where B_2, C_2, D_2 are the coefficients on XCool in the residential, Small General service, and General service sales forecast models.

In constructing the monthly peak model variables, the heating and cooling load requirements are normalized for the number of days and hours in the month by expressing heating and cooling load requirements on an average MW load basis:

HeatAvgMWm = HeatLoadm/ Daysm /24

CoolAvgMWm = CoolLoadm/ Daysm /24

The impact of peak-day weather conditions are then captured by interacting peak-day HDD and CDD with average monthly heating and cooling load requirements. *HeatAvgMW* and *CoolAvgMW* are indexed to 2005 and interacted with peak-day HDD and CDD creating the variables $HeatIdx_m$ and $CoolIdx_m$. This interaction allows the impact of peak-day HDD and CDD to change over the estimation period as the underlying heating and cooling load requirements change.

The peak model heating and cooling variables are calculated as:

HeatVarm = HeatIdxm × PkHDDm

$CoolVar_m = CoolIdx_m \times PkCDD_m$

The peak model base load variable ($BaseVar_m$) is constructed to capture the impact of loads that are not weather sensitive on peak, including residential, commercial, other end-use components along with industrial and unmetered sales. Base load requirements are calculated as:

$$OtherLoad_m = B_2 \times ResXOther_m + C_2 \times SmlGSXOther_m + D_2 \times GSOther_m + SMIndSales + MedIndSales + UnMSales$$

Where B_2, C_2, D_2 are the coefficients on XCool in the residential, Small General service, and General service sales forecast models.

The other load requirements are normalized for the number of days and hours in the month by expressing the load requirements on an average MW load basis:

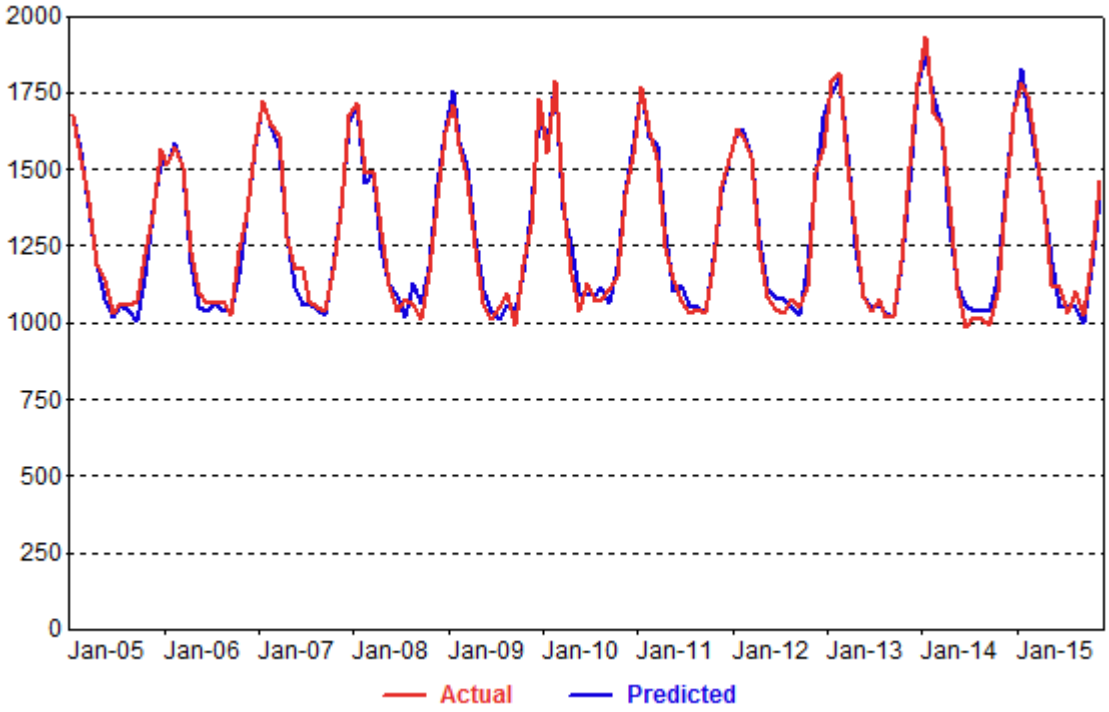
$$OtherAvgMW_m = OtherLoad_m / Days_m / 24$$

Variable	Coefficient	StdErr	T-Stat	P-Value
mVars.Cool_Var	1.736	0.867	2.001	4.77%
mVars.Heat_Var	1.330	0.098	13.558	0.00%
mBin.Feb10	208.862	43.703	4.779	0.00%
mBin.Dec14	262.412	46.304	5.667	0.00%
mVars.Jan_Other	1.504	0.075	19.979	0.00%
mVars.Feb_Other	1.429	0.076	18.740	0.00%
mVars.Mar_Other	1.557	0.058	26.674	0.00%
mVars.Apr_Other	1.607	0.035	45.988	0.00%
mVars.May_Other	1.583	0.024	65.282	0.00%
mVars.Jun_Other	1.656	0.020	83.315	0.00%
mVars.Jul_Other	1.587	0.022	70.568	0.00%
mVars.Aug_Other	1.551	0.022	71.773	0.00%
mVars.Sep_Other	1.556	0.020	79.015	0.00%
mVars.Oct_Other	1.645	0.021	76.581	0.00%
mVars.Nov_Other	1.726	0.033	52.753	0.00%
mVars.Dec_Other	1.696	0.051	33.174	0.00%

Peak Model Statistics

Model Statistics	
Iterations	1
Adjusted Observations	131
Deg. of Freedom for Error	115
R-Squared	0.977
Adjusted R-Squared	0.975
AIC	7.555
BIC	7.906
F-Statistic	#NA
Prob (F-Statistic)	#NA
Log-Likelihood	-664.73
Model Sum of Squares	8,509,207.67
Sum of Squared Errors	195,987.22
Mean Squared Error	1,704.24
Std. Error of Regression	41.28
Mean Abs. Dev. (MAD)	30.79
Mean Abs. % Err. (MAPE)	2.51%
Durbin-Watson Statistic	2.006
Durbin-H Statistic	#NA
Ljung-Box Statistic	26.97
Prob (Ljung-Box)	0.3060
Skewness	0.072
Kurtosis	2.852
Jarque-Bera	0.231
Prob (Jarque-Bera)	0.8909

Peak Model Fit



Appendix C

Forecast Comparison

Figure C1: Total Nova Scotia Energy Requirement (NSR) with DSM

Figure C2: Total Nova Scotia Energy Requirement (NSR) before DSM

Figure C3: System Peak Demand with DSM

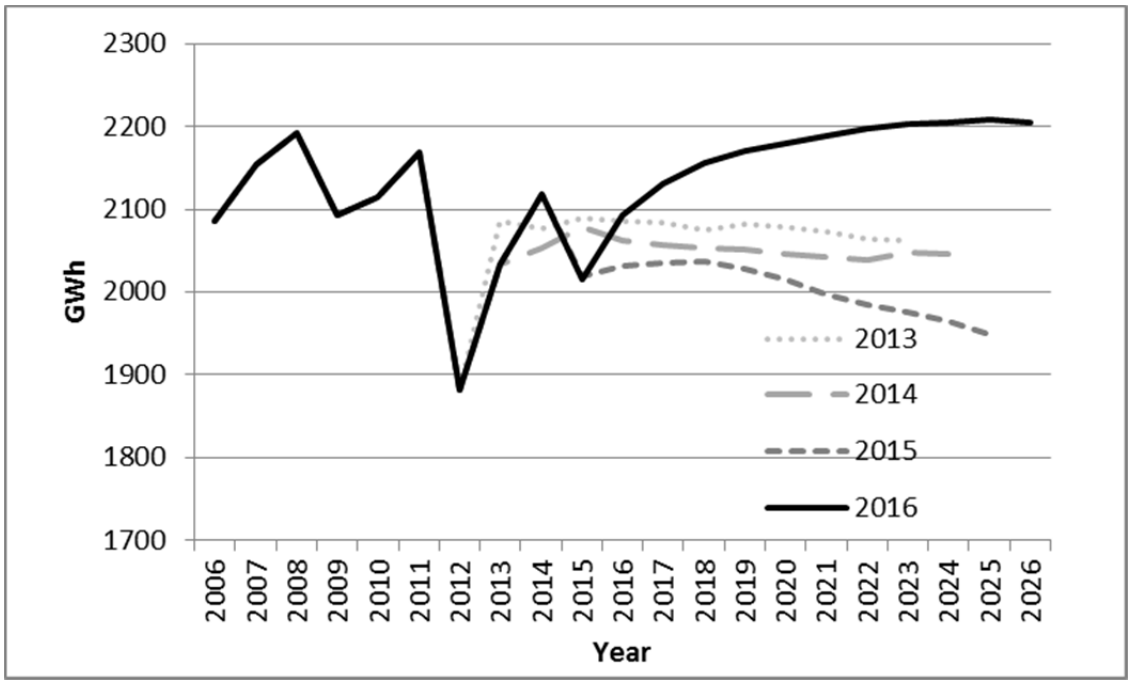


Figure C4: System Peak Demand before DSM

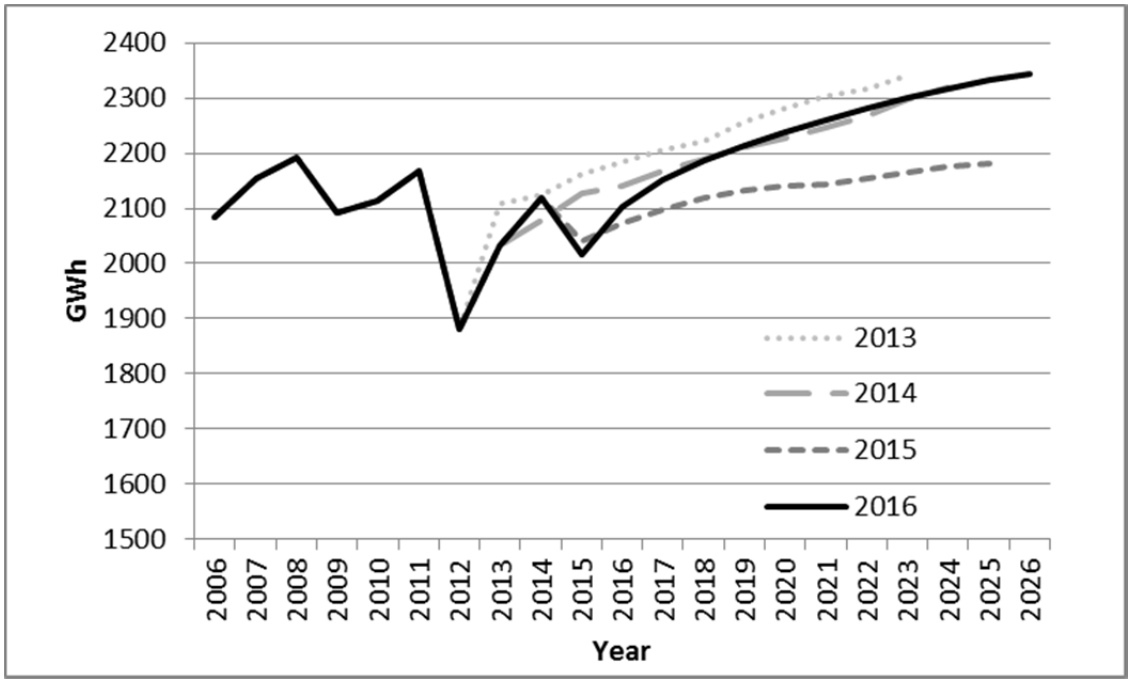


Figure C5: Firm Peak Demand with DSM

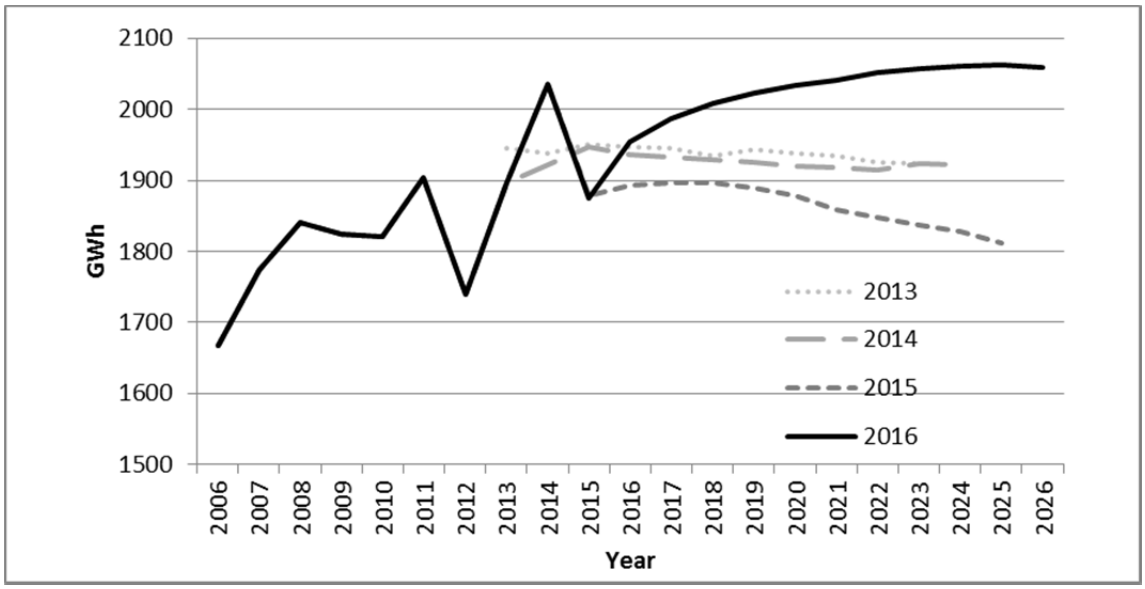
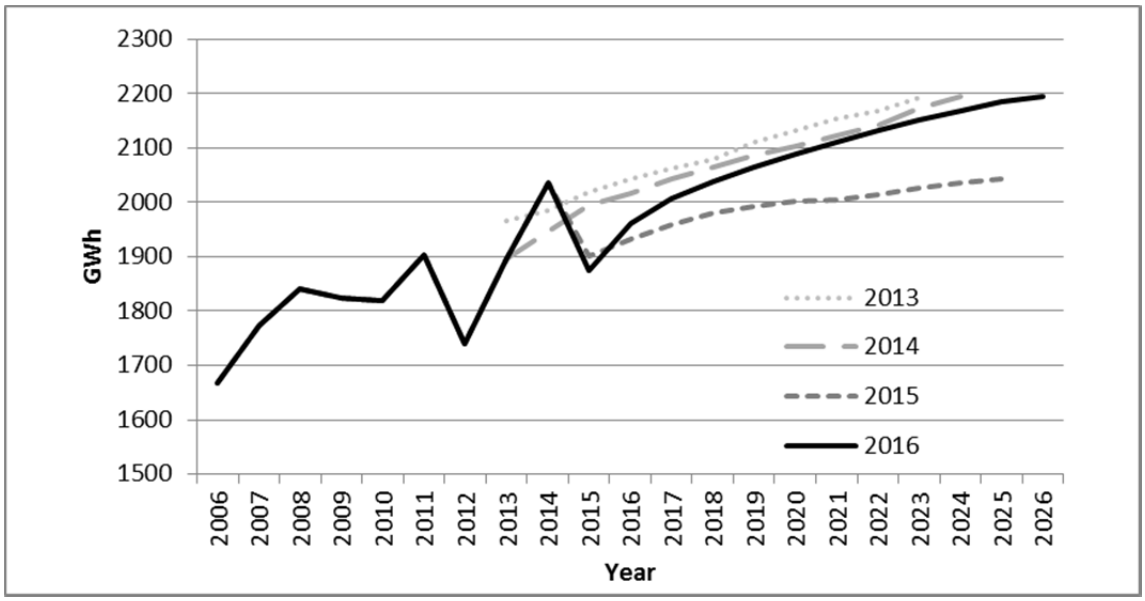


Figure C6: Firm Peak Demand before DSM



Appendix D

Forecast Sensitivity Analysis

Sensitivity Analysis

Below in Figure D1 and D2 is the 2016 load forecast along with high and low load scenarios. The assumptions for these scenarios are summarized below and are consistent with those used in the 2014 IRP.

High Scenario

- Economic growth rates accelerated by 50%
- Increased heat pump load compared to base case

Low Scenario

- Decreased heat pump load compared to base case
- Customer count driven by population, not new construction
- Heating degree days based on 5 year average not 10 year (~ -100 HDD)
- PHP operating for the duration of the Load Retention Tariff

Figure D1: Load Forecast Sensitivity Analysis (Energy)

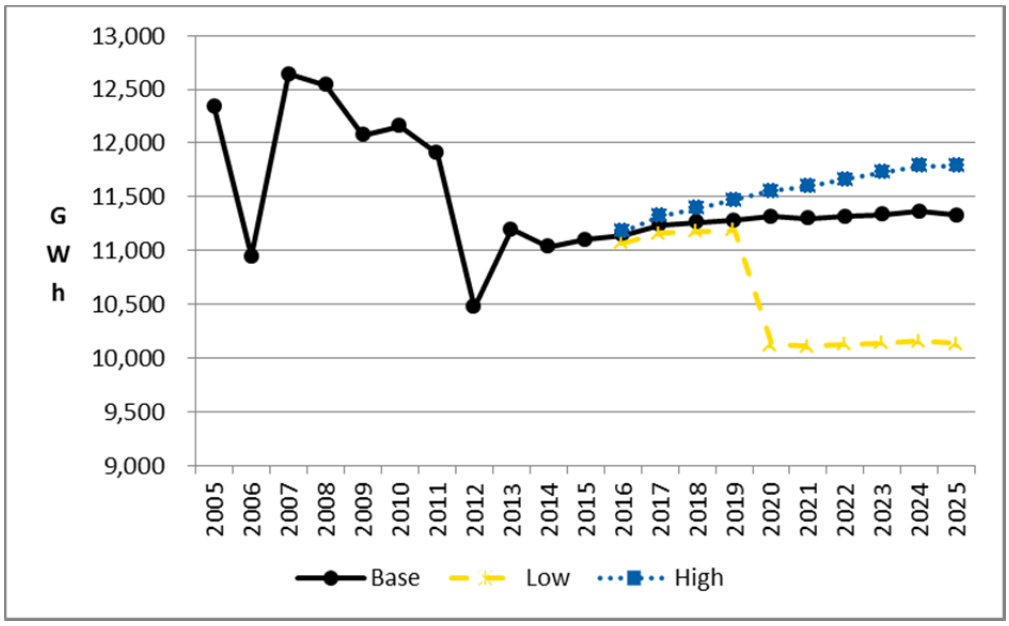
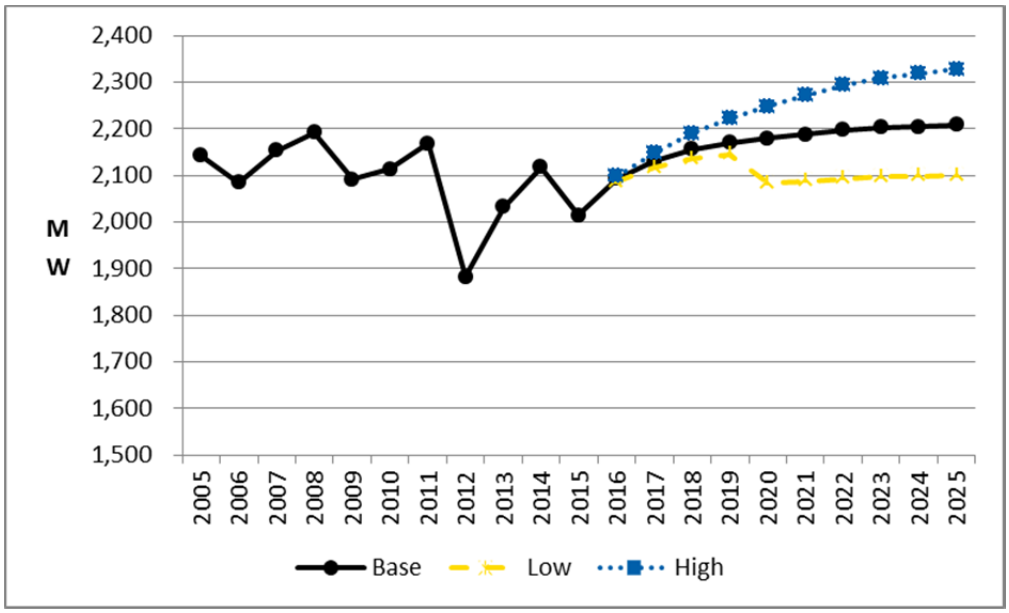


Figure D2: Load Forecast Sensitivity Analysis (Peak)



Request IR-15:

Please provide the data represented in the figures on page 103 and 104.

Response IR-15:

Please refer to Attachment 1 for this data. Data by asset class and data by unit are shown on separate tabs within the attachment.

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Asset Class	IRP ($)	ACE 2017 ($)
Balance of Plant	9,000,000	13,672,746
Generator	1,000,000	4,059,395
Fuel Systems	2,205,000	4,752,249
Boiler	5,731,875	10,853,639
Turbine	6,900,000	7,193,845
Combustion Turbines	5,500,000	10,528,066
Environment	10,400,000	8,509,951
Cooling Water	553,125	3,003,292
Feedwater / Chemical	1,700,000	2,449,692
Instrumentation/Electrical	3,900,000	3,009,605
Total	46,890,000	68,032,480

Request IR-16:

Please explain any changes that have occurred between the time of the IRP and ACE 2017 that now require a significant investment in Tufts Cove Unit #3 investment in intermediate pressure blades.

Response IR-16:

The investment in Tufts Cove #3 Intermediate Pressure (IP) turbine blades was initiated by the identification of an engineering design limitation in the IP blades. The strategy to mitigate the design issue was not finalized until after the filing of the 2014 IRP. This project is required to upgrade IP blades to an improved design to reduce the probability of blade failure and ensure unit reliability. The level of detail included for this project in the 2017 ACE Plan is built on asset management risk ranking and assessments, while the capital forecast included in the 2014 IRP was a high level, directional forecast developed for comparing future utilization of generating assets.

Request IR-17:

Referring to the stacked bar chart on p. 103, please describe the projects in the following categories and explain the changes that have occurred in this category from the IRP to the ACE:

(a) Combustion turbines

(b) Boiler

(c) Balance of Plant

Response IR-17:

(a-c) Please refer to Attachment 1 for the project list of each of the 2017 ACE Plan forecasts for the three asset categories listed above.

Increases in costs from the IRP to the 2017 ACE Plan forecast, overall and in these three categories, are due to inflation and the exchange rate between the Canadian and American dollar. The IRP was completed in 2014 dollars, when the value of the Canadian dollar was much stronger compared to the American dollar.

The future capital forecast included in the 2014 IRP was a high level forecast developed using standardized asset management methodologies considering forecasted unit utilization, asset health and major maintenance intervals, largely based on historical investment profiles. Therefore, this forecast was a levelized forecasting activity with the exception of some large scale investment events (major outages, for example).

Due to the above, when comparing a single capital year from an ACE Plan to a long term planning exercise such as the IRP, it is important to take into consideration the leveling of

investment done for the 25 year capital forecast used within the IRP. Outside of major asset classes (turbines, generators, etc.), the investment in asset classes is levelized throughout the expected life of the associated generating unit. Combustion Turbines, Boilers and Balance of Plant are examples of asset classes that have largely levelized forecasts throughout the 25 year IRP forecast, therefore identifying specific changes is not feasible.

Even with the increase compared to the IRP forecast, the broad assumptions used in the IRP are consistent with the assumptions used in the 2017 ACE Plan development. This increased capital would have occurred across all candidate resource plans within the IRP, leading to no changes in the outcome of the IRP.

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Asset Class	CI#	Project Title	2017 ACE
Combustion Turbines	33142	CT - BGT4 Unit Restoration	3,784,820.48
Combustion Turbines	44776	TUC#5 LM6000 Gen Stator Rewedge	1,041,614.15
Combustion Turbines	49940	LM6000 TUC5 Control System Upgrade	1,018,769.10
Combustion Turbines	49273	CT-BGT2 Engine Refurbishment	908,101.55
Combustion Turbines	49926	LM6000 TUC4 Airhouse Upgrade	815,633.10
Combustion Turbines	49949	LM6000 TUC4 Control System Replace	710,814.97
Combustion Turbines	47118	TUS Hydraulic Starter	317,014.78
Combustion Turbines	49972	CT - LM6000 191-253 HPC Bushing	238,547.15
Combustion Turbines	49971	CT - LM6000 191-332 HPC Bushing	237,952.12
Combustion Turbines	49874	CT-BGT Replace Halon Fire Protectio	226,366.09
Combustion Turbines	49950	LM6000 TUC4 SPRINT Nozzle Refurb	166,060.86
Combustion Turbines	49951	LM6000 TUC5 SPRINT Nozzle Refurbish	166,060.86
Combustion Turbines	10634	CT - Routine Equipment Replacements	144,000.00
Combustion Turbines	49973	CT - TUS Control Room Halon Replace	84,303.60
Combustion Turbines	46191	Tusket Fuel System Upgrade	69,933.59
Combustion Turbines	49936	CT - VJ 2 Enclosure Coating Refurb	57,549.82
Combustion Turbines	49935	CT - VJ 1 Enclosure Coating Refurb	55,932.74
Combustion Turbines	49937	CT - BGT 1 Exterior Coating Refurb	52,116.91
Combustion Turbines	49938	CT - BGT 2 Exterior Coating Refurb	52,116.91
Combustion Turbines	49939	CT - BGT 3 Exterior Coating Refurb	52,116.91
Combustion Turbines	49976	CT - BGT 4 Exterior Coating Refurb	52,116.91
Combustion Turbines	49974	CT - LM6000 TUC 4 Metal Scan Upgrad	44,303.60
Combustion Turbines	49975	CT - TUC 5 LM6000 Metal Scan Upgrad	44,303.60
Combustion Turbines	49960	CT - VJ Exhaust Stack Grating Repla	41,499.64
Combustion Turbines	49932	CT - TUC 4 LM6000 Roof Skid Access	33,161.45
Combustion Turbines	49933	CT - TUC 5 LM6000 Roof Skid Access	33,161.45
Combustion Turbines	49959	CT - VJ Varec Gauges Upgrade/Refurb	29,904.37
Combustion Turbines	49961	CT - TUS Exhaust Stack Grating Repl	25,204.90
Combustion Turbines	49594	LM6000 TUC5 Airhouse upgrade	24,584.10
Combustion Turbine Total			10,528,065.71
Boiler	49532	TRE6 Air Heater Refurbishment	1,428,236.40
Boiler	49533	TRE6 Boiler Refurbishment	1,259,453.73
Boiler	49419	POT - Selective Boiler Refurbishmen	969,292.03
Boiler	49473	POA Boiler Refurbishment	857,179.28
Boiler	47687	POT - Unit 2 Boiler Reconditioning	794,559.55
Boiler	49469	POA Boiler Refractory Replacement	727,515.17
Boiler	49536	TRE5 Boiler Refurbishments	717,588.66
Boiler	49475	POA Air Heater Tube Replacement	584,171.26
Boiler	49476	POA SH3 Tube Replacement Phase 3	513,966.80
Boiler	49433	LIN1 SH5 Tube Replacement	493,395.90
Boiler	49499	PHB - Boiler Refurbishment 2017	484,730.30
Boiler	49111	POT - Air heater refurbishment	462,168.42
Boiler	47761	LIN1 Boiler Refurbishment	398,673.49
Boiler	49674	TUC2 Boiler Waterwall Tube Replac	390,897.74
Boiler	49470	POA Boiler Arrowhead Replacement	207,514.62
Boiler	49542	TRE5 Main Boiler Stop Valves Rebuil	205,882.76
Boiler	49493	POA Reheat Bypass Actuator Upgrade	198,748.69

Asset Class	CI#	Project Title	2017 ACE
Boiler	49686	TUC3 Boiler Modulation Control Upgr	80,024.13
Boiler	49681	TUC2 Boiler Modulation Control Upgr	79,640.51
Boiler Total			10,853,639.44
Balance of Plant	49477	POA ID Fan Motor Replacment	902,960.50
Balance of Plant	47597	TRE6 Bottom Ash Chain Replacement	793,792.42
Balance of Plant	49438	LIN A Gallery Floor Refurbishment	593,813.89
Balance of Plant	49675	TUC2 CW Piping	568,672.92
Balance of Plant	47953	LIN Railcar Positioner Upgrade	566,618.99
Balance of Plant	49897	POT - Fire system upgrades 2017	538,436.50
Balance of Plant	10626	LIN - Routine Equipment Replacement	383,162.00
Balance of Plant	10673	TRE - Routine Equipment Replacement	377,928.56
Balance of Plant	49427	LIN Coal Plant Structural Refurb.	365,002.75
Balance of Plant	10621	TUC - Routine Equipment Replacement	327,422.50
Balance of Plant	49437	LIN Vacuum Pump Cooler Refurb.	282,034.29
Balance of Plant	10645	POT - Routine Equipment Replacement	266,812.52
Balance of Plant	49478	POA Pedestrian Bridge Replacement	253,729.33
Balance of Plant	49151	LIN UU Grating Refurbishment	246,870.61
Balance of Plant	49439	LIN Plant Siding Replacement	233,858.90
Balance of Plant	49553	TRE Asbestos Abatement 2017	226,450.67
Balance of Plant	10718	POA - Routine Equipment Replacement	225,567.99
Balance of Plant	49716	TUC Asbestos Abatement	222,812.07
Balance of Plant	48776	LIN Plant Lighting Upgrade	222,312.11
Balance of Plant	49519	POT - Asbestos management 2017	213,810.95
Balance of Plant	49420	POT - Plant siding 2017	211,116.33
Balance of Plant	49444	LIN1 Misc Valve Refurbishment	210,463.38
Balance of Plant	49468	POA Boilerhouse Window Upgrade Ph.1	199,396.81
Balance of Plant	50142	POA Frontwall Pipe Replacement	189,060.79
Balance of Plant	49547	TRE5 5-1 BFP Refurbishment	185,294.49
Balance of Plant	43646	PHB - Routine Equipment Replacement	170,000.00
Balance of Plant	27855	POT-ROOFING ROUTINE	163,963.46
Balance of Plant	41229	LIN - Cable Spreading Rooms Fire Pr	161,945.70
Balance of Plant	43239	LIN4 BFP Prop Recric	160,757.23
Balance of Plant	49667	TUC1 Oil Purifier I&C Heater Replac	160,593.41
Balance of Plant	47602	TRE Oil Forwarding Pump Area Fire P	157,694.86
Balance of Plant	49677	TUC2 Replace Bailey Control Valves	156,172.63
Balance of Plant	49471	POA Expansion Joint Replacement	147,883.34
Balance of Plant	49486	POA Cable Spreading Rm Fire Stop	145,788.26
Balance of Plant	49680	TUC- Heavy/Light Oil Pump Area Fire	143,448.09
Balance of Plant	45832	TUC6 Boiler Purge Credit	138,577.04
Balance of Plant	49704	TUC3 Replace Coils	137,235.65
Balance of Plant	49697	TUC2 Replace Oil Purifier I&C Heate	135,620.82
Balance of Plant	50143	POA BA Center Drain Valves Repl.	134,194.06
Balance of Plant	49472	POA Valve Component Replacement	126,391.30
Balance of Plant	49708	TUC2 HEP/FAC Surveys	125,408.66
Balance of Plant	49709	TUC2 Replace Coils	116,611.65
Balance of Plant	49456	LIN1 Electric Motor Refurbishment	113,171.36
Balance of Plant	49457	LIN3 Electric Motor Refurbishment	111,829.30

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Asset Class	CI#	Project Title	2017 ACE
Balance of Plant	49458	LIN4 Electric Motor Refurbishment	111,829.30
Balance of Plant	27858	POA-ROOFING ROUTINE	110,759.00
Balance of Plant	49481	POA Plant Access Replacement	105,315.40
Balance of Plant	49442	LIN Facilities Upgrade	104,630.37
Balance of Plant	49453	LIN Stores Fire Protection Upgrade	104,232.39
Balance of Plant	27856	TRE-ROOFING ROUTINE	100,000.00
Balance of Plant	45206	PHB - Roofing Routine	98,675.19
Balance of Plant	49279	POT - Bay door replacements 2017	98,378.21
Balance of Plant	49511	POT - Replace ID fan damper drives	92,186.49
Balance of Plant	33867	POT-Heat Rate Routine	84,967.23
Balance of Plant	49484	POA Diesel Generator Controls Upg.	82,646.07
Balance of Plant	49695	TUC Paint Roofs of HFO Storage Tank	81,390.15
Balance of Plant	33869	TRE-Heat Rate Routine	80,000.00
Balance of Plant	33863	LIN-Heat Rate Routine	76,438.60
Balance of Plant	49491	POA ISO Phase Buss Temp. Monitoring	72,009.36
Balance of Plant	49495	POA 4160v Motor Refurbishment	67,124.84
Balance of Plant	43243	POA - Wellfield Communication	65,672.93
Balance of Plant	49502	PHB - Fire Suppression Expansion	65,599.15
Balance of Plant	49699	TUC6 Access Doors	64,303.60
Balance of Plant	27854	TUC-ROOFING ROUTINE	63,227.70
Balance of Plant	49671	TUC1 Rotating Element Extraction Pu	60,000.00
Balance of Plant	49700	TUC6 Vacuum Cooler	54,609.57
Balance of Plant	49653	TUC Dehumidifier Air Unit	51,073.10
Balance of Plant	49673	TUC1 Extraction Pump Rotork Valve	48,479.25
Balance of Plant	43114	POA - Screw Cooler Trough Replace	48,365.50
Balance of Plant	33871	TUC-Heat Rate Routine	47,689.75
Balance of Plant	33865	POA-Heat Rate Routine	44,724.98
Balance of Plant	47907	TUC6 Vacuum Pumps' Seal Water Coole	40,501.04
Balance of Plant	27857	LIN-ROOFING ROUTINE	33,227.70
Balance of Plant Total			13,672,745.96

Request IR-18:

Regarding the comparison of the IRP and ACE generation investments on p. 104:

(a) Please provide the values graphed in this figure and reconcile those values with the costs in the tables on pp. 106–114.

(b) Please explain why the Common costs Lingan, Trenton and Tufts Cove were zero in the IRP and substantial in the ACE plan.

(c) Please explain whether the Common costs for Lingan and Trenton are dominated by the ash ponds for those plants, and if not, please explain the nature of those common costs.

(d) Please explain whether the ACE common costs for Tufts Cove consist primarily of the auxiliary boiler and identify the other costs in this category.

(e) Please identify the portions of the increase in the capital costs from the IRP to ACE for Pt. Aconi and Pt. Tupper that are related to the ash ponds for those plants.

Response IR-18:

(a) Please refer to Attachment 1 for the data used in compiling the Figure on page 104 and Attachment 2 for the full listing of ACE Projects, along with their project ranking from pages 106-114 of the ACE Plan where applicable, used to get the ACE 2017 totals. Carryover, Routine and Pt. Aconi projects are not included in the ranking tables on pages 106-114 of the ACE Plan, These are noted as such in Attachment 2. The ACE 2017 total on page 104 is higher than the total of the Steam and Gas Turbine ranking tables listed on pages 106 – 114. Attachment 2 does include the project rankings for the ACE Items included in the tables on page 106 – 114.

(b) These costs were included in the IRP as they were included in the levelized sustaining capital forecasts of the associated units. As part of that levelized forecast, all costs must be allocated to each generating unit to be applied within the resource optimization model. However, as part of the 2017 ACE Plan, these costs are labelled as "Common", as they apply to multiple units within the plant. The investments in the categories labeled as "Common" are investments that cannot be attributed to a specific generating unit. These are largely made up of ash site investment, but also include capital work at the generating stations that is applicable to all units.

(c) The common costs for Trenton are largely dominated by ash site investments in the 2017 ACE Plan; however, common costs at Lingan are not. The majority of the common costs for Lingan are associated with the fuel delivery system (A Gallery Refurb, Coal Pile Run off, Rail Car Positioner, etc.), cooling water projects, and facility upgrades. The projects that fall under Lingan and Trenton common can be found in Attachment 2.

(d) The common costs for Tufts Cove do not primarily consist of the Auxiliary Boiler investment as that project will be complete prior to 2017. The common costs at Tufts Cove are largely for improving unit flexibility, electrical work, fuel delivery, and asbestos abatement. The projects that fall under Tufts Cove common can be found in Attachment 2.

(e) The increase from the IRP to ACE is not impacted by ash site work at Point Aconi or Point Tupper. Point Aconi has ash site investment occurring in 2017; however, this is in line with the IRP forecast for Point Aconi. Point Tupper does not have any significant ash site investment occurring in 2017.

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Asset Location	IRP	ACE 2017
Gas Turbines	5,500,000	10,528,066
Lingan Common	-	7,449,591
Lingan Unit 1	1,980,000	1,797,089
Lingan Unit 2	660,000	-
Lingan Unit 3	2,640,000	527,030
Lingan Unit 4	2,640,000	272,587
Pt Aconi	6,915,000	11,322,385
Pt. Tupper	4,465,000	7,993,836
Port Hawkesbury Biomass	1,440,000	1,157,611
Trenton Unit 5	3,851,875	2,156,908
Trenton Unit 6	9,477,500	9,676,230
Trenton Common	-	4,014,223
Tufts Cove Unit 1	2,343,125	857,534
Tufts Cove Unit 2	2,330,625	2,512,007
Tufts Cove Unit 3	824,375	5,488,288
Tufts Cove Unit 6	1,822,500	348,575
Tufts Cove Common	**-**	**1,930,523**
2017 Total	**46,890,000**	**68,032,481**

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

				Ranking		
CI#	Project Title	Asset Location	2017 ACE	Criticality	Condition	Ranking
48893	TUC3 IP Turbine Refurbishment	Tufts Cove Unit 3	4,338,273.70	5	4	20
33142	CT- Burnside #4 Unit Restoration	Gas Turbines	3,784,820.48	Carryover		
47846	POA Ash Cell 4 Stage 3	Pt Aconi	3,283,105.24	Pt. Aconi		
44267	TRE Ash Lagoon Site Closure	Trenton Common	2,759,565.52	Carryover		
46499	Stator Rewind Kit Capital Spare	Pt. Tupper	2,668,808.08	4		
47531	TRE6 Turbine Refurbishments	Trenton Unit 6	1,500,000.00	5		
49532	TRE6 Air Heater Refurbishment	Trenton Unit 6	1,428,236.40	4		
49533	TRE6 Boiler Refurbishment	Trenton Unit 6	1,259,453.73	4		
44776	CT - TUC#5 LM6000 Generator Stator Re-wedge	Gas Turbines	1,041,614.15	4		
49940	LM6000 TUC5 Control System Upgrade	Gas Turbines	1,018,769.10	4		
49419	POT Boiler Refurbishment 2017	Pt. Tupper	969,292.03	3		
49273	CT-BGT2 Engine Refurbishment	Gas Turbines	908,101.55	4		
49477	POA ID Fan Motor Replacement	Pt Aconi	902,960.50	Pt. Aconi		
49473	POA Boiler Refurbishment	Pt Aconi	857,179.28	Pt. Aconi		
49535	TRE6 Mills Refurbishment 2017	Trenton Unit 6	822,140.59	4		
49926	LM6000 TUC4 Airhouse Upgrade	Gas Turbines	815,633.10	4		
47687	POT Boiler Chemical Recondition	Pt. Tupper	794,559.55	4		
47597	TRE6 Bottom Ash Chain Replacement	Trenton Unit 6	793,792.42	4		
49469	POA Boiler Refractory Replacement	Pt Aconi	727,515.17	Pt. Aconi		
49536	TRE5 Boiler Refurbishments 2017	Trenton Unit 5	717,588.66	3		
49949	LM6000 TUC4 Control System Replacement	Gas Turbines	710,814.97	4		
41511	TRE6 - Condenser Waterbox and Cooling Water Piping Refurbishment	Trenton Unit 6	700,808.86	3		
49431	LIN Mill Refurbishment 2017	Lingan Common	665,838.97	4		
49438	LIN A Gallery Floor Replacement	Lingan Common	593,813.89	4		
49475	POA Air Heater Tube Replacement Phase 2	Pt Aconi	584,171.26	Pt. Aconi		
49675	TUC2 Cooling Water Piping Refurbishment	Tufts Cove Unit 2	568,672.92	4		
47953	LIN Railcar Positioner Upgrade	Lingan Common	566,618.99	4		
49897	POT - Fire System Upgrades 2017	Pt. Tupper	538,436.50	5		
49430	LIN CW Pump Refurbishment 2017	Lingan Common	516,269.81	4		
49476	POA SH3 Tube Replacement Phase 3	Pt Aconi	513,966.80	Pt. Aconi		
49433	LIN1 SH5 Boiler Tube Replacement	Lingan Unit 1	493,395.90	3		
49499	PHB - Boiler Refurbishment 2017	Port Hawkesbury Biomass	484,730.30	3		
49057	TRE6 Excitation System Replacement	Trenton Unit 6	474,066.08	4		
49111	POT - Air heater refurbishment	Pt. Tupper	462,168.42	4		
49707	TUC2 High Voltage Bushing	Tufts Cove Unit 2	440,082.16	4		
49537	TRE6 Analytical Panel Upgrade	Trenton Unit 6	438,215.96	4		
47893	TUC3 PE Generator Hydrogen Panel Replacement	Tufts Cove Unit 3	421,182.44	4		
49538	TRE6 Generator Refurbishment	Trenton Unit 6	411,765.55	4		
47761	LIN1 Boiler Refurbishment	Lingan Unit 1	398,673.49	3		
47553	TRE6 Turbine Main Valves	Trenton Unit 6	392,887.47	4		
49674	TUC2 Boiler Selective Waterwall Tube Replacements	Tufts Cove Unit 2	390,897.74	3		
10626	LIN - Routine Equipment Replacements	Lingan Common	383,162.00	Routine		
10673	TRE - Routine Equipment Replacements	Trenton Common	377,928.56	Routine		
47859	POA CEM Replacement	Pt Aconi	375,061.72	Pt. Aconi		
49427	LIN Coal Plant Structural Refurbishment Phase 3	Lingan Common	365,002.75	4		
49434	LIN CW Screen Refurbishment 2017	Lingan Common	347,062.20	3		
49463	POT Coal Mill Overhauls 2017	Pt. Tupper	328,410.47	3		
10621	TUC - Routine Equipment Replacements	Tufts Cove Common	327,422.50	Routine		
47118	CT Tusket Hydraulic Starter	Gas Turbines	317,014.78	4		
49429	LIN Coal Pile Run Off Pond Expansion	Lingan Common	311,793.24	5		
49060	POT - Condenser Dog Bone Expansion Joint Replacement	Pt. Tupper	298,253.18	4		
49437	LIN Vacuum Pump Cooler Refurbishment	Lingan Common	282,034.29	4		
49482	POA Coal System Refurbishment	Pt Aconi	279,400.30	Pt. Aconi		
10645	POT - Routine Equipment Replacements	Pt. Tupper	266,812.52	Routine		
49494	POA CW 4160V Cable Replacement	Pt Aconi	263,426.22	Pt. Aconi		
48868	AMO Fleet TWIP Upgrades	Trenton Unit 5	257,442.48	4		
49478	POA Pedestrian Bridge Replacement	Pt Aconi	253,729.33	Pt. Aconi		
49440	LIN 1&2 GSCW Piping Reconditioning	Lingan Common	247,115.90	3		
49151	LIN Grating Refurbishment	Lingan Common	246,870.61	3		
49873	LIN Seaweed Picker Upgrade	Lingan Common	242,226.90	4		
49490	POA SA Compressor Controls Upgrade	Pt Aconi	241,186.76	Pt. Aconi		
49483	POA Ash System Refurbishment	Pt Aconi	240,180.02	Pt. Aconi		
49972	CT - LM6000 191-253 HPC Stages 3-5 Bushing Replacement	Gas Turbines	238,547.15	4		
49971	CT - LM6000 191-332 HPC Stages 3-5 Bushings Replacement	Gas Turbines	237,952.12	4		
47960	LIN1 Control Valve Rebuild	Lingan Unit 1	237,622.67	4		
49452	LIN3 Heater Level Controls Upgrade	Lingan Unit 3	235,135.27	4		
49439	LIN Plant Siding Replacement	Lingan Common	233,858.90	3		
49436	LIN Reclaim Refurbishment	Lingan Common	233,493.96	3		
49672	TUC3 Feedwater Valve Replacement	Tufts Cove Unit 3	232,799.07	4		
49684	TUC 4kv/600V Breaker Replacement	Tufts Cove Common	232,693.78	4		
49553	TRE Asbestos Abatement 2017	Trenton Common	226,450.67	3		
49874	CT-BGT Replace Halon Fire Protection	Gas Turbines	226,366.09	4		
49666	TUC1 South Boiler Feedpump Refurbishment	Tufts Cove Unit 1	226,024.82	3		
10718	POA - Routine Equipment Replacements	Pt Aconi	225,567.99	Pt. Aconi		
49716	TUC Asbestos Abatement	Tufts Cove Common	222,812.07	4		
48776	LIN PA Plant Lighting Upgrade	Lingan Common	222,312.11	4		
49693	TUC HFO Piping Refurbishments	Tufts Cove Common	219,022.48	4		
49432	LIN PF Line Refurbishment	Lingan Common	215,899.02	4		
49519	POT - Asbestos management 2017	Pt. Tupper	213,810.95	3		
49420	POT - Plant siding 2017	Pt. Tupper	211,116.33	3		
49444	LIN1 Misc. Valve Refurbishment	Lingan Unit 1	210,463.38	4		
49435	LIN Heavy Oil Line Refurbishment Phase 2	Lingan Common	210,252.21	4		
49540	TRE6 6C Hydrogen/Water/Water Cooler Replacement	Trenton Unit 6	208,260.42	3		
41226	LIN - Boiler Feed Pump Proportional Valve Replacements - Unit #1	Lingan Unit 1	207,980.34	4		
49470	POA Boiler Arrowhead Replacement	Pt Aconi	207,514.62	Pt. Aconi		
49541	TRE6 6B Hydrogen/Water/Water Cooler Replacement	Trenton Unit 6	207,071.60	3		
49539	TRE6 Burner Automation System Replacement	Trenton Unit 6	207,071.60	4		
49542	TRE5 Main Boiler Stop Valves Rebuild	Trenton Unit 5	205,882.76	4		
49487	POA Turbine Valve Refurbishment	Pt Aconi	202,061.68	Pt. Aconi		
49545	TRE5 DCS Server Upgrade	Trenton Unit 5	200,030.60	4		
49468	POA Boilerhouse Window Upgrade Phase 1	Pt Aconi	199,396.81	Pt. Aconi		
49493	POA Reheat Bypass Actuator Upgrade	Pt Aconi	198,748.69	Pt. Aconi		
49428	LIN Ash Site Capping	Lingan Common	195,122.31	4		
50142	POA Frontwall Pipe Replacement	Pt Aconi	189,060.79	Pt. Aconi		

CI#	Project Title	Asset Location	2017 ACE	Criticality	Condition	Ranking
49546	TRE6 FW Heater Level Control	Trenton Unit 6	187,434.39		4	
47116	LIN PE Flash Surge System Bypass	Lingan Common	187,125.69		4	
49547	TRE5 5-1 BFP Refurbishment	Trenton Unit 5	185,294.49		4	
49549	TRE5 5-3 Mill Refurbishment	Trenton Unit 5	180,147.42		3	
49500	PHB - Fuel System Refurbishment 2017	Port Hawkesbury Biomass	178,127.41		3	
47642	TRE6 Feeder Controls Upgrade	Trenton Unit 6	171,039.90		4	
50020	LIN CEM Replacement Phase 1	Lingan Common	170,281.37		5	
43646	PHB - Routine Equipment Replacements	Port Hawkesbury Biomass	170,000.00		Routine	
49550	TRE5 FW Heater Level Controls	Trenton Unit 5	169,776.34		4	
49950	LM6000 TUC4 SPRINT Nozzle Refurbishment	Gas Turbines	166,060.86		4	
49951	LM6000 TUC5 SPRINT Nozzle Refurbishment	Gas Turbines	166,060.86		4	
27855	POT-ROOFING ROUTINE	Pt. Tupper	163,963.46		Routine	
49551	TRE5 CEMS Replacement	Trenton Unit 5	162,647.39		3	
41229	LIN - Cable Spreading Rooms Fire Protection	Lingan Common	161,945.70		5	
43239	LIN4 BFP Proportional Recirculation Line Control	Lingan Unit 4	160,757.23		4	
49667	TUC1 Oil Purifier I&C Heater Replacement	Tufts Cove Unit 1	160,593.41		4	
49501	PHB - Selective Turbine Valve Refurbishment	Port Hawkesbury Biomass	160,478.76		3	
49496	POA Lime Stone Fan Replacement	Pt Aconi	160,124.25		Pt. Aconi	
49991	TUC1 CEMS Replacement	Tufts Cove Unit 1	159,166.66		4	
49554	TRE Ash Site Management 2017	Trenton Common	157,988.88		3	
47602	TRE Oil Forwarding Pump Area Fire Protection	Trenton Common	157,694.86		4	
49677	TUC2 Replace Bailey Control Valves	Tufts Cove Unit 2	156,172.63		4	
47963	LIN Waster Water Stand Pipe Refurbishment	Lingan Common	152,790.99		4	
49676	TUC2 CEMS Replacement	Tufts Cove Unit 2	150,373.90		4	
49471	POA Expansion Joint Replacement	Pt Aconi	147,883.34		Pt. Aconi	
49486	POA Cable Spreading Room Fire Stop	Pt Aconi	145,788.26		Pt. Aconi	
10634	CT - Routine Equipment Replacements	Gas Turbines	144,000.00		Routine	
49680	TUC Heavy/Light Oil Pump Area Fire Protection	Tufts Cove Common	143,448.09		5	
49467	POT - SSC refurbishment	Pt. Tupper	142,988.18		3	
45832	TUC6 Boiler Purge Credit	Tufts Cove Unit 6	138,577.04		4	
49704	TUC3 Replace Coils	Tufts Cove Unit 3	137,235.65		4	
49455	LIN1 Bus Duct IR Window and Temperature Sensor Installation	Lingan Unit 1	135,781.78		3	
49697	TUC2 Replace Oil Purifier I&C Heater	Tufts Cove Unit 2	135,620.82		4	
50143	POA BA Center Drain Valve Replacement	Pt Aconi	134,194.06		Pt. Aconi	
49654	TUC Refurbishment Gas Compressor 6A/6B	Tufts Cove Common	133,870.04		4	
49711	TUC Low Load Oil Operation, Flue Gas monitoring	Tufts Cove Common	130,429.42		4	
49678	TUC2 Replace Secondary Air Damper Drives	Tufts Cove Unit 2	130,403.78		4	
49543	TRE6 Conveyor Refurbishments	Trenton Unit 6	130,162.79		4	
49556	TRE Excavator GPS System	Trenton Common	129,415.50		4	
49472	POA Valve Component Replacement	Pt Aconi	126,391.30		Pt. Aconi	
49708	TUC2 HEP/FAC Surveys	Tufts Cove Unit 2	125,408.66		3	
49512	POT - PLC Migration - Coal system	Pt. Tupper	125,038.32		3	
49449	LIN GSCW Line Replacement	Lingan Common	121,615.34		3	
49443	LIN Coal System Guard Upgrade Phase 3	Lingan Common	120,130.75		3	
49709	TUC2 Replace Coils	Tufts Cove Unit 2	116,611.65		4	
49456	LIN1 Electric Motor Refurbishment	Lingan Unit 1	113,171.36		4	
49457	LIN3 Electric Motor Refurbishment	Lingan Unit 3	111,829.30		4	
49458	LIN4 Electric Motor Refurbishment	Lingan Unit 4	111,829.30		4	
50131	POA Coal Cracker Refurbishment	Pt Aconi	111,285.98		Pt. Aconi	
27858	POA-ROOFING ROUTINE	Pt Aconi	110,759.00		Pt. Aconi	
49921	TRE6 6-4, 6-5, 6-6 Feedwater Heater Refurbishments	Trenton Unit 6	110,358.32		4	
49459	LIN34 HMI TSC Upgrades	Lingan Unit 3	106,912.28		4	
49689	TUC3 HP Heater Level Controls	Tufts Cove Unit 3	106,054.79		4	
49682	TUC2 HP Heater Level Controls	Tufts Cove Unit 2	105,983.84		4	
49481	POA Plant Access Replacement	Pt Aconi	105,315.40		Pt. Aconi	
49670	TUC1 4kv/600V Breaker Replacement	Tufts Cove Unit 1	104,851.26		4	
49442	LIN Facilities Upgrade	Lingan Common	104,630.37		4	
49453	LIN Stores Fire Protection Upgrade	Lingan Common	104,232.39		4	
49464	POT - E Coal Conveyor Refurbishment	Pt. Tupper	103,388.27		3	
27856	TRE-ROOFING ROUTINE	Trenton Common	100,000.00		Routine	
49715	TUC Upgrade PLC Control Panel	Tufts Cove Common	99,875.27		4	
45206	PHB - Roofing Routine	Port Hawkesbury Biomass	98,675.19		Routine	
46485	TUC1 - Gas Block Valves	Tufts Cove Unit 1	98,418.13		4	
49279	POT - Bay door replacements 2017	Pt. Tupper	98,378.21		3	
49510	POT - Refurbish travelling screens and replace panels	Pt. Tupper	98,297.08		3	
49445	LIN Feeder Controls Upgrades	Lingan Common	93,732.54		3	
46434	TRE6 Coal Pile Reclaim Markers	Trenton Unit 6	92,888.40		Carryover	
49511	POT - Replace ID fan damper drives	Pt. Tupper	92,186.49		3	
49474	POA Coal System Guard Upgrade Phase 3	Pt Aconi	91,942.63		Pt. Aconi	
33867	POT - Heat Rate Routine	Pt. Tupper	84,967.23		Routine	
49973	CT - TUS Control Room Halon Replacement	Gas Turbines	84,303.60		4	
49484	POA Diesel Generator Controls Upgrade	Pt Aconi	82,646.07		Pt. Aconi	
49695	TUC Paint Roofs of HFO Storage Tank 2&4	Tufts Cove Common	81,390.15		3	
49686	TUC3 Boiler Modulation Control Upgrade	Tufts Cove Unit 3	80,024.13		4	
33869	TRE - Heat Rate Routine	Trenton Common	80,000.00		Routine	
49514	POT - LP heaters level controls	Pt. Tupper	79,991.87		4	
49681	TUC2 Boiler Modulation Control Upgrades	Tufts Cove Unit 2	79,640.51		4	
49544	TRE5 Conveyor Refurbishments	Trenton Unit 5	78,097.70		3	
49557	TRE6 Coal Feeder Gauge Replacements	Trenton Unit 6	78,097.66		4	
44587	POT - Selective Ash Site Capping	Pt. Tupper	76,971.07		4	
33863	LIN - Heat Rate Routine	Lingan Common	76,438.60		Routine	
49663	TUC Nitrogen Generator	Tufts Cove Common	74,657.89		3	
49454	LIN3 Generator Bus Duct Temperature Sensors	Lingan Unit 3	73,153.12		4	
49491	POA ISO Phase Buss Temperature Monitor	Pt Aconi	72,009.36		Pt. Aconi	
46191	Tusket Fuel System Upgrade	Gas Turbines	69,933.59		Carryover	
43033	POT - Breaker replacements and refurbishments	Pt. Tupper	67,757.15		3	
49495	POA 4160v Motor Refurbishment	Pt Aconi	67,124.84		Pt. Aconi	
43243	POA - Wellfield Communication	Pt Aconi	65,672.93		Pt. Aconi	
49502	PHB - Fire Suppression Expansion	Port Hawkesbury Biomass	65,599.15		3	
49687	TUC3 Bus Duct/Gen Terminal Monitoring System	Tufts Cove Unit 3	64,673.62		4	
49699	TUC6 Access Doors	Tufts Cove Unit 6	64,303.60		4	
49492	POA 4KV 600V Breaker Refurbishment	Pt Aconi	63,923.69		Pt. Aconi	
27854	TUC-ROOFING ROUTINE	Tufts Cove Common	63,227.70		Routine	
49558	TRE6 Bus Bar Repairs/IR Windows	Trenton Unit 6	62,478.14		4	
49671	TUC1 Rotating Element Extraction Pump Refurbishment	Tufts Cove Unit 1	60,000.00		3	
49515	POT - Replacement of Graver valves and solenoids	Pt. Tupper	59,495.73		3	
49683	TUC2 Bus Bar Inspection/Repair IR Windows	Tufts Cove Unit 2	57,644.19		3	

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

CI#	Project Title	Asset Location	2017 ACE	Criticality	Condition	Ranking
49936	CT - VJ 2 Enclosure Coating Refurbishment	Gas Turbines	57,549.82		3	
49935	CT - VJ1 Enclosure Coating Refurbishment	Gas Turbines	55,932.74		3	
49688	TUC3 Analytical Panel Upgrades	Tufts Cove Unit 3	55,050.17		4	
49700	TUC6 Vacuum Cooler	Tufts Cove Unit 6	54,609.57		4	
47903	TUC2 Lube Oil Coolers' Inlet/Outlet Waterbox Replacement	Tufts Cove Unit 2	54,494.09		3	
47909	TUC Nat Gas Valves Refurbishment	Tufts Cove Common	54,153.16		4	
49705	TUC3 Bus Bar IR Windows	Tufts Cove Unit 3	52,994.74		3	
49937	CT - BGT 1 Exterior Coating Refurbishment	Gas Turbines	52,116.91		4	
49938	CT - BGT 2 Exterior Coating Refurbishment	Gas Turbines	52,116.91		4	
49939	CT - BGT 3 Exterior Coating Refurbishment	Gas Turbines	52,116.91		4	
49976	CT - BGT 4 Exterior Coating Refurbishment	Gas Turbines	52,116.91		4	
49653	TUC Dehumidifier Air Unit	Tufts Cove Common	51,073.10		3	
49701	TUC6 Turbine Control Valves	Tufts Cove Unit 6	50,584.20		4	
49662	TUC Aquarian Migration	Tufts Cove Common	48,757.25		3	
49673	TUC1 Extraction Pump Rotork Valve Actuator	Tufts Cove Unit 1	48,479.25		3	
43114	POA - Screw Cooler Trough Replacement	Pt Aconi	48,365.50		Pt. Aconi	
33871	TUC - Heat Rate Routine	Tufts Cove Common	47,689.75		Routine	
33865	POA - Heat Rate Routine	Pt Aconi	44,724.98		Pt. Aconi	
47870	LIN Cofferdam Outer Cell Refurbishment	Lingan Common	44,691.81		4	
49974	CT - TUC 4 LM6000 Metal Scan Upgrade	Gas Turbines	44,303.60		4	
49975	CT - TUC 5 LM6000 Metal Scan Upgrade	Gas Turbines	44,303.60		4	
49960	CT - VJ Exhaust Stack Grating Replacement	Gas Turbines	41,499.64		4	
47907	TUC6 Vacuum Pumps' Seal Water Cooler Upgrade	Tufts Cove Unit 6	40,501.04		4	
47703	POT - Replace DCS servers	Pt. Tupper	37,337.23		Carryover	
27857	LIN-ROOFING ROUTINE	Lingan Common	33,227.70		Routine	
49932	CT - TUC 4 LM6000 Roof Skid Access	Gas Turbines	33,161.45		4	
49933	CT - TUC 5 LM6000 Roof Skid Access	Gas Turbines	33,161.45		4	
49959	CT - VJ Varec Gauges Upgrade/Refurbishment	Gas Turbines	29,904.37		4	
49961	CT - TUS Exhaust Stack Grating Replacement	Gas Turbines	25,204.90		4	
47593	TRE Dechlorination System	Trenton Common	25,178.66		Carryover	
49594	LM6000 TUC5 Airhouse Upgrade	Gas Turbines	24,584.10		4	
43386	POT - LP dosing automation	Pt. Tupper	11,407.39		Carryover	

Request IR-19:

Referring to sustaining capital funding levels on page 118 of the Plan, please update the table Annual Capital Investment table to include prior year spends for years 2015 and 2016 for each of the base capital and notable capital investment items. Please provide the updated table in an EXCEL version and include all supporting worksheets.

Response IR-19:

Please refer to Attachment 1 for the updated Annual Capital Investment table including 2015 capital spend and the 2016 Q3 Forecast.

Please refer to Attachment 2 for the worksheet used to compile Attachment 1.

	2015 Actuals	2016 Q3	2017 ACE	2018	2019	2020	2021
Base Capital Investment							
Thermal Generation	56.0	53.4	50.1	49.8	46.5	44.1	46.7
Combustion Turbines	10.6	8.1	11.3	8.5	5.5	8.0	5.5
Hydro Generation	27.6	35.0	34.5	35.1	21.1	20.3	22.2
Wind Generation	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Transmission	45.9	53.9	55.8	56.2	52.3	53.4	54.4
Distribution	59.4	69.7	64.3	64.9	64.0	64.2	64.0
General Plant	27.1	43.0	45.5	27.1	25.9	26.1	30.7
Total Base Capital Expenditure	**226.7**	**263.3**	**261.6**	**241.8**	**215.4**	**216.2**	**223.7**
Notable Capital Investment							
Thermal:							
Lingan #3 Major Outage	18.5						
Lingan #4 Major Outage		17.6					
Trenton #6 Major Outage			9.7				
General Plant:							
IT - CIS Replacement			0.0	3.0	9.0	9.0	4.0
IT - Enterprise Resource Planning		34.2	54.4	4.7	1.3	0.5	2.5
IT - Maximo & GIS Integration			8.0	18.3			
IT - Security Investment			6.0	3.0	1.0	1.0	3.0
Replace Mobile Radio System			3.0	3.0			
Distribution:							
Advanced Metering Infrastructure		0.0	17.1	48.3	45.9	6.1	
LED Streetlights	3.1	0.0	2.5	4.8	8.2		
Transmission:							
Maritime Link Transmission	6.9	1.6	24.7	5.0			
Metro Transmission Upgrades		0.0	5.8				
Wind Related Transmission Upgrades	1.6	0.0					
Lingan GIS Replacement			4.8	7.1			
Wind:							
South Canoe Wind Farm	1.5	0.5					
Sable Wind Farm	15.6						
Hydro:							
Hydro Infrastructural Renewal							
Wreck Cove Overhaul				1.2	24.5	40.8	21.1
Annapolis Overhaul				2.9	2.4	2.4	0.8
Mersey Re-Development			0.3	14.8	36.7	45.6	31.1
Total Notable Capital	**47.2**	**53.9**	**136.4**	**116.1**	**129.0**	**105.4**	**62.5**
Total Annual Capital Investment	**273.8**	**317.3**	**398.0**	**357.8**	**344.4**	**321.6**	**286.2**

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

Project #	Project	Category	2016 Spend
10621	TUC - Routine Equipment Replacement	Thermal Generation	352,557.83
10626	LIN - Routine Equipment Replacement	Thermal Generation	288,707.95
10634	CT - Routine Equipment Replacements	Combustion Turbines	144,000.00
10645	POT - Routine Equipment Replacement	Thermal Generation	233,861.98
10673	TRE - Routine Equipment Replacement	Thermal Generation	392,904.43
10718	POA - Routine Equipment Replacement	Thermal Generation	229,130.49
11541	Tools And Equipment - West	General Plant	91,178.00
11589	TUC - Tools and Equipment Routine	General Plant	52,287.49
11611	Hydro Production Tools, Test Equip	General Plant	37,676.65
11621	TRE - Tools and Equipment Routine	General Plant	68,985.36
11622	HYD - Routine Equipment Replacement	Hydro Generation	234,137.62
11627	POT - Tools and Equipment Routine	General Plant	67,028.40
11648	LIN - Tools and Equipment Routine	General Plant	75,308.60
11744	FAC - Property Improvements	General Plant	2,105,000.18
12025	SYDNEY REGION - TOOLS AND EQUIPMENT	General Plant	98,015.18
14841	PROTECTION MODIFICATIONS AND REPLAC	Transmission	384,639.79
14913	Joint Use Construction- Coldbrook B	Distribution	177,507.92
14949	ADMIN SERVICES - TOOLS & EQUIPMENT	General Plant	3,500.00
14960	Regulatory Replacements - Coldbrook	Distribution	144,169.98
14961	Replace Deteriorated Plant - Coldbr	Distribution	2,804,829.77
14973	PRIMARY EQUIPMENT SPARES	Transmission	249,999.59
14982	New Customer Replacements - Western	Distribution	2,208,621.50
15021	Sydney Region - Joint Use Agreement	Distribution	113,886.11
16073	SCADA IMPROVEMENTS ROUTINE	General Plant	126,375.88
16118	Sack. Depot - Replace Det. Plant	Distribution	3,846,393.03
16123	Sack. Depot - Joint Use	Distribution	182,989.58
16127	Sack. Depot - New Cust. Replacement	Distribution	1,753,985.59
16131	Sack. Depot - Regulatory Replacemen	Distribution	901,186.73
16145	SACK. DEPOT - TOOLS & EQUIPMENT	General Plant	224,400.42
16192	MOBILE TRANFORMER & TRACK ROUTINE	General Plant	70,861.19
16365	MOBILE RADIO ROUTINE	General Plant	45,658.68
16374	HYD Gaspereau Dam Safety	Hydro Generation	1,542,265.18
16379	HYD-Mink Lake Dam Replacement	Hydro Generation	(4,380.12)
16529	West - Col Capital Storm Routine	Distribution	415,978.02
16550	TELECOMMUNICATION SYSTEMS REPLACE A	General Plant	465,364.47
16551	TELECOMMUNICATION RADIO AND FIBRE O	General Plant	140,963.33
16554	Sackville Depot Capital Storm Costs	Distribution	437,448.31
16661	Sydney Storm Routine	Distribution	426,575.15
17581	HYD - Weymouth Electrical Replaceme	Hydro Generation	932,619.72
17789	BER - HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	9,064.77
17790	LEQ - HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	22,814.76
17791	STM - HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	23,303.55
17818	BER - Security Improvements - Hydr	General Plant	457.97
17820	STM - SECURITY IMPROVEMENTS - HYDRO	General Plant	20,358.09
17821	SHH - SECURITY IMPROVEMENTS - HYDRO	General Plant	9,132.96
17822	BLR - SECURITY IMPROVEMENTS - HYDRO	General Plant	5,319.50
17823	MER - Security Improvements - Hydro	General Plant	3,338.85
17824	WRC - SECURITY IMPROVEMENTS - HYDRO	General Plant	827.05
17832	SHH - HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	(99,876.33)
17833	BLR - HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	30,180.15
17834	MER -HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	84,962.12
17835	WRC -HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	39,701.33
18063	Sydney Region - New Customer Repla	Distribution	1,783,932.53
18064	Sydney Region - Replace Deteriorate	Distribution	2,998,101.22
18065	Sydney Region - Regulatory Replacem	Distribution	369,668.73
18448	TUC Cooling Water System Biofoul	Thermal Generation	(5,157.51)
18620	BER-HYDRO-TOOLS AND EQUIPMENT	General Plant	6,128.82
18622	ANN-HYDRO-TOOLS AND EQUIPMENT	General Plant	1,150.00
18625	BLR-HYDRO-TOOLS AND EQUIPMENT	General Plant	8,876.78
18626	MER-HYDRO-TOOLS AND EQUIPMENT	General Plant	2,166.06
18627	WRC-HYDRO-TOOLS AND EQUIPMENT	General Plant	2,489.34
20511	CT -VJReplace Halon Fire Protect	Combustion Turbines	259,835.11
20571	HYD - Weymouth Falls Tailrace Deck	Hydro Generation	696,544.19
20601	AVO - HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	8,015.00
20604	ANN - HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	51,504.39
20612	MER - MAINT HYDRO EQUIPMENT REPLACE	Hydro Generation	17,976.21
20615	FAR - HYDRO EQUIPMENT REPLACEMENTS	Hydro Generation	38,465.66
20624	MER - MAINT HYDRO PRODUCTION - TOO	General Plant	31,871.61
20634	Planned D055 For Western Region - 2	Distribution	48,886.46
20700	DIB - SECURITY IMPROVEMENTS - HYDRO	General Plant	330.41
20701	FAR - SECURITY IMPROVEMENTS - HYDRO	General Plant	5,598.67
20706	HYD - Security Improvement	General Plant	477,122.08
20707	ANN - SECURITY IMPROVEMENTS - HYDRO	General Plant	18,844.29
20758	HYD - Nictaux Pipeline and Intake	Hydro Generation	118,540.90
20837	Sackville Depot - Identified Deter	Distribution	70,315.98
20945	REPLACEMENT AND ADDITIONAL WORK VEH	General Plant	191,808.88
20983	Sydney Region (D055) - Planned Di	Distribution	33,797.25
21484	POA - Tools and Equipment Routine	General Plant	56,188.61
21485	POA - KELLY ROCK LIMESTONE QUARRY (	General Plant	19,713.45
22374	CT'S Fuel Controller Replacement	Combustion Turbines	24,475.48
22410	TRE5 5-1 CEP Refurbishment	Thermal Generation	182,540.40
23115	PROVINCIAL TRANSMISSION LINE REPLAC	Transmission	1,406,694.66
23118	PROVINCIAL - PLANNED TRANS LINE REP	Transmission	2,316,501.19
23120	PROVINCIAL-TRANS SUBSTATION PRIMARY	Transmission	2,526,678.69
23121	PROVINCIAL- SUBSTATION ADDITIONS &	Transmission	349,149.69
23125	HYD - Sissiboo Electrical Replace	Hydro Generation	49,516.33
23127	D010 Provincial Distribution ROW	Distribution	779,064.14
23135	D006 Regulatory Replacements - Prov	Distribution	18,425.49
23137	D055 - Planned Replacement Of Distr	Distribution	406,871.57
23158	D005 Unplanned Replace Deteriorated	Distribution	446,543.82
23361	D008 Provincial Storm	Distribution	10,222.48
23428	GS - Routine Capital	Thermal Generation	(8,083.68)
23511	Primary Equipment Spares - Distribu	Distribution	150,000.00
25260	PROV - TOOLS & EQP - SYS MAINTENANC	General Plant	77,106.00
25626	TRE DCMS Equipment Replacement Rout	General Plant	28,576.73
25646	TUC DCMS Equipment Replecement Rout	General Plant	63,922.85
25647	POA - DCMS Equipment Replacement Ro	General Plant	21,354.56
25667	POT - DCMS Equipment Replacement Ro	General Plant	18,430.67
25668	LIN - DCMS Equipment Replacement Ro	General Plant	15,980.45
26496	Meter Routine	Distribution	3,004,319.35
26526	METER SHOP - TOOLS AND EQUIPMENT	General Plant	50,000.00
26716	New Customer Upgrades	Distribution	53,465.27
26757	PROVINCIAL LINE TOOLS & EQUIPMENT R	General Plant	481,800.50
27854	TUC-ROOFING ROUTINE	Thermal Generation	94,218.21
27855	POT-ROOFING ROUTINE	Thermal Generation	14,889.09
27856	TRE-ROOFING ROUTINE	Thermal Generation	337,916.11
27857	LIN-ROOFING ROUTINE	Thermal Generation	39,396.30
27858	POA-ROOFING ROUTINE	Thermal Generation	123,148.63
27867	HYD-Roofing Routine	Hydro Generation	87,548.81
28098	TUC 6 Waste Heat Recovery	Thermal Generation	(340.00)
28249	POT Structural Steel Refurbishment	Thermal Generation	167,721.73
28288	POT Turbine Supervisory Equipment U	Thermal Generation	10,582.98
28430	FAC - Land Acquisition Routine	General Plant	138,623.91
28457	TRE Ash Lagoon Closure	Thermal Generation	(239,621.86)
28466	FAC - Lower Water Street	General Plant	41,666.65
28645	TRE6 - Turbine Controls Power Suppl	Thermal Generation	6,785.44
29009	Right of Way Purchase Northern NS	General Plant	300.00
29038	System Performance Improvement Rout	Distribution	15,932.20
29065	CT- BGT 3 Replace Halon Fire Prot.	Combustion Turbines	66,403.96
29114	IT - NSPI Infrastructure Routine	General Plant	2,402,302.37
29807	HYD - PE Tusket Falls Main Dam	Hydro Generation	137,119.61
30162	POT - Bunker C tank refurbishment	Thermal Generation	9,380.41
30163	POT - Control room and permit room	Thermal Generation	210,118.14
33142	CT - BGT4 Unit Restoration	Combustion Turbines	761,264.94

Function	Category	2016 Q3 Forecast
Thermal Generation	Thermal Generation	53,448,002
Combustion Turbines	Combustion Turbines	8,111,764
General Plant	General Plant	43,048,308
Hydro Generation	Hydro Generation	34,951,308
Transmission	Transmission	53,872,183
Distribution	Distribution	69,715,815
Wind Generation	Wind Generation	169,853
Wind Generation	South Canoe Wind Farm	520,746
Thermal Generation	Lingan #4 Major Outage	17,628,627
Transmission	Maritime Link Transmission	1,552,882
General Plant	IT - Enterprise Resource Planning	34,240,127

Project #	Project	Category	2016 Spend
33562	FAC Land Registration Act	General Plant	6,645.90
33863	LIN-Heat Rate Routine	Thermal Generation	58,154.19
33865	POA-Heat Rate Routine	Thermal Generation	39,308.31
33867	POT-Heat Rate Routine	Thermal Generation	72,184.33
33869	TRE-Heat Rate Routine	Thermal Generation	91,306.35
33871	TUC-Heat Rate Routine	Thermal Generation	106,609.16
35083	LIN 2011 Ash Site Sealing and Cappi	Thermal Generation	290,612.06
35583	HYD Oil Release Risk Assessment Rou	Hydro Generation	217,177.15
35584	HYD - Gate Refurbishment Routine	Hydro Generation	(14,347.75)
36870	HYD - PE WRC Dam Safety Remed. Work	Hydro Generation	(61,307.10)
37611	LIN3 - Generator Excitation & AVR R	Thermal Generation	(1,309.88)
37702	HYD- Wreck Cove Machine LEM PE	Hydro Generation	764,745.15
37982	CT - BGT3 AVR Replacement	Combustion Turbines	34,074.73
38108	POT - AVR Replacement	Thermal Generation	1,002.40
38243	Telecommunications Spares	General Plant	130,249.80
38848	Purchasing Equip & Warehouse Rout.	General Plant	166,653.90
38896	FAC Environment Site Assess Routine	General Plant	174,795.13
38897	FAC Enviro Property Remed Routine	General Plant	211,001.59
38899	CT'S Tooling Routine	Combustion Turbines	28,000.00
38927	HYD PE Roseway Re-Development	Hydro Generation	9,608.88
38931	HYD Harmony Partial Decommission	Hydro Generation	50,415.50
39023	LIN 3 PE-Rotor Rewind	General Plant	(344,614.63)
39029	PH Biomass Project	Thermal Generation	(900.16)
39304	Class 3 Work Vehicle Replacements	General Plant	321,916.79
39305	Work Vehicle Replacements	General Plant	4,511,376.23
39472	HYD PE Mersey System Re-Development	Hydro Generation	1,264,663.33
39542	Generator Protection Improvements	Thermal Generation	12,307.13
39547	AMO PE CT Asset Optimiz. Study	Combustion Turbines	(273,594.34)
39766	New Customers - Residential	Distribution	242,330.98
39767	New Customers - Residential	Distribution	3,847,106.95
39768	New Customer - Residential	Distribution	2,415,258.02
39769	New Customers - Residential	Distribution	2,131,498.10
39770	New Customers - Commercial	Distribution	38,587.68
39771	New Customers - Commercial	Distribution	3,949,573.42
39772	New Customers - Commercial	Distribution	960,227.15
39773	New Customer - Commercial	Distribution	757,022.49
39932	TRE - Ash Site Phase 2 Development	Thermal Generation	(13,913.26)
40103	U&U Load Control Demo	General Plant	(1,061.18)
40105	AMO Boiler Cond & Data Track Soft.	General Plant	43,332.82
40236	Transportation Vehicle Replacements	General Plant	1,709,747.04
40274	New RTU Deployment	General Plant	488.73
40278	OMS Replacement	General Plant	7,448.15
40283	HYD - Wrights Lake Dam Refurbishmen	Hydro Generation	13,816.23
40320	LED Street Light Conversion	Distribution	1,953,391.74
40322	Highbury Road Substation	Transmission	6,595.85
40334	POT - Refurbish underground valves	Thermal Generation	(344.90)
40363	LIN3 High Voltage Bushing Refurbish	Thermal Generation	93,183.69
40502	PE LIN3 HVB Refurbish	Thermal Generation	(93,183.69)
40648	IT - Field Mobility System	General Plant	140,453.16
40785	Sable Wind	Wind Generation	(9,002.76)
41074	POA - Ash Cell Site Capping	Thermal Generation	794.78
41079	POA - Structural Steel Refurbishmen	Thermal Generation	42.47
41125	LIN - Common Water (CW) Piping Repl	Thermal Generation	(208.50)
41126	HYD-ANN Sluiceway Stop Logs	Hydro Generation	(22.04)
41127	HYD - Nictaux Headcover Replacement	Hydro Generation	5,431.20
41128	HYD-Archaeological Assess & Test	Hydro Generation	139,259.96
41130	HYD-Avon2 Generator Stator Rewind	Hydro Generation	(289,948.58)
41133	HYD - WRC Standby Generator Rplcmnt	Hydro Generation	2,055.01
41139	HYD - ANN Sluiceway Superstructure	Hydro Generation	2,562,693.92
41140	HYD-Sissiboo Tailrace Refurbishment	Hydro Generation	4,265.76
41142	HYD- Sandy Lake Fish Passage	Hydro Generation	95,960.34
41145	HYD -Upper Lake Falls Rip Rap Repla	Hydro Generation	1,343.49
41227	LIN3 Cond Large Bore Pipe and Valve	Thermal Generation	(5,552.50)
41228	TUC - Unit 3 Turbine HP Impulse Bla	Thermal Generation	88,971.02
41229	LIN - Cable Spreading Rooms Fire Pr	Thermal Generation	3,676.80
41339	2012 Distribution Feeder Ties	Distribution	33,322.44
41341	1H-Water Street New Feeder	Distribution	45,145.10
41358	624V-311 Scotch Village Ph 3	Distribution	6,355.92
41383	2012 Halifax UG Feeder Cable Replmt	Distribution	688.26
41425	IT - Cognos Upgrade	General Plant	530,309.36
41432	L7009 Lidar Upgrades & Maintenance	Transmission	179,610.67
41433	2012 New RTU Deployment	General Plant	8,702.86
41438	85S Cable Termination Replacement	Transmission	9,056.05
41439	5P & 6P Mobile Substation Upgrades	Transmission	98,628.32
41441	TRE Siding Replacement	Thermal Generation	34,068.37
41505	TRE5 - 5F Conveyor Structural Refur	Thermal Generation	355,815.15
41519	Harbour East 138 kV Tx Line	Transmission	550,430.03
41520	Harbour East Substation	Transmission	4,249.74
41522	138kV Line Terminal at Dart East	Transmission	4,439.84
41534	2012 Reliability Technologies Dist.	Distribution	(23,176.57)
41535	2012 Steel Tower Painting	Transmission	781.97
41537	Amherst 138kV Substation	Transmission	(936.98)
41551	Glentosh Subst. Footing Remediation	Transmission	3,369.71
41584	POT Vacuum Pump Replacement	Thermal Generation	(5,563.56)
41589	22N-Church St Replace 25 kV Bus	Transmission	702.68
41591	POT - Induced Draft (ID) Fan Bearin	Thermal Generation	200.00
41664	TRE5 Precip Refurbishment	Thermal Generation	268,203.70
41705	Milton Hydro Office Construction	General Plant	199.92
41830	Wind - Routine Equipment Replacemen	Wind Generation	97,915.81
41843	TUC2 UU HP/IP Blades Replacement	Thermal Generation	(94,001.95)
41845	Residential AMI Pilot	General Plant	14,412.38
42127	South Canoe Wind Project	South Canoe Wind Farm	520,745.89
42230	UU Harbour East Land Purchase & ROW	General Plant	1,064.90
42647	HYD - Re-Investment Plan PE	Hydro Generation	(234,983.49)
42648	HYD - Harmony Fish Ladder	Hydro Generation	594.61
42666	HYD - Tusket #2 Overhaul	Hydro Generation	(610.00)
42709	HYD - U&U PLC Upgrades (ANN)	Hydro Generation	118,592.04
42728	AMO PE Unit Lay-Up Program	Thermal Generation	(200,244.00)
42806	LIN3 L-0 Blades Replacement	Thermal Generation	(92,382.03)
42907	CT- U&U Burnside FT Overhaul	Combustion Turbines	23,133.88
42939	TUC2 CW Pump Refurbishment	Thermal Generation	(81,204.93)
42941	TUC3 - DCS Upgrade Phase II	Thermal Generation	32,038.79
42943	TUC2 - T-G Areas Fire Protection	Thermal Generation	205,364.71
42944	TUC3- Replace Boiler Drum North PSV	Thermal Generation	75,709.40
42965	TUC - Fire System Elect. Upgrade	Thermal Generation	2,698.54
42971	TUC2 - DCS Upgrade	Thermal Generation	9,741.31
42973	TUC WTP DCS Upgrade	Thermal Generation	118,577.87
42991	TUC3 - U&U IP/LP Refurbishment	Thermal Generation	58,801.43
43006	TRE6 PLC Upgrades	Thermal Generation	7,891.72
43027	POT - Refurbish Dust Collection Are	Thermal Generation	(5,906.67)
43031	POT - #5 HP Heater Replacement	Thermal Generation	562.87
43038	POT - FeS04 dosing control system	Thermal Generation	2.22
43066	HYD - Little Indian / Mill Lake	Hydro Generation	21,536.27
43067	HYD - Cheticamp Dam D-1 Refurb	Hydro Generation	(3,683.17)
43088	LIN3 Rotor Rewind	Thermal Generation	380,651.75
43094	LIN3 HT Fastener Replacement	Thermal Generation	4,385.21
43100	POT - Selective Ash Cell Capping	Thermal Generation	54,598.03
43117	Prince Street Phase 2	Distribution	240.56
43120	POA - UPS Chargers Replacement	Thermal Generation	91.13
43128	HYD - GIS Gearbox & Bearing Replace	Hydro Generation	289,001.05
43136	HYD - Weymouth Headcover Replace	Hydro Generation	679,146.05
43138	POA - Air Heater Retube	Thermal Generation	511,915.00
43144	POA - Plant Access Improvements	Thermal Generation	138,103.98
43151	CT - System 1 for LM6000s	Combustion Turbines	798.30
43157	CT - Tusket Fuel Control & AVR	Combustion Turbines	21,367.89
43159	CT Annunciation Unit Upgrade to DAS	Combustion Turbines	21,446.37

Project #	Project	Category	2016 Spend
43165	LIN4 Boiler Refurbish	Lingan #4 Major Outage	1,230.00
43168	LIN CW Pump Refurbish	Thermal Generation	136,157.76
43170	LIN4 AVR Replacement	Lingan #4 Major Outage	699,202.74
43173	2013 Upgrade Multiplexer Group	General Plant	48,669.56
43177	103W-311 Gold River Reconductor Ph3	Distribution	37,175.80
43195	2013 Remote Communication on Reclos	Distribution	73,861.86
43202	Replace Mobile Radio System	General Plant	223,402.57
43203	58C-405 Belle Cote Phase 1	Distribution	1,857.12
43205	L5510 Insulator Replacements	Transmission	447,161.18
43213	LIN3 Battery Replacement	Thermal Generation	(2,842.25)
43217	24C-442G Hwy 16 Rebuild Ph 1	Distribution	15,070.48
43218	88W-323A Tusket Islands Phase 3	Distribution	27,670.77
43221	2013 New RTU Deployment	General Plant	253,617.13
43222	2013 Subst. Insulator and Cut-Outs	Transmission	10,025.46
43227	2014 RTU Replacements	General Plant	412,093.05
43231	2013 Substation PCB Equip Removal	Transmission	(942.68)
43234	104S-313 Baddeck Re-build	Distribution	28,873.95
43240	POA - HVAC Equipment Replacement	Thermal Generation	33,063.00
43241	POA - PLC Migration Program	Thermal Generation	(1,322.52)
43243	POA - Wellfield Communication	Thermal Generation	10,268.74
43244	POA - Stack Lighting	Thermal Generation	59,105.74
43245	POA - Plant Communication	Thermal Generation	31,134.03
43257	POA - Main Oil Tank Refurb	Thermal Generation	127,017.23
43261	6V-GT1 Hollow Bridge Hydro Replace	Transmission	141,530.15
43266	89S Point Aconi ST2 Replacement	Transmission	1,084,325.18
43267	13V Gulch Replace 13V-GT1 & 13V-VR1	Transmission	47,543.26
43278	Halifax 4kV Conversion Part-1	Distribution	95,272.91
43282	2013 Distribution Feeder Ties	Distribution	7,341.19
43290	TUC3 U&U Refurbish Turbine Valves	Thermal Generation	37,801.31
43291	67N-Onslow BPS Upgrades 230KV	Transmission	500,460.12
43323	Tuft's Cove Line Swap	Transmission	2,205.58
43324	L6513 Rebuild/upgrade line terminal	Maritime Link Transmission	305,806.06
43369	New Mobile Transformer 15MVA	Transmission	46.76
43386	POT - LP dosing automation	Thermal Generation	60,685.10
43389	LIN3 Bentley Upgrade	Thermal Generation	2,337.55
43428	Remove 6S 4kV Switchgear Breakers	Transmission	33,093.81
43429	TRE5 Lube Oil Cooler Retube	Thermal Generation	178,574.03
43467	AMO Plant Wireless Infrastructure	General Plant	(4,557.10)
43488	7H Substation Retirement	Transmission	(779.42)
43489	8H Substation Retirement	Transmission	(779.42)
43490	Steel Tower Life Ext - Hali Harbour	Transmission	614,320.68
43548	533S Mason Street Conversion	Distribution	20,262.44
43587	AMO TUC2 PE Life Assessment	Thermal Generation	(244,646.47)
43588	AMO TUC3 PE Life Assessment	Thermal Generation	(202,129.50)
43607	HYD - Malay Falls #5 Unit Overhaul	Hydro Generation	24,684.65
43626	TRE Hydrazine Replacement	Thermal Generation	11,643.21
43627	LIN Hydrazine Replacement	Thermal Generation	1,705.40
43646	PHB - Routine Equipment Replacement	Thermal Generation	148,199.26
43666	TUC1 - Hydrazine Replacement	Thermal Generation	38,976.97
43672	82V-T1 Transformer Rewind	Transmission	67.71
43674	Sable Wind Network Upgrades	Transmission	461.77
43675	Transmission Interconnection Sable	Transmission	9,181.27
43676	Interconnection Substation Sable	Transmission	(9,181.27)
43678	Separate L8004/L7005	Maritime Link Transmission	839,663.75
43681	South Canoe Subs. Network Upgrades	Transmission	(1,291.50)
43683	South Canoe Wind Project Tx Line	Transmission	60,359.99
43684	Interconection Substation South Can	Transmission	172,233.54
43726	Replace 3N-T51 Transformer	Transmission	(198.66)
43786	2013 L8002 Tower Refurbishments	Transmission	23,333.23
43811	HYD ANN UU Albany Build. Replace	Hydro Generation	7,249.60
43827	Transmission ROW Widening	Transmission	5,999,957.62
43906	TUC4 U&U LM6000 Engine Refurb	Combustion Turbines	40,111.36
44027	TUC2 - U&U HP Nozzles Replacement	Thermal Generation	6,314.30
44030	U&U International Coal Pier	Thermal Generation	3,545.13
44047	TUC2 - U&U LP Row 6 Refurbishment	Thermal Generation	66,995.91
44188	TRE Ash Site Phase 1 Capping	Thermal Generation	1,096,932.37
44206	L5535 Upgrade - Part Of T011	Transmission	2,105.78
44227	113H Dartmouth East Contingency U&U	Distribution	2,867.06
44247	TUC2 - U&U Refurbish Turbine Valves	Thermal Generation	40,668.80
44248	HYD-MacMillan Dam D-7 Refurb	Hydro Generation	10,554.20
44267	TRE Trenton Ash Site Closure	Thermal Generation	6,155,792.24
44312	AMO PE Fleet Critical Static Equip	General Plant	(301,913.99)
44362	LIN 34 Feedwater Valves	Thermal Generation	(21,938.00)
44388	63V-313 Aylesford Reliability Ph 2	Distribution	9,337.17
44528	POA Cell4 Stage II Residue Manageme	Thermal Generation	104,613.54
44589	POT - Replace overhead door at A-mi	Thermal Generation	(9.25)
44594	HYD - Ruth Falls Canal Repair	Hydro Generation	30,487.89
44595	HYD - Hollow Bridge Canal & Intake	Hydro Generation	3,350,241.86
44651	POA - PLC Migration 2015	Thermal Generation	136,433.08
44667	HYD - Upper Lake Falls Unit #1 Over	Hydro Generation	11,033.60
44669	HYD - Wreck Cove Fire Sup. Upgrades	Hydro Generation	1,402,762.68
44671	IT - Enterprise Resource Plan (ERP)	IT - Enterprise Resource Planning	34,240,127.36
44686	POA - LP Gland Packing Replacement	Thermal Generation	12.70
44711	POA - Emissions Capture Program	Thermal Generation	(1,354.39)
44716	TUC2 - North BFP Refurbishment	Thermal Generation	137,251.84
44717	TUC2 - Vacuum Pump Replacement	Thermal Generation	139,526.55
44720	TRE Asbestos Abatement 2014	Thermal Generation	7,398.59
44727	TUC3 - DCS Upgrade Phase 3	Thermal Generation	163,328.64
44729	TUC-Station Unit Transformer Cable	Thermal Generation	324,769.67
44733	TRE6 Coal System Upgrades	Thermal Generation	271.27
44736	TUC2 - DC Battery Bank Replacement	Thermal Generation	343.16
44737	TUC2 -Battery bank inverter&charger	Thermal Generation	34,103.05
44738	TUC3 -Battery bank inverter&charger	Thermal Generation	460.71
44739	TUC2- Replace precip&rapper control	Thermal Generation	152.49
44746	AMO - PP CBT and Procedure Mgmnt	General Plant	108,343.25
44747	AMO PE Unit Capability Assessment	General Plant	(20,853.73)
44748	AMO - Generation Info Mgmt Systems	General Plant	(2,169.16)
44749	Tiverton Tower Refurbishment	Distribution	173,404.26
44750	AMO - PE Fleet Inst. & Controls	General Plant	8,385.60
44751	AMO - DirectLine Module Upgrades	General Plant	159.80
44775	TUC#4 LM6000 Generator Stator Refur	Combustion Turbines	1,024,305.73
44776	TUC#5 LM6000 Gen Stator Rewedge	Combustion Turbines	30,888.16
44780	POA - Turbine Fire Supression	Thermal Generation	105,115.88
44787	CT - DC Battery Bank Replacement	Combustion Turbines	193,401.52
44826	2014 Build-to-Roadside	Distribution	306,133.58
44833	99V-312 - Highbury New Feeder	Distribution	32,402.62
44836	Halifax 4kV Conversion Part 2	Distribution	131,763.63
44887	HYD - Sissiboo Pipeline Replacement	Hydro Generation	(124,320.00)
44969	2014 Multiplexer & Teleprotect Equi	General Plant	77,283.68
44972	2014 Telecom Building Replacement	General Plant	23,214.44
44973	2014 Subst Recloser Replacement	Transmission	578.52
44974	2014 PCB Equipment Removals	Transmission	(7,376.26)
44976	10H 25kV Breaker Rplcmnt & Reconfig	Transmission	600,463.69
44977	3W Breaker, Switch & Cable Rplacmen	Transmission	94,588.97
44978	HYD - Wreck Cove Controls Upgrade	Hydro Generation	1,405,325.15
44979	L5527 Structure Replacements	Transmission	(9,798.32)
44981	2C Port Hastings Tx Replacement	Transmission	62,392.36
44983	Reactor Bank Breaker Replacements	Transmission	1,335.17
44984	9C Aberdeen Line Tap	Transmission	8,128.29
44985	Replace 230kV Kearney Switches	Transmission	80,581.31
44987	L7003 Lidar Upgrades	Transmission	4,753,236.26
45003	2015 Hydraulic Recloser Repl.	Distribution	64,186.14
45026	639N - Mount Thom Overload	Distribution	4,745.63
45029	POA - Auxiliary Boiler Replacement	Thermal Generation	1,407,046.89
45031	3N Oxford Conversion Phase 1	Distribution	860,323.05
45033	L7001 Replacements	Transmission	35,530.49

Project #	Project	Category	2016 Spend
45036	ArcFM Designer Software	General Plant	82,401.55
45044	LIN - Fire Protection Improvements	Thermal Generation	28,830.06
45045	PHB - Evacuation alarm	Thermal Generation	(599.68)
45046	2014 PCB Phase-out for Pole Top	Distribution	12,861.64
45053	69Kv Structure Replacements West	Transmission	6,516.33
45054	Replace Radio Tower Methals Hydro	General Plant	3,798.03
45066	Upgrade L6511 and L7019	Maritime Link Transmission	175,179.02
45067	67N Onslow 345 KV Node Swap	Maritime Link Transmission	232,233.51
45115	HYD - U&U Nictaux Plant Automation	Hydro Generation	51,390.72
45126	TRE5 Mercury CEMS	Thermal Generation	42,815.15
45171	HYD - Avon 1 Pipeline Replacement	Hydro Generation	52,919.74
45176	ICP Pier Belting	Thermal Generation	186,439.36
45178	ICP - Rail Centre Shop Roof	Thermal Generation	128,657.61
45189	HYD - ULF #2 Overhaul	Hydro Generation	1,250.14
45246	LIN - CW MCC Refurbishment	Thermal Generation	97,365.22
45306	Prime Brook Substation Addition	Transmission	1,351,690.60
45330	HYD - WRC C3 Culvert Replacement	Hydro Generation	610,091.42
45370	HYD - WRC Unit 1 Excitation System	Hydro Generation	20,123.31
45392	TRE Bunker C System Refurbishments	Thermal Generation	5,603.47
45412	Cabot Cliff Line Extension	Distribution	1,135.67
45450	Remote Control and Telemetry	General Plant	(15,280.00)
45493	TUC2 - Replace Hydrazine with DEHA	Thermal Generation	42,866.15
45494	TUC3 - Replace Hydrazine with DEHA	Thermal Generation	33,255.29
45576	103H-432 - Maplewood Dr. Phase Ext	Distribution	1,293.49
45592	TUC3 U&U Turbine IP Row 21 Blading	Thermal Generation	4,736.47
45612	6S Terrace St Feeder Exit Upgrade	Distribution	15,512.97
45651	L8004 Upgrade	Transmission	4,321.78
45690	647N-312 West Linden Rd Reconductor	Distribution	1,325.23
45730	Central Planned Deteriorated	Distribution	767,500.94
45731	East Planned Deteriorated Replace	Distribution	530,440.72
45733	BGT3 U&U Generator Refurbishment	Combustion Turbines	131,311.92
45734	West Planned Deteriorated Replace	Distribution	534,747.32
45735	Cent Unplanned Deteriorated Replace	Distribution	143,335.84
45736	East Unplanned Deteriorated Replace	Distribution	233,518.02
45737	West Unplanned Deteriorated Replace	Distribution	289,311.60
45739	2014 Padmount Transformer Replace	Distribution	(7,196.14)
45750	L6540 Upgrade	Transmission	228.98
45792	L5012 Upgrade	Transmission	1,095.00
45793	L5028 Upgrade	Transmission	1,075.50
45794	L5040 Upgrade	Transmission	902.14
45795	L6503 Replacements	Transmission	132,802.25
45797	L7004 Upgrade	Transmission	(0.89)
45799	Street Light & Service Removals	Distribution	992,489.96
45801	TRE5 Coal Pile Reclaim Markers	Thermal Generation	21,970.05
45802	LIN E-Gallery Floor Replace U&U	Thermal Generation	120,666.37
45812	HYD - Oil Release Risk Assessment	Hydro Generation	71,579.91
45816	TUC3 U&U Turbine Blade Replace Ph 2	Thermal Generation	(22,468.90)
45818	LIN - UU Flyash System Refurb.	Thermal Generation	2,006.65
45820	Albany New Rebuild	Distribution	6,852.94
45831	10C-212 Voltage Conversion	Distribution	2,233.97
45832	TUC6 Boiler Purge Credit	Thermal Generation	286.56
45851	POT - Stack Repairs	Thermal Generation	5,185.27
45870	102W-311 - Chemin De L'Est	Distribution	1,990.39
45876	TUC3 U&U Generator Refurb	Thermal Generation	(384,664.63)
45877	25N-201 Harrison Settlement Rebuild	Distribution	1,239.64
45880	Livingston Cove Rebuild	Distribution	589.37
45881	IT- P&A Windows Server 2003 Upgrade	General Plant	92,927.45
45882	103H-T63 Transformer Replacement	Transmission	159,279.95
45884	Forecast Adjustment - Steam	Thermal Generation	(850,000.00)
45885	Forecast Adjustment Trans.	Transmission	(964,160.00)
45886	Forecast Adjustment Distrib.	Distribution	(434,160.00)
45887	Forecast Adjustment Gen. Plant	General Plant	(489,076.50)
45950	LIN3 - 3B Boiler Feed Pump Rebuild	Thermal Generation	(21,000.00)
45970	LIN4 UU 4B Boiler Feed Pump Rebuild	Lingan #4 Major Outage	89,210.51
46050	Operator Training Simulator	General Plant	258,873.11
46055	LIN - Mill Refurbishment 2015	Thermal Generation	81,963.08
46057	LIN - CW Screen Refurbishment 2015	Thermal Generation	(36,587.56)
46058	LIN-Coal Plant Struc. Refurb. Pro.	Thermal Generation	590.04
46059	LIN- 4KV and 600V Breaker Refurb.	Thermal Generation	48,290.99
46063	LIN Coal System Guard Upgrade	Thermal Generation	57,291.87
46064	POA Coal System Guard Upgrade	Thermal Generation	56,105.29
46066	LM6000 Engine Oil Conditioner	Combustion Turbines	95,526.82
46068	LIN CW Debris Removal System	Thermal Generation	112,722.13
46069	POA Limestone Mill Refurbishment	Thermal Generation	15,277.08
46073	IT - Lotus Notes Applications Repla	General Plant	724,728.32
46075	IT - Work and Asset Management	General Plant	1,217,854.99
46078	IT - SharePoint Environment Upgrade	General Plant	136,146.04
46081	70V-312H Thorne Rd Deteriorated Pol	Distribution	1,245.44
46152	LM6000 Unit 4 Purge Credit	Combustion Turbines	1,420.17
46153	LM6000 Unit 5 Purge Credit	Combustion Turbines	372.18
46171	HYD - Paradise Bearing Repair	Hydro Generation	48.86
46191	Tusket Fuel System Upgrade	Combustion Turbines	1,247,338.56
46196	U&U 92H-332 Hubley Load Growth	Distribution	3,061.96
46198	Forecast Adjustment - Hydro	Hydro Generation	(646,120.00)
46212	500N-301 Caribou Island Reconductor	Distribution	2,730.00
46213	MicMac Mall Vault Upgrades	Distribution	91,209.67
46214	16V-315 Windsor Deteriorated Poles	Distribution	(10.72)
46232	HYD - WHR Pipeline Replacement	Hydro Generation	(63,373.66)
46251	36V-303 Saxon Double Circuit	Distribution	5,633.91
46253	HYD - Lequille Tailrace Gate	Hydro Generation	6,879.70
46254	HYD - Mill Lake Surge Tank Replace	Hydro Generation	72,885.33
46256	POT - Boiler refurbishment 2015	Thermal Generation	2,703.24
46292	2015 Padmount Replacement Program	Distribution	(3,097.33)
46293	LIN Bunker Chute Refurbishment	Thermal Generation	149,289.80
46298	HYD - 5 Mile Lake Dam Refurb	Hydro Generation	2,553,368.92
46300	TRE6 Air Heater Refurbishment	Thermal Generation	1,002.95
46301	TRE6 6A 6B Mills Refurbishment	Thermal Generation	194.67
46304	20W-311 Argyle Sound Reconductor	Distribution	17,543.91
46306	2015 Telecom Building Replacement	General Plant	239,089.90
46307	2015 Multiplexer Network Upgrades	General Plant	196,813.94
46308	2015 Microwave Sys Capacity Upgrade	General Plant	144,505.79
46310	2015 Telecom Battery & Charger Rplc	General Plant	84,101.21
46331	L7001 Replacements - Phase 2	Transmission	159,023.00
46332	L6539 Replacements	Transmission	5,092.60
46333	L6538 Replacements	Transmission	(4,951.13)
46335	L5511 Replacements	Transmission	(23.86)
46336	POT - Turbine main and rehea	Thermal Generation	2,965.94
46337	L6535/L6551 Insulator Replacements	Transmission	51,862.08
46339	120H Replace SVC Controls	Transmission	5,667,428.20
46340	2015 Switch & Breaker Replacements	Transmission	148,568.83
46352	TRE5 Air Heater Refurbishments	Thermal Generation	523,298.79
46353	2015 Substation Recloser Replacemen	Transmission	26,247.34
46354	2015 Reactor Breaker Replacements	Transmission	129,026.09
46355	POA UU Fire Protection Supply Line	Thermal Generation	87,385.20
46356	2015 Sacrificial Anode Install Prog	Transmission	(0.01)
46358	TRE5 Burner Refurbishments	Thermal Generation	210,131.84
46360	L5545B Reconductor	Transmission	743,553.50
46361	HYD - Annapolis Dyke Pump Replaceme	Hydro Generation	909.10
46362	L5560 Reconductor	Transmission	50,713.23
46364	Maximo Enhancements Telecom & Relay	General Plant	52,651.09
46365	Maximo Enhancements Subst Field Mob	General Plant	137,592.49
46366	65V Middleton Substation RTU Add	Transmission	136,834.97
46372	POT - Coal mill overhauls	Thermal Generation	(789.44)
46374	POT - East CW pump refurbishment	Thermal Generation	418,567.74
46375	POT - Condenser level control upgra	Thermal Generation	40,901.94
46377	TRE5 5-1 CW Screens Refurbishment	Thermal Generation	337.78

Project #	Project	Category	2016 Spend
46379	TRE Ash Site Management 2015	Thermal Generation	6,085.40
46392	POT - Plant siding	Thermal Generation	(3,420.08)
46394	POT - Replace steam coils north sid	Thermal Generation	1,272.00
46397	Substation Telemetry	Transmission	84,950.20
46398	20H Spryfield Voltage Conversion	Distribution	50,627.71
46411	AMO Hydro Asset Management	General Plant	399,557.14
46412	AMO TUC Noise Mit.Strat. Dev. PE	Thermal Generation	3,099.90
46416	16W-301 Ross Durkee Road Rebuild	Distribution	2,598.66
46418	POT - Fire system upgrades	Thermal Generation	182,948.80
46419	POT - Bay door replacements	Thermal Generation	80,594.85
46421	POT - Refurbish 2 South Boiler Feed	Thermal Generation	135,789.56
46422	POT - Automatic trash rack cleaning	Thermal Generation	147,012.31
46423	POT - Building ventilation fan refu	Thermal Generation	(74.68)
46424	TRE Turbine Dehumidifier	Thermal Generation	2,462.94
46426	TRE6 Fly Ash Compressor Replacement	Thermal Generation	111,531.78
46434	TRE6 Coal Pile Reclaim Markers	Thermal Generation	103,089.77
46435	TUC4 Engine 191-253 PE	Combustion Turbines	76,004.88
46454	519W Molega Lake Stepdown Replacmnt	Distribution	(10,654.65)
46456	11W Yarmouth 4kV Conversion	Distribution	23,214.24
46457	79V-401 Cameron Lake Voltage Conver	Distribution	11,461.63
46458	16N-302 Stewiacke Reconductor	Distribution	33,275.92
46459	103W-312 Borgels Point Deter. Poles	Distribution	2,752.91
46461	POA - Ash Cell Capping 2015	Thermal Generation	1,985,692.60
46462	POA - Boiler Refractory Repl. 2015	Thermal Generation	1,102.88
46465	TUC2 Turbine Valve Replace	Thermal Generation	592,009.74
46473	TUC3 - Turbine Valves	Thermal Generation	18,129.72
46481	LIN3 Turbine Valve Refurbishment	Thermal Generation	150.11
46484	TUC - Unit 1&2 Analytical Panel	Thermal Generation	137,522.54
46485	TUC1 - Gas Block Valves	Thermal Generation	18,208.70
46486	TUC - Asbestos Abatement 2015	Thermal Generation	15,153.91
46487	TUC - 4160V & 600V Breakers 2015	Thermal Generation	170,607.39
46493	TUC2 - Polisher Upgrade	Thermal Generation	46,396.19
46494	TUC3 - Chimney Refurbishment	Thermal Generation	(12,895.68)
46495	TUC3 - DCS Upgrade	Thermal Generation	84,457.38
46496	LIN3 Analytical Panel Replacement	Thermal Generation	1,142.89
46497	TUC - WTP Resin Replacement	Thermal Generation	224.74
46498	AMO PE TUC2 LP Turb Spindle & Disc	Thermal Generation	306,706.03
46499	AMO PE Stator Rewind Kit Cap Spare	Thermal Generation	41,943.99
46500	AMO PE TUC3 LP Turb Spindle & Disc	Thermal Generation	105,861.33
46503	AMO PE Steam Chest Forgin Cap Spare	Thermal Generation	17,086.73
46505	TUC2 UU LP Row6 Blade Replace	Thermal Generation	550,617.53
46506	LM6000 - Noise Mitigation	Combustion Turbines	220,590.36
46509	POA Arrowhead Replacement	Thermal Generation	14,600.00
46510	POA Expansion Joint Replacement	Thermal Generation	1,858.20
46513	3C Port Hastings BPS Upgrade	Transmission	947,565.36
46531	TRE WWTP Discharge Pump Replacement	Thermal Generation	82,002.38
46552	Backbone Communications Sys Upgrade	General Plant	4,011,302.08
46573	CADD Document Management System	General Plant	23,126.91
46576	2015 PCB Phase-out for Pole Top Tx	Distribution	18,614.03
46577	TRE6 UU HEP Upgrades	Thermal Generation	38,137.90
46579	48W-204 Wolfe St Voltage Conversion	Distribution	1,693.35
46581	500N-301 Caribou Island Overload	Distribution	1,063.60
46582	L5569 Upgrade	Transmission	131,105.57
46585	Upgrade Planning Tools	General Plant	139,628.57
46586	2015 PCB Removal - Substation	Transmission	15,094.25
46587	Metro Voltage Support Add Capacitor	Transmission	1,922,079.28
46590	Asset Management Project	General Plant	67,339.61
46591	88S Lingan Replace 230kV GIS	Transmission	772,049.21
46593	70V Bridgetown Voltage Conversion	Distribution	61,100.91
46594	HYD Sissiboo Falls Overhaul	Hydro Generation	(45,803.43)
46595	POT - ID fans refurbishment	Thermal Generation	0.01
46615	613V-211 Bear River Voltage Convers	Distribution	1,989.49
46618	555W-301 Waterloo Overloaded Reclos	Distribution	11,649.04
46619	514C Lochaber Substation Impr.	Distribution	1,462.39
46621	69V-211 - Bridgetown - Conversion	Distribution	5,285.03
46622	POT - Replace heavy fuel oil pumps	Thermal Generation	4,833.29
46623	Rights for Facility on Railway Land	Distribution	848.46
46634	IT - SharePoint Functionalty	General Plant	49,324.90
46651	23H-Rockingham Voltage Conversion-P	Distribution	357,077.34
46657	Inspection Serv Analyzer Rplcm	General Plant	12,868.69
46671	NERC CIP Version 5 Implementation	General Plant	2,079,521.84
46672	LIN - Boiler Nitrogen Generator	Thermal Generation	21,622.90
46673	LIN - Plant Noise Mitigation	Thermal Generation	(6,612.60)
46691	T&D Inspection Infrastructure Add'n	General Plant	6,781.72
46713	TUC5 LM6000 - Engine 191-332 Refurb	Combustion Turbines	10,147.93
46736	Distribution Bulk Pole Purchase	Distribution	1,578.26
46739	IT - Outage Map Technology Upgrades	General Plant	375,136.67
46757	88S Lingan 230kV BPS Upgrades	Transmission	274,610.07
46759	127H-411 Fall River Add 2 Phases	Distribution	1,340.32
46771	Sable Wind Collector System	Transmission	2,281.63
46791	HYD - ANN Runner Repair	Hydro Generation	(16,733.00)
46811	2H Armdale Transformer Addition	Transmission	88,706.30
46832	Katja Rose Dr 2014	Distribution	958.93
46835	IR 162 Terence Bay	Distribution	(237.73)
46874	POA Automated Condenser Cleaner	Thermal Generation	13,436.76
46894	MCC - CGI Lease Payments	General Plant	(0.21)
46931	IR 384 Porters Lake	Distribution	(137.73)
46932	647N-312 Linden Road Reconductor	Distribution	3,986.28
46933	6N-302 Rodney Road Reconductor	Distribution	(6,724.83)
46951	TRE6 PA 6B Service Air Compressor	Thermal Generation	42,471.75
46971	24C-443 Upgrade GUY Landfill	Distribution	7,837.52
46991	55V-322 - Lovette Road	Distribution	101,006.34
47032	65V-301 Mount Hanley Road Rebuild	Distribution	405.12
47051	IR 437 Ketch Harbour	Distribution	(337.73)
47053	IR 497 East Amherst	Distribution	(137.73)
47054	22W-312 - Newellton Orion Wharf Rd	Distribution	1,349.42
47055	50W-412 Camperdown Overloaded Equip	Distribution	18,899.74
47115	AMO PE POT2 Boiler Life Assess	Thermal Generation	17,252.88
47116	LIN PE Flyash Surge System Bypass	Thermal Generation	30,430.88
47117	AMO PE TRE5 Boiler Life Assess	Thermal Generation	4,448.92
47121	22N-401-Southampton Rd - Reconducto	Distribution	6,171.81
47124	Advanced Meter Infrastructure	Distribution	2,681,929.33
47131	L8001 Structure 58 Replacement	Transmission	472,139.10
47152	22C-404 Arichat to Legion Rebuild	Distribution	226,742.78
47153	LIN PA Transport Air Compressor Rep	Thermal Generation	39,936.05
47155	HYD - ANN Chlorine Generator Replac	Hydro Generation	5,612.79
47158	TRE5 HEP & FAC Refurbishment	Thermal Generation	52,859.08
47163	HYD - Tusket Controls Upgrade	Hydro Generation	131,974.14
47166	HYD - McAskill Brook Decomm	Hydro Generation	93,539.59
47167	HYD - Sandy Lake Surge Tank	Hydro Generation	2,995,432.54
47168	IR 355 Gardiner Mines I	Distribution	(137.73)
47169	IR 453 Gardiner Mines II	Distribution	(137.73)
47171	LIN3 4160V Switchgear IR Window U&U	Thermal Generation	367.72
47172	HYD - Tidewater 1 Overhaul	Hydro Generation	1,906,477.37
47173	HYD - Tidewater Butterfly Valve Rep	Hydro Generation	246,420.10
47174	U&U LIN3 4160VBusBar Insp/Repair	Thermal Generation	(367.72)
47175	WIN - Haight's Brook Bridge Widenin	Wind Generation	80,939.55
47191	L5536A 9W Tusket to 88W Pleasant St	Transmission	325.17
47212	L5506 55N Pictou to 54N Abercrombie	Transmission	67,816.19
47214	L5551 79W Lunenburg to 80W Indian P	Transmission	(12.53)
47215	L6008 90H Sackville to 103H Lakesi	Transmission	4,496.25
47218	L5563 2S VJ to 4STownsend St	Transmission	88,648.18
47219	L7005 67N Onslow to 3C Port Hasting	Transmission	(0.34)
47221	L5015 Avon to Three Mile Plains	Transmission	1,059.80
47222	L5521 1N Onslow to 15N Willow Lane	Transmission	28,160.34
47223	1N-403/405 Meeting House Rd Rebuild	Distribution	6,342.22

Project #	Project	Category	2016 Spend
47224	1N-404 81N-411 Plains Rd Line Upgra	Distribution	286.60
47225	127H-411-Fall River-Load Growth Ph2	Distribution	11,824.64
47226	22W-311GA - Daniels Head Rd Recondu	Distribution	299,049.98
47227	AMO PE POT Generator Stator Assess	Thermal Generation	15.98
47231	LIN3 UU Governor Refurbishment	Thermal Generation	(3,681.00)
47272	HYD - Gate Refurb Routine - MER	Hydro Generation	91,734.71
47273	HYD - Gate Refurb Routine - SHH	Hydro Generation	123,081.27
47275	36V-302 Longspell Rd- Add 2 Phases	Distribution	2,125.81
47291	PE Metro Dynamic Reactive Reserve	Transmission	(175,644.55)
47292	89W-302G - Rhodes Corner Rebuild	Distribution	14,681.33
47294	16V-315 New Edinburgh Rd	Distribution	6,310.94
47312	11S-305 4S-333 Membertou Overload	Distribution	3,289.36
47331	LM6000 - 191-253 Refurbishment	Combustion Turbines	10,195.28
47332	HYD - Methals Overhaul	Hydro Generation	2,097,036.85
47352	POA PE Vortex Finder Repl. 2016	Thermal Generation	4,307.24
47372	LIN UU Skid Steer Tractor Repl.	Thermal Generation	2,000.00
47373	Dexter LIIR	General Plant	58,899.95
47396	HYD - Nictaux Powerhouse Dam Refurb	Hydro Generation	1,039,862.59
47397	HYD - Gisborne Dam D4 Upgrade	Hydro Generation	1,417,817.44
47399	65V-302H - Bloomington Rd Reconduct	Distribution	26,113.84
47400	LIN3 U&U 8th Stg Dia. & Spill Strip	Thermal Generation	7,576.19
47403	Load Research Sample Update	Distribution	390,851.65
47411	TRE6 PA Bottom Ash Conveyor Refurb	Thermal Generation	32,527.95
47431	666V-311-Castle Frederick Road - Re	Distribution	3,696.12
47432	HYD - Ridge Overhaul	Hydro Generation	967,577.17
47471	131H-422G-East Uniacke Rd Load Grow	Distribution	524,662.61
47473	IR 457 Baddeck	Distribution	(137.73)
47474	IR 447 Brenton	Distribution	(137.73)
47475	IR 432 Walton	Distribution	(137.73)
47476	HYD - WRC Tailrace Tunnel Rockfall	Hydro Generation	23,357.84
47477	IT - Next Generation Firewall	General Plant	2,544,894.91
47493	POT - Turbine dehumidifier	Thermal Generation	9,241.10
47494	16W-302 Lake George Neutral Replace	Distribution	2,808.53
47497	LIN - Flyash Trans Air Comp Replace	Thermal Generation	159,491.71
47498	LIN - Crusher/Dumper Fire Sys. Refu	Thermal Generation	221,487.31
47499	LIN Precip Fire Detection Upgrade	Thermal Generation	64,864.80
47500	TUC2 CW Pump Motor Refurb N & S	Thermal Generation	74,490.07
47501	LIN Boiler Fill Pump Suc. Line Repl	Thermal Generation	82,918.80
47503	LIN Propane Skid Steer Replacement	Thermal Generation	59,251.72
47504	LIN Facilities Upgrade	Thermal Generation	119,160.28
47505	LIN Coal Mill Refurbishment 2016	Thermal Generation	463,348.14
47506	LIN CW Screen Refurbishment 2016	Thermal Generation	296,046.41
47507	LIN CW Pump Rebuild 2016	Thermal Generation	565,601.77
47508	LIN Coal System Guard Upg. Phase 2	Thermal Generation	118,269.17
47510	LIN Coal Plant Struc. Refur. Ph. 2	Thermal Generation	203,568.65
47531	TRE6 Turbine Refurbishments	Thermal Generation	1,542.06
47551	HYD - SHH Controls Upgrade	Hydro Generation	214,879.10
47552	TRE5 Boiler Refurbishments	Thermal Generation	1,583,862.05
47554	TRE5 5-1 FD Fan Refurbishment	Thermal Generation	513,342.40
47555	TRE5 Coal System Upgrades	Thermal Generation	321,650.12
47593	TRE Dechlorination System	Thermal Generation	12,424.22
47595	TRE6 PA Polisher PLC Upgrade	Thermal Generation	138,943.62
47596	TRE6 ID Fan Damper Upgrades	Thermal Generation	266,294.35
47598	TRE5 5-2 Mill Refurbishments	Thermal Generation	(65,278.95)
47599	TRE5 5-4 Mill Refurbishments	Thermal Generation	146,790.36
47600	TRE Asbestos Abatement (2016)	Thermal Generation	175,355.94
47601	TRE Ash Site Management (2016)	Thermal Generation	182,650.88
47606	TRE5 Sootblower Control System Upgr	Thermal Generation	216,907.07
47607	TRE Common Water Piping Replacemen	Thermal Generation	97,764.73
47610	TUC2-PE Reheat Outlet Header	Thermal Generation	(423.48)
47611	POT - Demolish Unit 1 Stack	Thermal Generation	1,487.06
47612	IT - U&U Portfolio Project Mgmt	General Plant	(24,276.51)
47613	PHB - Boiler Refurbishment 2016	Thermal Generation	572,372.98
47614	PHB- Fuel System Refurbishment 2016	Thermal Generation	284,372.01
47615	PHB - HVAC System Upgrades	Thermal Generation	78,116.91
47616	77V-303 - Victoria Street Reconduct	Distribution	55,105.84
47617	TRE6 Elevator Controls Upgrade	Thermal Generation	231,477.91
47631	U&U Capacitor Bank Breaker Rpcmnts	Transmission	(1,073.58)
47635	TRE Facilities Upgrades	Thermal Generation	198,652.26
47644	TRE6 PA 6A Hydrogen/Water/Water	Thermal Generation	196,358.19
47645	TRE6 6A Instr Air Compressor Replac	Thermal Generation	59,326.11
47648	HYD - Lequille Pipeline Replacement	Hydro Generation	55,118.50
47650	HYD - Annapolis Overhaul	Hydro Generation	335,001.93
47651	HYD - Maccan Decommissioning	Hydro Generation	3,634.71
47652	HYD - Ridge Surge Tank Refurbishmen	Hydro Generation	1,181.61
47653	HYD - Gulch SurgeTank Refurbishment	Hydro Generation	1,065.38
47654	HYD - Gulch Penstock Surge Tank	Hydro Generation	484.91
47655	HYD - Paradise Controls Upgrade	Hydro Generation	5,786.44
47657	LIN4 HVB Refurbishment	Lingan #4 Major Outage	891,465.46
47658	LIN4 L-0 Blade Replacement	Lingan #4 Major Outage	4,346,702.01
47659	HYD - Fall River Controls Upgrade	Hydro Generation	22,463.93
47660	HYD - Dickie Brook Controls Upgrade	Hydro Generation	18,983.58
47661	POT - Asbestos management 2016	Thermal Generation	347,326.33
47662	POT - Coal mill overhauls 2016	Thermal Generation	218,826.38
47663	LIN4 - SH5 Boiler Tube Replacement	Lingan #4 Major Outage	638,107.49
47664	LIN4 Boiler Div. Wall Replacement	Lingan #4 Major Outage	657,486.27
47666	LIN4 Boiler Refurbishment	Lingan #4 Major Outage	659,743.68
47667	POT - Water treatment plant u	Thermal Generation	16,659.70
47668	POT - Plant siding 2016	Thermal Generation	200,384.16
47673	LIN4 Generator Rotor Rewind	Lingan #4 Major Outage	2,414,530.25
47676	POT Expansion joint replacements	Thermal Generation	183,217.63
47678	HYD - Prince Mine Dam Decommission	Hydro Generation	56,122.17
47679	103C-311 Barren Road Reconductor	Distribution	6,268.12
47682	HYD - Lequille Switchgear Replaceme	Hydro Generation	61,229.73
47687	POT - Unit 2 Boiler Reconditioning	Thermal Generation	178,155.56
47689	LIN4 - Air Heater Baskets and Seals	Lingan #4 Major Outage	527,369.58
47690	LIN4 Burner Front Components Repl.	Lingan #4 Major Outage	532,721.72
47692	POT - Fire system upgrades	Thermal Generation	136,826.86
47693	63V-313G-Evangeline Trail Reconduct	Distribution	4,235.05
47699	LIN UU B Conveyor Belt Replacement	Thermal Generation	21,064.34
47701	POT - Lab upgrades phase 3	Thermal Generation	198,841.66
47702	POT - Wastewater Treatment Plant ch	Thermal Generation	85,343.19
47703	POT - Replace DCS servers	Thermal Generation	161,813.78
47704	POT - Replace Polisher Chemical Ski	Thermal Generation	294,422.81
47707	POT - Replace D belt and refurbish	Thermal Generation	55,729.42
47711	POT - PI interface to DCS	Thermal Generation	29,317.98
47719	POT - Unit 2 Boiler Refurbishment 2	Thermal Generation	232,627.54
47721	2016 PCB Phase-out for Pole Top Tx	Distribution	3,931,389.34
47732	131H-424/137H-412 Feeder Tie	Distribution	419,437.84
47733	TUC2 Boiler Feed Pump Motor Refurb	Thermal Generation	9,410.50
47734	1C-411 Highway 4 Reconductor	Distribution	486,706.10
47751	Dynamic Transmission Limits	General Plant	16,065.08
47752	4S-333 Bentinck St. Rebuild	Distribution	723,629.03
47753	24C-442GB Hwy 16 Reconductor Ph 2	Distribution	1,182,576.19
47754	63V-313 Ward Rd Reconductor	Distribution	206,520.83
47755	LIN4 Turbine HT Fasteners Repl.	Lingan #4 Major Outage	1,053,074.12
47756	36V-303 Reconductor Middle Dyke Rd	Distribution	221,936.96
47760	85S-402 Re-Insulate	Distribution	274,417.51
47762	LIN4 Chemical Sampling Rack Repl.	Lingan #4 Major Outage	469,034.97
47765	58C-405 Belle Cote Phase 2	Distribution	237,040.88
47766	70V-312G Centerlea Rebuild	Distribution	358,936.87
47773	3N Oxford Conversion Phase 2	Distribution	119,658.10
47774	546C-311 West Bay Upgrade	Distribution	108,544.56
47776	111S Prime Brook Feeder Exits & Fee	Distribution	902,454.82
47777	70W-321 Wile Lake Road	Distribution	66.48
47778	54H Feeder Exit Cable Replacement	Distribution	123,284.97

Project #	Project	Category	2016 Spend
47780	Tusket Engine Repair	Combustion Turbines	(235.39)
47784	103H-Lakeside Feeder Reconfiguratio	Distribution	129,815.45
47786	129H Kearney Lake Load Transfer	Distribution	297,209.12
47787	2H Armdale New Feeder	Distribution	32,380.04
47791	103H Feeder Exit Cable Replacement	Distribution	116,419.96
47793	POA UU Heavy Electrical Cable Repl.	Thermal Generation	76,132.19
47811	Padmount Switch Replacement	Distribution	180,137.52
47813	535N Powell Road Phase 2 Conversion	Distribution	37,996.45
47814	HYD - WRC Evacution Tunnel Upgrade	Hydro Generation	174,644.49
47816	660V-201 Duncan Ave Rebuild	Distribution	61,950.29
47832	ICP Rail Center Roof Refurb	Thermal Generation	44,084.00
47835	ICP Railway Signal Crossing Refurb	Thermal Generation	85,073.78
47836	ICP Ranger BeltConveyor Struct. Rfb	Thermal Generation	133,291.27
47837	ICP RailCenter FireSys. WaterSup	Thermal Generation	38,886.48
47838	ICP Pier Fire Detection	Thermal Generation	38,573.50
47839	ICP Locomotive Truck Refurbishment	Thermal Generation	197,463.65
47840	Route 4 Highway Shift at Chapel Isl	Distribution	1,048.05
47842	POA 4KV 600V Breaker Refurbishment	Thermal Generation	65,903.52
47846	POA Ash Cell 4 Stage 3	Thermal Generation	187,260.90
47847	POA Boiler Refractory Replacement	Thermal Generation	747,652.35
47848	POA Boiler Arrowhead Replacement	Thermal Generation	195,277.32
47849	POA Expansion Joint Replacement	Thermal Generation	89,828.27
47850	POA Valve Component Replacement	Thermal Generation	96,979.37
47851	POA Boiler Refurbishment	Thermal Generation	983,396.71
47852	POA PLC Migration	Thermal Generation	190,544.69
47855	POA Coal Pile Run-off Pond Refurb	Thermal Generation	53,614.59
47856	POA Limestone Pipe Refurbishment	Thermal Generation	157,933.76
47858	POA Equipment Fuel StorageTanks Re	Thermal Generation	111,300.20
47860	POA Opacity Meter Upgrade	Thermal Generation	69,082.12
47861	POA Start Up Burner Upgrades	Thermal Generation	129,141.99
47863	LIN4 Turbine Valves Refurbishment	Lingan #4 Major Outage	235,291.79
47864	LIN 4160V and 600V Breaker Refur.	Thermal Generation	48,894.80
47865	LIN Heavy Oil Suction Line Repl. 1	Thermal Generation	242,092.35
47866	LIN4 Condenser Tube Coating	Lingan #4 Major Outage	56,985.04
47867	LIN Bunker Chute Sealing Phase 2	Thermal Generation	118,688.89
47868	LIN Stack Lighting Replacement	Thermal Generation	245,651.63
47869	LIN4 Bottom Ash Refurbishment	Lingan #4 Major Outage	621,775.14
47872	LIN E Gallery Protective Coating	Thermal Generation	501,760.45
47873	LIN Plant Communications Upgrade	Thermal Generation	68,596.52
47874	LIN Ash Scale Replacement	Thermal Generation	199,802.04
47875	LIN PF Line Replacement	Thermal Generation	186,761.37
47876	HYD - Lequille Overhaul	Hydro Generation	37,881.08
47879	CKF LIIR Project	General Plant	(603.45)
47891	AMO PE LIN TSC Implementation 2015	Thermal Generation	100,108.24
47892	TUC1 Turbine Valves	Thermal Generation	192,961.77
47893	TUC3 PE Gen Hydrogen Panel	Thermal Generation	17,747.35
47895	TUC3 Lube Oil Purifier Upgrade	Thermal Generation	131,236.15
47896	TUC2 Main Steam Piping Weld Replace	Thermal Generation	203,249.41
47897	TUC 4kV/600V Breaker Replacements	Thermal Generation	235,171.65
47898	TUC Asbestos Abatement	Thermal Generation	209,820.92
47899	TUC1 TSE/Data Management Upgrades	Thermal Generation	168,470.41
47901	TUC Bailey Control Valves Replacem	Thermal Generation	73,261.36
47904	TUC3 West Vacuum Pump Repl	Thermal Generation	71,747.97
47905	TUC1 Chimney Access Infrastructure	Thermal Generation	121,834.26
47906	TUC SEL Power Monitoring Relays	Thermal Generation	101,895.86
47910	Aspen One-Liner Upgrade	General Plant	123,106.16
47911	TUC1 Turbine High Temp Fasteners	Thermal Generation	702,525.80
47912	L6552 Replacements and Upgrades	Transmission	984,117.34
47914	L6537 Replacements and Upgrades	Transmission	549,495.29
47931	POA Coal System Guard Upgrd Phase 2	Thermal Generation	80,085.73
47932	POA SH3 Boiler Tube Repl Phase 2	Thermal Generation	547,977.58
47933	LIN4 Turbine Vibr. Monit. Upgrade	Lingan #4 Major Outage	299,821.08
47934	TUC3 UU CW Piping Refurbishment	Thermal Generation	253.74
47935	L5040 Replacements	Transmission	1,177,491.49
47939	TUC4 LM6000 Replace all SS tubing	Combustion Turbines	25,554.00
47940	TUC5 LM6000 Replace all SS tubing	Combustion Turbines	25,554.00
47941	TUC4 LM6000 Enclosure Painting	Combustion Turbines	73,635.08
47942	TUC5 LM6000 Enclosure Painting	Combustion Turbines	73,635.08
47945	TUC EDI Replacement	Thermal Generation	267,327.88
47947	TUC6 Condenser Waterbox Coating Rep	Thermal Generation	246,049.08
47949	L5028 Replacements and Upgrades	Transmission	467,466.60
47950	L5017 Replacements & Upgrades	Transmission	1,170,866.02
47951	CT BGT1 FT Vane Replacement	Combustion Turbines	10,147.93
47952	L7001 Replacements (Phase 3 & 4)	Transmission	946,073.41
47955	LIN4 ID Fan Shaft Refurbishment	Lingan #4 Major Outage	123,059.33
47958	538W-311 - Back Cornwall Rebuild	Distribution	23,564.92
47991	ICP UU Locomotive Truck Set Refur.	Thermal Generation	24,205.76
48011	Donkin Mine Reopen	Transmission	(3,745.32)
48014	TUC3 Battery Bank 3B Replacement	Thermal Generation	131,980.43
48015	TRE5 PA Coal Reclaim Hopper Upgrade	Thermal Generation	(142,988.31)
48017	POA UU Turbine Turning Gear Rebuild	Thermal Generation	(28,193.32)
48018	TUC1 IP HP Turbine Blading Refurb	Thermal Generation	446,039.65
48019	HYD - WRC Common Facility Repairs	Hydro Generation	9,989.10
48020	HYD - RUT3 Generator Refurb	Hydro Generation	1,066,812.08
48022	Spider Lake Substation Addition	Transmission	289,276.67
48023	103H LAK: Capacitor Bank Additions	Transmission	169,462.45
48025	L7018 Upgrade to 345kV & Capacitor	Transmission	122,589.32
48026	L-6033/L-6035 CT Ratio Changes 1H	Transmission	20,283.60
48029	AMO Meridium Dashboards	General Plant	193,735.68
48044	AMO Bentley Nevada Upgrade	General Plant	17,837.80
48046	AMO Enhanced Fleet Monitoring	General Plant	105,281.55
48047	2015 Trans Inspection Programs	Transmission	27,133.19
48051	Tusket FT Inlet Guide Vanes	Combustion Turbines	15,502.35
48052	HYD - ANN HVAC Upgrade	Hydro Generation	41,404.94
48053	POA Reheater/Superheater Tube Assmt	Thermal Generation	989.21
48058	SMT UU Railcar Access Ramp	Thermal Generation	(10,091.57)
48059	2016 Switch and Breaker Replacement	Transmission	1,078,487.35
48061	New Mobile Substation 7.5MVA	Transmission	19,165.93
48062	2016 Reactor Breaker Replacements	Transmission	255,462.75
48063	2016 Capacitor Bank Breaker Repl.	Transmission	96,254.30
48066	2016 PCB Removal - Substation	Transmission	2,918,873.66
48067	2016 Oil Containment Program	Transmission	311,166.17
48069	Vault Upgrade Program	Distribution	96,946.11
48070	GIC Study Software	General Plant	64,716.44
48071	2016 Manhole Cover Replacement	Distribution	87,856.44
48072	2016 ADMS Switch Order Management	General Plant	159,437.84
48092	2016 Subs Recloser Replacement	Distribution	480,478.81
48093	2016 Padmount Replacement Program	Distribution	1,357,582.29
48094	Engine 191-443 Repair	Combustion Turbines	(265,051.95)
48111	East Switch Upgrades 15S	Transmission	73,630.80
48112	11W King Street Substation Ret	Transmission	100,673.25
48113	2016 Steel Tower Refurbishment	Transmission	1,411,068.34
48114	2016 Steel Tower Life Extension	Transmission	829,832.34
48116	2016 Sacrificial Anode Installation	Transmission	1,194,277.11
48151	2016 Insulator Replacement Program	Transmission	135,512.15
48152	20H-Spryfield Voltage Conversion Ph	Distribution	413,368.70
48153	Scotsburn Lumber LIIR	General Plant	(46.69)
48155	2016 SCADA Application Upgrade	General Plant	205,508.81
48156	East Switch Upgrades 58C	Transmission	58,430.20
48157	TUC Main Auxiliary Boiler Instal	Thermal Generation	3,462,206.71
48158	Environmental Equipment Replacement	General Plant	138,939.44
48171	TUC1 UU FAC/HEP Upgrades	Thermal Generation	22,754.02
48172	TUC2 UU FAC/HEP Upgrades	Thermal Generation	22,754.32
48177	POA UU Coal Feeder System Refurb.	Thermal Generation	234.00
48194	88S-713 Replacement	Transmission	637,190.20
48195	Halifax 4kV Conversion Ph 3	Distribution	252,351.79

Project #	Project	Category	2016 Spend
48233	2015 Dist. Inspection Programs	Distribution	(84,591.02)
48234	Customer Support System Enhancement	General Plant	235,800.01
48236	Self Serve Dev Phase 1	General Plant	1,341,848.22
48238	Customer Billing Experience Improve	General Plant	389,045.73
48253	TUC Oil Tank Level Monitoring Upgr	Thermal Generation	120,380.09
48254	IT - Outage Comm Tech Cap Improvmnt	General Plant	1,664,842.21
48272	HYD Paradise Road Repairs	Hydro Generation	(108,487.97)
48273	POA PE Turbine Health and Vibration	Thermal Generation	31,826.20
48292	HYD - Dickie Brook Bearing Repair	Hydro Generation	39,387.17
48311	IT - U&U Labour Pool Allocation	General Plant	190.00
48313	TUC UU Turbine Dehumidifier	Thermal Generation	93,219.03
48331	BGT2 Annunciation Upgrade to DAS	Combustion Turbines	25,526.12
48353	POA UU Ash System Refurbishment	Thermal Generation	5,747.22
48354	LIN1 UU Burner Front Refurbishment	Thermal Generation	(3,131.04)
48355	LIN1 PA Bottom Ash Refurbishment	Thermal Generation	(3,306.30)
48356	LIN1 UU Air Heater Refurbishment	Thermal Generation	1,200.40
48357	BGT Fuel Tank Farm Oil Water Separa	Combustion Turbines	128,077.53
48361	LIN1 UU Misc. Valve Refurbishment	Thermal Generation	10,061.62
48372	TRE6 UU GSCW MCC Repairs	Thermal Generation	9,685.43
48391	CT-BGT3 DAS Upgrade	Combustion Turbines	111,268.50
48392	AMO PE Fleet 4160 Motor Health Assm	General Plant	33,700.95
48396	HYD - Bridge Remediation	Hydro Generation	91,198.20
48397	HYD - Mink Lake Dam Repair	Hydro Generation	55,003.63
48411	IT - Internet Explorer Upgrade	General Plant	206,887.01
48412	Overload Stepdown - Scotch Hill	Distribution	43,681.83
48416	Lower South River 515C	Distribution	16,235.13
48431	36W-304G Enslow Point Road Line Rel	Distribution	145,289.22
48432	16W-301 Rodney Road Rebuild	Distribution	338,405.68
48433	HYD - ULF Crane Rail Safety Upgrade	Hydro Generation	223,979.92
48434	25W-302G Lockes Island Reconductor	Distribution	31,534.38
48435	LM6000 Common NOx equipment kit	Combustion Turbines	94,696.12
48436	25W-301 Upper Clyde Rd Relocation	Distribution	408.95
48437	36W-301 East Sable Road Line Extens	Distribution	162,238.86
48438	LIN4 PE ID Fan Damper & VIV Refurb.	Lingan #4 Major Outage	451,581.12
48439	76V-301G Grafton Rd Line Extension	Distribution	106,428.50
48440	Upgrade R324-122 and R3A03781	Distribution	24,098.76
48471	TUC3 UU HEP FAC Upgrades	Thermal Generation	27,259.75
48472	LIN UU Ash Conditioner Refurb.	Thermal Generation	51,057.27
48474	IT - Windfarm Report Automation	General Plant	129,371.30
48475	AMO UU Critical Piping RiskAnalysis	Thermal Generation	96,020.33
48476	LIN UU Turbine Dehumidifier	Thermal Generation	148,783.85
48477	AMO LIN UU CIP Ver5 NERC Upgrade	General Plant	72,752.34
48478	AMO TUC UU CIP Ver5 NERC Upgrade	General Plant	39,846.28
48492	LIN3 UU SCC Chain Replacement	Thermal Generation	17,587.82
48493	581C Malignant Cove Voltage Reg	Distribution	39,176.62
48511	TUC3 Main and Auxiliary Governors	Thermal Generation	56,240.67
48512	TUC3 Turbine-End Gen Hydrogen Seal	Thermal Generation	58,410.38
48514	LIN UU Coal Truck Scale	Thermal Generation	154,417.21
48533	PE Lequille Headpond Refurbishment	Hydro Generation	96,971.20
48535	PE Scragg Lake Dam Spillway Refurb	Hydro Generation	95,665.76
48536	PE Wreck Cove Brook Dam D-9 Refurb	Hydro Generation	150,399.57
48537	LIN3 UU Critical Piping Refurb	Thermal Generation	26,527.14
48551	TUC UU Hypochlorite Upgrade	Thermal Generation	101,987.08
48575	131H-421 Rossing Drive Feeder	Distribution	9,956.19
48578	TUC2 UU Loop Piping Hardware	Thermal Generation	217,486.43
48591	L5003 Replacements and Upgrades	Transmission	210,517.15
48592	POA UU Dozer Engine Replacement	Thermal Generation	(46,657.27)
48593	L5016 Replacements and Upgrades	Transmission	140,172.89
48594	LIN UU Utility Tractor Replacement	General Plant	30.95
48595	L5548 Replacements and Upgrades	Transmission	243,963.66
48597	L5530A Replacements and Upgrades	Transmission	267,888.31
48598	L5530B Replacements and Upgrades	Transmission	171,878.64
48599	L5054 Replacements and Upgrades	Transmission	34,221.68
48600	L5046 Replacements and Upgrades	Transmission	12,270.67
48602	L5047 Replacements and Upgrades	Transmission	34,971.97
48603	L8003 Replacements and Upgrades	Transmission	21,504.68
48604	L5538 Replacements and Upgrades	Transmission	131,812.18
48609	LM6000 Unit 4 Turbine Exhaust & Ven	Combustion Turbines	(1,378.50)
48610	16N-301 Stewiacke - Load Transfer	Distribution	421,401.61
48611	LIN4 - SA Damper Upgrades	Lingan #4 Major Outage	77,820.85
48631	HYD - Gulch Spillway Refurbishment	Hydro Generation	60,618.49
48633	IT - Java Security	General Plant	393,011.64
48635	IT - Endpoint Data Encr & Malwre Pr	General Plant	584,418.66
48636	Overloaded Stepdown 524C Cape Jack	Distribution	25,954.12
48637	Overloaded Stepdown - 591C Margaree	Distribution	25,047.23
48638	PE TRE/POT Marine Term'l Coal Study	Thermal Generation	59,917.16
48651	LM6000 Flame Detector Cable	Combustion Turbines	6,308.79
48652	46V-303 Remove Abandoned Line	Distribution	26,410.00
48671	19W-312 Dennis Point Wharf Reconduc	Distribution	213,420.17
48672	83V-301 Grand Pre - Reconductor	Distribution	98,442.79
48673	3S-307 Epoxy Arm Changeout Sydney M	Distribution	103,383.41
48693	LIN2 UU CEP Motor Refurbishment	Thermal Generation	75,990.21
48711	4C-441 Dagger Woods relocate	Distribution	241,869.36
48712	HYD - Dam Instrumentation Upgrade	Hydro Generation	11,394.76
48713	TUC PE Instrument Air System	Thermal Generation	8,464.76
48731	4C-441 Church St River Crossing	Distribution	168,509.63
48751	LIN1 UU 1A CW Pump Motor Refurb.	Thermal Generation	162,233.74
48752	16N-302-Windham Hill-Deteriorated	Distribution	149,931.23
48771	CT's Tusket-Enclosure Heaters	Combustion Turbines	4,217.12
48772	LIN3 UU 3B Condenser Vac. Pump Repl	Thermal Generation	147,049.51
48773	IT - VOIP Expansion	General Plant	102,034.55
48774	HYD - Milton Shop HVAC Upgrade	Hydro Generation	32,755.98
48775	LIN34 PA GSCW Reconditioning	Thermal Generation	205,260.07
48791	HYD - WRC Safety Standards Upgrades	Hydro Generation	209,689.45
48811	LIN4 PA FW Heater Level Control Upg	Lingan #4 Major Outage	233,534.02
48831	CT's BGT Enclosure Heaters	Combustion Turbines	6,331.26
48832	Voltage Regulator Replacement East	Distribution	174,356.49
48833	TUC2 PE South BFP Refurb	Thermal Generation	95,176.71
48834	PE Burnside Piping Assessment	Combustion Turbines	12,031.03
48837	AMO PE Fleet Envt'l Data Mgmt	General Plant	12,555.95
48848	AMO PE Fleet Lubrication Program	Thermal Generation	917.64
48853	AMO PE Fleet RBI Prog Ph.II-Piping	Thermal Generation	50,594.42
48856	AMO PE Fleet RBI Prog Ph.III-Tanks	Thermal Generation	40,180.97
48859	AMO UU POT Switchgr IR Wind & Refur	Thermal Generation	41,843.56
48862	AMO PE Fleet RBI Prog Ph.IV-BoilerA	Thermal Generation	98,421.27
48868	AMO PE Fleet TWIP Upgrades	Thermal Generation	23,165.91
48890	AMO PE TUC2 Generation Rotor Rewind	Thermal Generation	1,158.20
48893	PE TUC3 IP Turbine Refurbishment	Thermal Generation	82,017.25
48903	LIN PE Turbine Lube Oil Upgrade	Thermal Generation	60,085.76
48912	88W-312G Wyman Rd Reconductor	Distribution	51,163.40
48913	HYD - Tusket Facility Repairs	Hydro Generation	3,305.73
48914	HYD - Malay Falls Facility Repair	Hydro Generation	3,305.73
48931	TUC UU Grease Pit and Effluent Pipi	Thermal Generation	191,338.07
48932	IT - Outage Comm Disaster Recovery	General Plant	230,903.35
48951	LIN4 UU 72" CW Condenser Pipe Repl.	Lingan #4 Major Outage	414,714.66
48971	POA UU Condenser Refurbishment	Thermal Generation	110,677.66
48972	12V-302H Granville Reconductor	Distribution	174,312.79
48973	LIN34 PE Precipitator Upgrade	Thermal Generation	194,742.25
48974	McCabe Lake East Subdivision	Distribution	191,004.76
48975	59C-402G ICP-Device Replacement	Distribution	59,217.60
48976	46W-301 Port Joli Rebuild	Distribution	115,570.57
48977	LIN UU Plant Silencer Upgrade	Thermal Generation	194,658.14
48991	L-5028 Lafarge Relocate	Transmission	(4,290.78)
49011	BGT Thermostatis Control Valve Repl	Combustion Turbines	36,771.72
49031	PE Fleet WWTP Upgrades	Thermal Generation	78,949.05
49032	POT - UU Critical piping refurbish	Thermal Generation	112,981.57

Project #	Project	Category	2016 Spend
49033	HYD Wreck Cove Civil LEM	Hydro Generation	527,224.25
49035	62N-412 Aberdeen Hosp Serv Upgr	Distribution	41,371.45
49036	HYD - Avon Controls Upgrade	Hydro Generation	1,220.90
49037	HYD - Bear River Controls Upgrade	Hydro Generation	4,447.62
49039	HYD - Lequille Controls Upgrade	Hydro Generation	6,119.92
49040	CT's LM6000 TUC4 Cable Replacement	Combustion Turbines	52,917.43
49041	16W-301 Sandford Reconductor	Distribution	70,814.32
49042	LIN UU Isophase Bus Refurbishment	Thermal Generation	211,637.81
49043	IT-Contact Centre Infrastructure	General Plant	1,978,406.39
49051	LIN4 UU Misc. Valve Refubishment	Lingan #4 Major Outage	216,408.46
49053	LIN4 UU Turbine Run-up System	Lingan #4 Major Outage	26,822.16
49056	65V-302HAA Old Liverpool Rd Rebuild	Distribution	32,863.54
49057	TRE6 Excitation System Replacement	Thermal Generation	429,430.28
49061	LM6000 191-443 Engine Repair	Combustion Turbines	1,071,615.92
49062	TUC1 UU Switchgear IR Windows & Ref	Thermal Generation	40,978.71
49063	POA UU Ash System Refurbishment	Thermal Generation	176,946.72
49071	POA UU Coal Feed System Refurb	Thermal Generation	431,200.89
49093	IT - SOC-SIEM Infrastructure	General Plant	275,724.19
49094	IT - Identity Access Mgmt Infrastru	General Plant	214,419.13
49112	LIN UU E Gallery Fire System Repl.	Thermal Generation	95,337.20
49113	12V-303G - Clementsport Rd Rebuild	Distribution	133,703.56
49131	58C-304 Cabot Cliff Golf New Serv	Distribution	39,936.32
49132	POT - PTMT dock winching and access	Thermal Generation	158,767.03
49133	4S-324 Hwy Relocation at Cow Bay Rd	Distribution	98,290.18
49173	11S-411 11S-302 Re-Build Coxheath	Distribution	161,544.80
49191	16V-314H St Bernard's 3ph Extension	Distribution	28,402.72
49211	POA UU SA Compressor Controller Upg	Thermal Generation	203,954.08
49212	IT - My Account Single Sign-On	General Plant	459,949.80
49214	HYD - Annapolis Septic Replacement	Hydro Generation	120,785.63
49215	IT - Outage Reporting Dashboard	General Plant	110,407.99
49216	Kentville URD Replacement 2016	Distribution	52,414.85
49217	IT- Local PST Discovery and Backup	General Plant	75,449.38
49218	49C Pomquet Forks Phase I	Distribution	217,313.06
49220	Antigonish Contingency Stepdowns	Distribution	113,734.54
49223	81S-305 Water St Rebuild Glace Bay	Distribution	84,826.59
49225	LM6000 Unit 4 Expansion Joint	Combustion Turbines	26,378.28
49226	HYD - Black River Dam Refurbishment	Hydro Generation	277,176.20
49227	POA UU LS System Refurbishment	Thermal Generation	269,458.82
49231	TUC1 UU Battery Charger & Inver	Thermal Generation	181,724.82
49253	U&U 20V-T1 Transformer Replacement	Transmission	305,543.23
49271	505V-201 Weymouth Conversion	Distribution	116,915.03
49272	HYD - Miller Lake Dam Refurbishment	Hydro Generation	70,539.74
49273	CT-BGT2 Engine Refurbishment	Combustion Turbines	147,249.19
49291	POT - P&A CEMS Replacement	Thermal Generation	153,658.38
49292	PE Energy Storage Strategy	General Plant	52,379.11
49311	93V-312 Lower Saulnierville Conduct	Distribution	115,728.42
49312	AMO PE LIN4 2016 Outage Support	Thermal Generation	107,565.34
49314	AMO PE TUC1 2016 Outage Support	Thermal Generation	94,685.82
49315	AMO PE TRE6 2017Outage Support	Thermal Generation	14,342.37
49316	TUC3 P&A CEMS Replacement	Thermal Generation	225,217.37
49317	LM6000-Fuel Nozzle Refurbishment	Combustion Turbines	64,466.43
49331	ICP UU Rail Track Tie Tamper	Thermal Generation	25,739.14
49351	LIN4 UU LTSH1 Tube Replacement	Lingan #4 Major Outage	311,368.61
49352	LIN4 UU Turbine Governor Refurb	Lingan #4 Major Outage	241,863.14
49354	CT - BGT Exhaust Stack Grating Repl	Combustion Turbines	22,584.31
49355	PHB - U&U Critical Piping Refurbmt.	Thermal Generation	26,075.72
49371	L-5039 Replacements and Upgrades	Transmission	134,906.69
49373	L-5544 Replacements and Upgrades	Transmission	94,454.16
49374	L-6002 Replacements and Upgrades	Transmission	286,844.58
49375	L-6003 Replacements and Upgrades	Transmission	352,986.33
49376	L-6011 Replacements and Upgrades	Transmission	188,017.83
49378	L-6517 Replacements and Upgrades	Transmission	306,560.27
49379	L-6527 Replacements and Upgrades	Transmission	119,209.92
49380	L-6545 Replacements and Upgrades	Transmission	112,273.03
49381	L-7014 Replacements and Upgrades	Transmission	260,515.17
49391	CT's LM6000 TUC5 Cable Replacement	Combustion Turbines	8,621.29
49414	Hydro Asset Reinvestment Study	Hydro Generation	56,970.07
49415	LIN4 UU HP IP Seal Replacement	Lingan #4 Major Outage	530,713.52
49416	LIN4 UU Generator Stator Rewedge	Lingan #4 Major Outage	524,388.11
49418	POA UU ST2 Transformer Bus Upgr	Thermal Generation	516,562.79
49425	TRE - Trenton Coal Management Study	Thermal Generation	20,584.20
49450	LIN PA Service Air Compressor Repl.	Thermal Generation	175,380.04
49460	AMO DL Module Additions	General Plant	16,105.95
49480	IT - Disaster Recovery	General Plant	222,762.36
49497	LIN4 UU Snout Ring Replacement	Lingan #4 Major Outage	282,600.76
49498	50N-410 / 50N-412 Reconfigure	Distribution	56,192.87
49503	57C-426 Amos Gillis Road Rebuild	Distribution	20,375.69
49508	67C-412 Seaside Comm Wireless Tower	Distribution	89,553.95
49531	Jan 29, 2016 Level 3 Storm Response	Distribution	1,520,547.39
49559	TRE6 UU Burner Refurbishments	Thermal Generation	68,989.85
49571	IT - Outage Map BCP	General Plant	214,526.90
49591	3S Feeder Exit Cable Replacement	Distribution	23,504.00
49593	AMO PE Fleet Critical Valve Program	Thermal Generation	41,629.54
49594	LM6000 TUC5 Airhouse upgrade	Combustion Turbines	839,948.29
49595	HYD - Tusket 1 Overhaul	Hydro Generation	7,854.69
49596	HYD - Hells Gate 2 Overhaul	Hydro Generation	6,676.37
49598	HYD - Gisborne Switchgear Replacmnt	Hydro Generation	30,657.00
49600	IT - Network Architecture Redesign	General Plant	150,228.37
49601	IT - Data loss Prevention	General Plant	161,609.81
49602	IT - Internal Vulnerability Assmnt	General Plant	84,760.29
49603	IT - Patch Management	General Plant	124,862.00
49604	16V-314G Weymouth Falls Line Extens	Distribution	147,555.15
49605	CTs- BGT 3 Engine Refurbishment	Combustion Turbines	1,065,130.88
49606	LIN UU HE Piping Refurbishment	Thermal Generation	214,344.85
49611	New Distribution ROW Phase 1	Distribution	569,427.19
49612	TUC2 PE Boiler Waterwall Tubing	Thermal Generation	122,239.77
49613	CT LM6000 Oil Conditioner	Combustion Turbines	105,268.05
49623	HYD - Grand Lake Radio Comm Upgrade	Hydro Generation	10,292.10
49631	HYD - WRC D61 Instrument Upgrade	Hydro Generation	41,063.70
49632	HYD - White Rock Canal Repairs	Hydro Generation	376,943.43
49633	HYD - Trout River Lake Canal Repair	Hydro Generation	301,268.59
49634	HYD - Trout River Div. Dam Repairs	Hydro Generation	6,902.58
49635	LM6000 Engine Oil Conditioner	Combustion Turbines	8,066.99
49636	CIS Replacement PE	General Plant	1,380,906.77
49731	TUC1 PE Boiler Steam Drum and High	Thermal Generation	114,334.90
49751	TUC1 PE LP Blading Refurbishment	Thermal Generation	706,553.29
49756	PE Marshall Falls Main Dam Refurb	Hydro Generation	151,401.66
49780	LIN UU A Conveyor Belt Replacement	Thermal Generation	119,566.66
49787	Intelligent Feeder/Storage Project	General Plant	110,442.21
49804	HYD - Fall River Pipeline Repair	Hydro Generation	194,119.64
49837	LM6000 TUC5 Fuel Nozzle Refurbish	Combustion Turbines	79,983.19
49851	TUC1 U&U FAC Piping Replacements	Thermal Generation	105,981.21
49854	TUC1 U&U HEP Piping Refurbishment	Thermal Generation	136,544.67
49855	IT - Windows 10 Migration	General Plant	251,179.96
49869	ICP UU Armour Stone Replacement	Thermal Generation	265,411.92
49879	77V-T52 Replacement	Transmission	28,451.67
49916	AMO PE CT Health Assessments	Combustion Turbines	44,121.57
49920	AMO PE Fleet Cost of Cycling Assess	Thermal Generation	97,941.55
49927	AMI Oracle Database License PE	General Plant	1,726,133.43
49930	CT - BGT Security Camera	General Plant	32,412.59
49931	CT - Fork Lift and Trailer	Thermal Generation	69,308.00
49941	TUC6 U&U North CW Pump Refurb	Thermal Generation	127,151.47
CONV	H001-HYDRO EQUIPMENT REPLACE	Hydro Generation	104,983.82

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

Function	Category	2015 Spend
Thermal Generation	Thermal Generation	55,973,132
Thermal Generation	Lingan #3 Major Outage	18,457,422
Combustion Turbines	Combustion Turbines	10,584,715
Hydro Generation	Hydro Generation	27,598,722
Wind Generation	Sable Wind Farm	15,613,072
Wind Generation	South Canoe Wind Farm	1,492,468
Wind Generation	Wind Generation	80,158
Transmission	Maritime Link Transmission	6,947,126
Transmission	Wind Related Transmission Upgrades	1,560,396
Transmission	Transmission	45,886,147
Distribution	LED Streetlights	3,086,877
Distribution	Distribution	59,402,416
General Plant	General Plant	27,129,382
Total 2015		**273,812,033**

Function	Category	2016 Q3 Forecast
Thermal Generation	Thermal Generation	53,448,002
Thermal Generation	Lingan #4 Major Outage	17,628,627
Combustion Turbines	Combustion Turbines	8,111,764
Hydro Generation	Hydro Generation	34,951,308
Wind Generation	Wind Generation	169,853
Wind Generation	South Canoe Wind Farm	520,746
Transmission	Transmission	53,872,183
Transmission	Maritime Link Transmission	1,552,882
Distribution	Distribution	69,715,815
General Plant	General Plant	43,048,308
General Plant	IT - Enterprise Resource Planning	34,240,127
Total 2016		**317,259,615**

Request IR-20:

Please explain the differences between CI# 49469 and CI#47847.

Response IR-20:

CI 49469 and 47847 are both Boiler Refractory Replacement projects at the Point Aconi Generating Station. The projects are different because they are for work on different sections of the boiler.

Request IR-21:

Please identify the projects for which reduced line losses are part of the project justification, and provide the derivation of avoided energy costs for each such project.

Response IR-21:

The following projects have positive impacts on line losses. However, these projects are not justified on avoided energy costs. They are justified on the technical criteria noted on the description page of each capital work order. NS Power has not calculated avoided energy costs for these projects.

Distribution Capital Items Included in 2017 ACE Plan			
CI	**Project Title**	**2017 ACE Budget**	**Ranking Category**
49841	23H-Rockingham Voltage Conversion-Phase 2	$424,818	Business Sustainability
49799	532N Elm Street Conversion Phase 1	$548,688	Business Sustainability
49791	3N Oxford Conversion Phase 3	$358,369	Business Sustainability
49866	512N-Toney River Upgrade	$285,219	Business Sustainability
49899	10H Halifax 4kV Conversion Year 4	$254,608	Business Sustainability
46305	103W-311G Gold River Reconductor - Phase 3	$118,563	Business Sustainability

Request IR-22:

For any transmission project justified in whole or in part by relief of congestion, please provide any supporting analysis or worksheets that support NS Power's estimate of the magnitude and timing of congestion with and without the project.

Response IR-22:

The only project included in the 2017 ACE Plan that is justified in whole or in part by relief of congestion is CI 43678 Separate L8004/L7005 on Canso Crossing Double Circuit Tower on the Subsequent Submittal list. This project will increase Cape Breton export by approximately 125 MW –200 MW, depending on the season. Any supporting documentation related to the magnitude and timing of congestion will be filed as part of the capital project application when the project is submitted to the UARB.

Request IR-23:

Please provide any supporting analysis for the EAM spreadsheets.

Response IR-23:

All supporting assumptions and data for each EAM can be found in the electronic versions of the EAMs filed with the 2017 ACE Plan on November 14, 2016.

Request IR-24:

Please provide the table on page 91 of the Plan, as a spreadsheet with working formulas and including any linked spreadsheets.

(a) Please provide all worksheets used to derive the "annual incremental revenue requirement."

(b) Please provide separately for the following components for each year:

(i) "additional fixed cost recovery received from customer growth achieved through capital investment to serve these customers,"

(ii) "Administrative Overhead related to construction of capital assets,"

(iii) "AFUDC credits related to construction of capital assets," and

(iv) "Income tax impact of new capital investment."

Response IR-24:

(a) Please refer to Attachment 1. This attachment is similar to the electronic version of the table filed with the 2017 ACE Plan. However, Attachment 1 includes the formulas for Administrative Overhead (AO) and AFUDC in years 2018-2021 on the Inputs Model tab. These formulas were omitted in error.

(b)

(i) Fixed cost recovery, labeled as OM&G in the Long-Term Capital Planning & Revenue Requirement table, is calculated as follows:

Forecasted New Load: 45GWh
Residential Amount per kWh contribution to fixed costs: $0.09283
45GWh = 45,000,000kWh
45,000,000kWh x $0.09283 = $4,177,350
Rounded down to $4,150,000

The amount of fixed cost recovery is increased by an additional $4.15 million in each year of the table.

(ii) 2017 Administrative Overhead ("AO") is calculated within PowerPlant, NS Power's fixed asset management software, based on the 2017 ACE Plan spending details for each project and the applicable 2017 AO rates. This calculated AO is then multiplied by the incremental spend as a portion of total spend ratio in the Long-Term Capital Planning & Revenue Requirement table. The calculation of 2018-2021 AO is included in Attachment 1.

(iii) Similar to AO, 2017 AFUDC is calculated within PowerPlant based on the 2017 ACE Plan spending details; including monthly spend profile, and forecasted in-service dates for each project as well as the current approved AFUDC rate. This calculated AFUDC is then multiplied by the incremental spend as a portion of total spend ratio in the Long-Term Capital Planning & Revenue Requirement table. The calculation of 2018-2021 AFUDC is included in Attachment 1.

(iv) All formulas and inputs related to the income tax impact of new capital investment are included in Attachment 1, as well as the electronic version of the table filed with the 2017 ACE Plan.

LONG-TERM CAPITAL PLANNING & REVENUE REQUIREMENT

NOVA SCOTIA POWER ($M)	2017 ACE	2018	2019	2020	2021
Estimated Spend Related to five-year Capital Plan					
Capital Expenditures (Spend)	$398.0	$357.8	$344.4	$321.6	$286.2
Less: Depreciation of all assets	206.2	214.5	222.5	229.6	236.6
Incremental Spend over Depreciation (Growth)	191.8	143.3	121.9	91.9	49.6
Incremental Spend as a portion of Total Spend	48.2%	40.1%	35.4%	28.6%	17.3%
New Incremental Regulated Capital Assets					
Beginning Balance	-	191.8	335.1	457.0	549.0
Capital Spend	398.0	357.8	344.4	321.6	286.2
Depreciation	206.2	214.5	222.5	229.6	236.6
Ending Balance	191.8	335.1	457.0	549.0	598.5
Average Incremental Net Book Value of projects in five-year plan	95.9	263.5	396.1	503.0	573.7
Capital Cost Allowance					
Depreciation of Assets added 2017-2021	5.9	14.7	21.0	22.6	16.7
Impact on Net Earnings					
Expenses					
OM&G	(4.2)	(8.3)	(12.5)	(16.6)	(20.8)
Administrative Overhead	(20.4)	(15.5)	(13.6)	(10.0)	(5.5)
Depreciation	2.0	5.0	7.2	7.9	6.0
Interest	3.5	9.7	14.6	18.5	21.2
AFUDC	(4.0)	(2.7)	(2.4)	(2.2)	(1.1)
Earnings before tax	(5.3)	2.4	7.8	13.9	21.0
Income Tax less Impact of Administrative Overhead	(4.1)	(3.1)	(2.6)	(0.9)	2.8
Income Tax Impact of Administrative Overhead	(4.4)	(3.4)	(2.9)	(2.2)	(1.2)
Net Earnings	$3.2	$8.9	$13.4	$17.0	$19.4
Incremental Revenue Requirement of five-year capital plan					
Including Fixed Cost Recovery:					
Incremental Revenue Requirement of five-year capital plan	(28.2)	(9.3)	1.2	11.5	20.8
Change in Incremental Revenue Requirement from Previous Year	(28.2)	18.9	10.6	10.3	9.3
Rate Impact of five-year capital Plan	-2.2%	-0.7%	0.1%	0.9%	1.6%
Excluding Fixed Cost Recovery:					
Incremental Revenue Requirement of five-year capital plan	(24.1)	(1.0)	13.7	28.1	41.6
Change in Incremental Revenue Requirement from Previous Year	(24.1)	23.1	14.7	14.4	13.5
Rate Impact of five-year capital Plan	-1.9%	-0.1%	1.1%	2.2%	3.3%

Does not included avoided costs related to economically justified projects.

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

	Capital Spend					AO					AFUDC				
	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021
Capital Investments															
Thermal Generation	59.8	49.8	46.5	44.1	46.7	3.6	3.0	2.8	2.6	2.8	0.9	0.8	0.7	0.7	0.7
Combustion Turbines	11.3	8.5	5.5	8.0	5.5	0.5	0.4	0.3	0.4	0.3	0.5	0.4	0.2	0.3	0.2
Hydro Generation	34.8	54.0	84.7	109.1	75.2	2.5	3.9	6.1	7.9	5.4	1.3	2.0	3.2	4.1	2.8
Wind Generation	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-
Transmission	91.2	68.3	52.3	53.4	54.4	13.3	10.0	7.7	7.8	8.0	2.3	1.7	1.3	1.3	1.4
Distribution	83.9	118.0	118.1	70.3	64.0	17.8	19.1	20.1	14.9	13.6	0.3	0.4	0.4	0.2	0.2
General Plant	116.9	59.1	37.2	36.6	40.2	4.5	2.3	1.4	1.4	1.5	3.0	1.5	0.9	0.9	1.0
Total	**398.0**	**357.8**	**344.4**	**321.6**	**286.2**	**42.3**	**38.6**	**38.3**	**35.1**	**31.6**	**8.3**	**6.8**	**6.8**	**7.6**	**6.4**

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

	Ending Gross Book Value						Additions					Retirements				
	2016 End	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021
Capital Investments																
Thermal Generation	-	38.6	77.6	113.3	147.1	187.6	50.8	51.3	47.0	44.5	53.4	12.2	12.3	11.3	10.7	12.8
Combustion Turbines	-	6.8	13.0	17.2	22.5	27.2	9.6	8.9	6.0	7.6	6.7	2.9	2.7	1.8	2.3	2.0
Hydro Generation	-	23.8	64.9	129.3	214.1	287.7	29.6	51.2	80.1	105.4	91.6	5.8	10.0	15.7	20.7	17.9
Wind Generation	-	0.1	0.2	0.3	0.4	0.5	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Transmission	-	65.9	126.9	173.5	218.7	271.8	77.5	71.7	54.7	53.2	62.4	11.6	10.7	8.2	7.9	9.3
Distribution	-	45.8	118.2	194.0	243.8	291.6	71.3	112.9	118.1	77.5	74.5	25.5	40.4	42.3	27.8	26.7
General Plant	-	74.6	125.5	155.9	183.4	217.7	99.4	67.8	40.5	36.7	45.7	24.8	16.9	10.1	9.1	11.4
Total	**-**	**255.5**	**526.3**	**783.4**	**1,030.0**	**1,284.2**	**338.3**	**363.9**	**346.4**	**325.0**	**334.4**	**82.8**	**93.0**	**89.3**	**78.5**	**80.2**

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

	Depreciable Base					Depreciation Expense					Ending Reserve				
	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021
Capital Investments															
Thermal Generation	19.3	58.1	95.4	130.2	167.3	0.5	1.6	2.6	3.5	4.5	(11.7)	(22.5)	(31.2)	(38.4)	(46.8)
Combustion Turbines	3.4	9.9	15.1	19.9	24.9	0.1	0.3	0.4	0.5	0.7	(2.8)	(5.2)	(6.6)	(8.3)	(9.7)
Hydro Generation	11.9	44.3	97.1	171.7	250.9	0.2	0.8	1.8	3.2	4.7	(5.6)	(14.8)	(28.7)	(46.1)	(59.4)
Wind Generation	0.0	0.1	0.2	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Transmission	33.0	96.4	150.2	196.1	245.3	0.8	2.3	3.6	4.7	5.8	(10.8)	(19.2)	(23.8)	(27.1)	(30.5)
Distribution	22.9	82.0	156.1	218.9	267.7	0.9	3.1	5.8	8.1	10.0	(24.7)	(62.1)	(98.5)	(118.2)	(134.9)
General Plant	37.3	100.0	140.7	169.6	200.5	1.7	4.5	6.3	7.5	8.9	(23.1)	(35.5)	(39.4)	(41.0)	(43.4)
Total	**127.8**	**390.9**	**654.9**	**906.7**	**1,157.1**	**4.1**	**12.4**	**20.4**	**27.6**	**34.5**	**(78.6)**	**(159.2)**	**(228.1)**	**(279.0)**	**(324.7)**

	Net Book Value - Beginning					Net Book Value - Ending				
	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021
Capital Investments										
Thermal Generation	-	50.3	100.1	144.5	185.5	50.3	100.1	144.5	185.5	234.4
Combustion Turbines	-	9.5	18.2	23.8	30.9	9.5	18.2	23.8	30.9	36.9
Hydro Generation	-	29.3	79.7	158.0	260.2	29.3	79.7	158.0	260.2	347.1
Wind Generation	-	0.1	0.2	0.3	0.4	0.1	0.2	0.3	0.4	0.5
Transmission	-	76.7	146.1	197.3	245.8	76.7	146.1	197.3	245.8	302.4
Distribution	-	70.5	180.3	292.6	361.9	70.5	180.3	292.6	361.9	426.5
General Plant	-	97.7	161.0	195.2	224.4	97.7	161.0	195.2	224.4	261.1
Total	**-**	**334.2**	**685.6**	**1,011.6**	**1,309.0**	**334.2**	**685.6**	**1,011.6**	**1,309.0**	**1,608.9**

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

	NBV Financed by Debt					NBV Financed by Equity					UCC - Beginning				
	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021
Capital Investments															
Thermal Generation	15.7	47.0	76.4	103.1	131.2	9.4	28.2	45.9	61.9	78.7	-	46.0	88.8	124.2	154.6
Combustion Turbines	3.0	8.7	13.1	17.1	21.2	1.8	5.2	7.9	10.2	12.7	-	8.5	15.8	19.8	25.0
Hydro Generation	9.2	34.1	74.3	130.7	189.8	5.5	20.4	44.6	78.4	113.9	-	25.9	68.6	133.2	214.8
Wind Generation	0.0	0.1	0.1	0.2	0.3	0.0	0.0	0.1	0.1	0.2	-	0.1	0.2	0.3	0.3
Transmission	24.0	69.6	107.3	138.5	171.3	14.4	41.8	64.4	83.1	102.8	-	64.9	119.8	156.0	188.1
Distribution	22.0	78.4	147.8	204.5	246.4	13.2	47.0	88.7	122.7	147.8	-	58.1	148.8	236.4	281.1
General Plant	30.5	80.9	111.3	131.1	151.7	18.3	48.5	66.8	78.7	91.0	-	90.4	144.8	170.1	189.8
Total	**104.4**	**318.7**	**530.4**	**725.2**	**911.9**	**62.7**	**191.2**	**318.2**	**435.1**	**547.1**	**-**	**293.9**	**586.6**	**839.9**	**1,053.6**

	CCA					UCC - Ending				
	2017 ACE	2018	2019	2020	2021	2017 ACE	2018	2019	2020	2021
Capital Investments										
Thermal Generation	1.9	5.6	8.9	11.6	14.4	46.0	88.8	124.2	154.6	190.9
Combustion Turbines	0.4	1.0	1.5	1.9	2.2	8.5	15.8	19.8	25.0	29.0
Hydro Generation	1.1	3.9	8.4	14.5	20.6	25.9	68.6	133.2	214.8	278.7
Wind Generation	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.4
Transmission	2.7	7.7	11.5	14.3	17.3	64.9	119.8	156.0	188.1	226.3
Distribution	2.4	8.6	16.1	21.6	25.1	58.1	148.8	236.4	281.1	320.7
General Plant	3.8	9.8	13.1	15.0	16.9	90.4	144.8	170.1	189.8	216.5
Total	**12.2**	**36.7**	**59.4**	**78.9**	**96.5**	**293.9**	**586.6**	**839.9**	**1,053.6**	**1,262.5**

Adds/Retires Ratio 2010-2015 Actuals	Ratio
Distribution Plant - D	36%
Gas Turbine Generation Plant - G	30%
General Plant - P	25%
Hydro Generation Plant - H	20%
Steam Generation Plant - S	24%
Transmission Plant - T	15%
Wind Generation Plant - W	0%

Depr Exp Ratio 2015 Actuals	Ratio
Distribution Plant - D	3.72%
Gas Turbine Generation Plant - G	2.62%
General Plant - P	4.45%
Hydro Generation Plant - H	1.86%
Steam Generation Plant - S	2.68%
Transmission Plant - T	2.38%
Wind Generation Plant - W	4.25%

GENERAL ASSUMPTIONS

Inflation	2.00%
Income Tax	31.00%
CCA Rate	8.00%
Cost of Equity (Pre-Tax)	9.00%
Cost of Debt (Pre-Tax)	5.90%
Rate of Return (Pre-Tax WACC)	7.01%
Return on Equity	9.00%
Debt Ratio	62.50%
Equity Ratio	37.50%

Request IR-25:

Please explain in detail the roughly $800,000 increase in total hydro projects less than $250,000 between ACE 2016 and ACE 2017.

Response IR-25:

The increase in Hydro projects less than $250,000 between the 2016 ACE Plan and the 2017 ACE Plan is due to the 2017 ACE Plan having two smaller control upgrade projects (Fall River and Paradise) and two smaller dam safety projects (Instrumentation implementation and Mink Lake Dam). All projects, including those under $250,000, are determined through NS Power's asset management practices in the hydro functions based on each project's individual ranking. NS Power does not consider the quantity of projects less than $250,000 when evaluating whether a project should proceed.

Request IR-26:

Please explain the reasons for the requested increase in base capital investment between 2016 ACE and 2017 ACE for Hydro generation.

Response IR-26:

The 2017 forecast for Base Hydro investment increased from $25.0 million in the 2016 ACE Plan to $34.5 million in the 2017 ACE Plan primarily due to the Gaspereau Dam Safety project which adds $6 million to the 2017 Hydro base capital investment. The remaining $3 million increase is due to investment in dam safety and controls upgrades.

Request IR-27:

For each hydro plant, has NSPI evaluated the cumulative investment required for continued operation given the investments planned in 2017 and beyond? If so, please provide this analysis.

Response IR-27:

No, NS Power has not conducted this analysis. Evaluating a single unit does not provide an accurate economic picture because its value cannot be disconnected from other elements of the associated Hydro System. For example, the cost of maintaining or removing associated Dam(s) and Water Management Structures would also have to be considered when contemplating whether to retire or continue investment in a hydro unit. Archeologic and public impacts associated with maintaining, replacing or removing the associated structure must also be taken into account.

Request IR-28:

Please identify all capital items included in the 2017 ACE Plan that are related to the Maritime Link Project.

Response IR-28:

Please refer to NSUARB IR-62.

Request IR-29:

Referring to the Selection criteria for Generation and T&D which are based on asset management approach, please provide the selection criteria used in the asset management approach and discuss how the asset management approach functions.

Response IR-29:

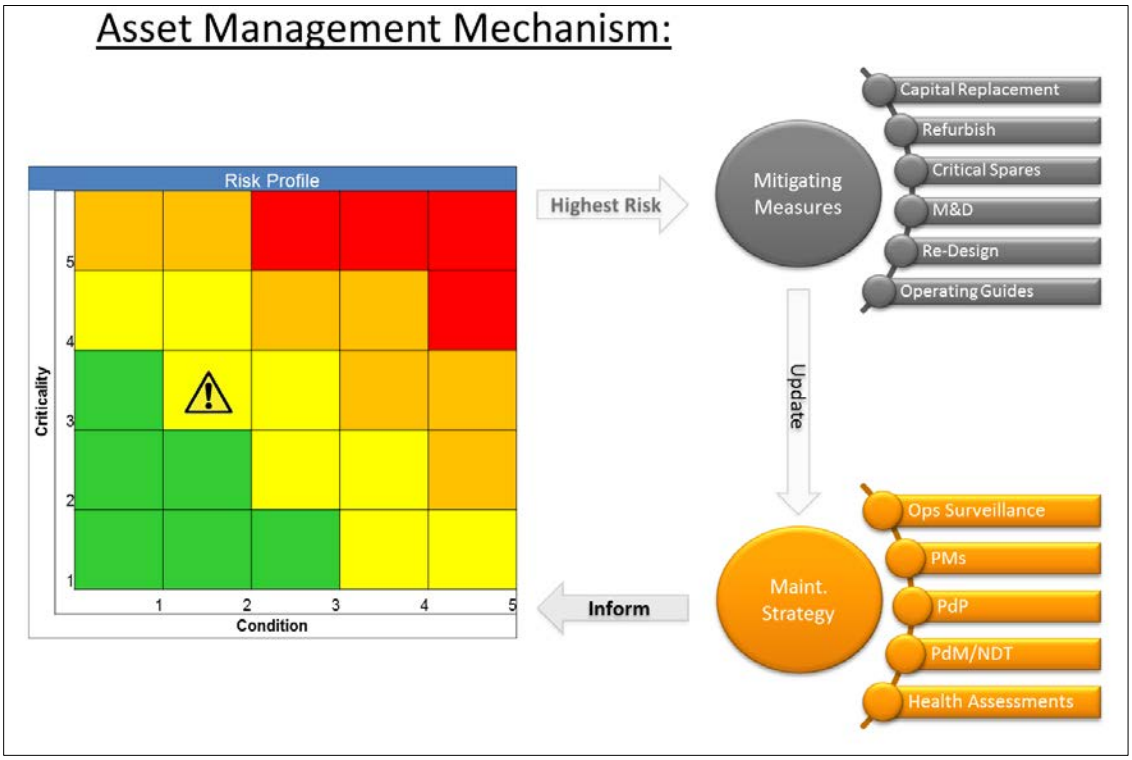
Selection methodology is described in Section 6.2 of the Capital Expenditure Justification Criteria (CEJC).

Selection is based on risk which is calculated by the product of ratings for asset criticality and asset condition.

Criticality is determined similarly for all assets. Condition is determined similarly for like assets. Condition criteria are applied to each asset class. While assets within an asset class have the same condition criteria applied, condition criteria may be quite different for different asset classes. For example, a pump and a transformer would have quite different condition assessment criteria. However, regardless of the asset class, the process of risk determination is guided by the Risk Profiling Mechanism shown in Figure 1 below. Typically, those items with a risk of 15 or more are targeted for mitigating measures.

As illustrated in Figure 1, mitigating measures include Capital Investment (Replace or Refurbish) though risks may be mitigated by other means.

Figure 1 illustrates the Asset Management approach that results in project selection. Furthermore, while it is difficult to fit every asset into an asset class program, all investments have the basic Criticality X Condition approach applied.


Asset Management Mechanism:
Risk Profile
Criticality
Condition
1
2
3
4
5
Highest Risk
Mitigating Measures
Capital Replacement
Refurbish
Critical Spares
M&D
Re-Design
Operating Guides
Update
Maint. Strategy
Ops Surveillance
PMs
PdP
PdM/NDT
Health Assessments
Inform

1

Request IR-30:

Please identify all 2017 ACE Plan projects that were in a previous ACE Plan, but have not been activated.

Response IR-30:

Please refer to NSUARB IR-2 Attachment 1.

Request IR-31:

Referring to the requested 71 capital work orders mentioned on page 6 of the Ace Plan, please reconcile the referenced projects with the projects included in the ACE Plan 2017 Master Database EXCEL attachment for each of the following categories by updating the Master Database to indicate each of the projects referenced below:

(a) 24 projects forecast between $250,000 and $500,000

(b) 28 projects forecast between $500,000 and $1 million

(c) 19 projects forecast exceeding $1million

Response IR-31:

(a-c) Please refer to Attachment 1 for an updated Master Database EXCEL with each of the projects included for approval tagged (in Column J) as one of the above three categories.

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

CI#	Project #	Functional Class	Project Long Title	ACE Category	Routine Or Normal	Justification Criteria	Justification Sub Criteria	ACE Filing Type	Category per CA IR-31	Major Location	Prior Spend	2017 ACE	Subsequent Spend	Project Total
49440		Steam	LIN 1&2 GSCW Piping Reconditioning	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	247,116	-	247,116
40320	D454	Distribution	LED Street Light Conversion	Distribution		Distribution System	Equipment Replacement	Carryover		Distribution Property	20,526,470	2,481,049	12,902,363	35,909,883
44671	P981	General Plant	IT - Enterprise Resource Plan (ERP)	General Plant		Work Support Facilities	Computers / IT	Carryover		General Plant	35,267,288	54,396,712	-	89,664,000
49795		Transmission	100C Cape Porcupine Switch Additions	Transmission		Transmission Plant		Less than $250k		Transmission Plant General	-	128,441	-	128,441
46305		Distribution	103W-311G Gold River Reconductor - Phase 3	Distribution		Distribution System	Deteriorated Conductor	Less than $250k		Distribution Property	-	118,563	-	118,563
50343		Distribution	Advanced Metering Infrastructure	Distribution		Metering Equipment		Subsequent Submittal		Distribution Property	-	11,352,709	100,354,671	111,707,380
23158	D005	Distribution	D005 Unplanned Replace Deteriorated Plant	Distribution	Routine	Distribution System	Requirement to Serve	Routine		Distribution Property		8,443,160		8,443,160
47124	D635	Distribution	Advanced Metering Infrastructure - Pilot Project	Distribution		Metering Equipment		Subsequent Submittal		Distribution Property	2,518,461	5,756,276	-	8,274,738
39305	P062	General Plant	Work Vehicle Replacements	General Plant	Routine	Work Support Facilities	Vehicles	Routine		General Plant		5,429,993	18,835,183	24,265,176
43324	T782	Transmission	L6513 Rebuild / Upgrade Line Terminals	Transmission		Transmission Plant		Carryover		Transmission Plant General	2,478,851	10,472,566	4,983,508	17,934,924
49992		Transmission	2017 Transmission Right of Way Widening	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	5,400,855	-	5,400,855
16374	H517	Hydro	HYD Gaspereau Dam Safety Remedial Works	Power Production		Health & Safety		Carryover		Black River	7,736,563	6,280,504	12,150	14,029,217
46591	T828	Transmission	88S Lingan Replace 230kV GIS	Transmission		Transmission Plant		Carryover		Transmission Plant General	567,303	4,835,511	7,102,611	12,505,425
46339	T825	Transmission	120H Brushy Hill - SVC Controls Replacement	Transmission		Transmission Plant		Carryover		Transmission Plant General	6,949,629	3,268,919	-	10,218,548
47954		Transmission	L7012 Replacements and Upgrades	Transmission		Transmission Plant	Equipment Replacement	Request Approval	Exceeding $1million	Transmission Plant General	-	2,073,902	2,354,618	4,428,520
44267	SB90	Steam	TRE Ash Lagoon Site Closure	Power Production		Environment		Carryover		Trenton Generating Station	6,381,196	2,759,566	-	9,140,761
46552	P960	General Plant	Backbone Communications System Upgrade	General Plant		Work Support Facilities	Telecommunications	Carryover		General Plant	5,780,581	2,163,570	577,762	8,521,912
39766	D061	Distribution	New Customers - Residential	Distribution	Routine	Distribution System	Requirement to Serve	Routine		Distribution Property		8,422,167		8,422,167
46309		General Plant	2015 Multiplexer & Teleprotection Equipment Replacement	General Plant		Work Support Facilities	Telecommunications	Less than $250k		General Plant	-	161,021	-	161,021
33142	G180	Gas Turbine	CT- Burnside #4 Unit Restoration	Power Production		Thermal		Carryover		Burnside CT	4,515,069	3,784,820	-	8,299,889
26716	D004	Distribution	New Customer Upgrades	Distribution	Routine	Distribution System	Requirement to Serve	Routine		Distribution Property		7,740,351		7,740,351
23137	D055	Distribution	D055 - Planned Replacement Of Distribution Assets	Distribution	Routine	Distribution System	Pole Strength	Routine		Distribution Property		7,724,405		7,724,405
46075	P977	General Plant	IT - Work & Asset Management	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	1,744,447	8,008,495	18,274,738	28,027,680
48022	T888	Transmission	Spider Lake Substation Addition	Transmission		Transmission Plant		Carryover		Transmission Plant General	298,810	5,849,143	-	6,147,953
39770	D062	Distribution	New Customers - Commercial	Distribution	Routine	Distribution System	Requirement to Serve	Routine		Distribution Property		6,045,087		6,045,087
47846	SG23	Steam	POA Ash Cell 4 Stage 3	Power Production	CO	Environment		Pt. Aconi		Point Aconi Generating Station	179,998	3,283,105	2,290,743	5,753,846
49838		Transmission	2017/2018 Substation Polychlorinated Biphenyl (PCB) Equipment Removal Program	Transmission		Environment		Request Approval	Exceeding $1million	Transmission Plant General	-	2,653,789	1,473,234	4,127,023
49948		Transmission	2017/2018 Isolated Structure Replacements	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	1,209,834	2,612,653	3,822,487
23118	T011	Transmission	PROVINCIAL - PLANNED TRANS LINE REPLACEMENTS	Transmission	Routine	Transmission Plant		Routine		Transmission Plant General		5,121,873		5,121,873
11744	P001	General Plant	FAC - Property Improvements	General Plant	Routine	Work Support Facilities	Buildings	Routine		General Plant		5,115,724		5,115,724
49793		Transmission	L7011 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	1,304,384	2,039,100	3,343,484
49868		Distribution	2017 Hydraulic Recloser Replacements	Distribution		Distribution System	Equipment Replacement	Less than $250k		Distribution Property	-	232,348	16,230	248,578
49919		Distribution	2017 PCB Pole Top Transformer Replacement	Distribution		Environment		Request Approval	Exceeding $1million	Distribution Property	-	2,257,603	188,449	2,446,051
49789		Transmission	L6515 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	1,097,771	1,243,218	2,340,989
44978	H715	Hydro	HYD-Wreck Cove Controls Upgrade	Power Production		Hydro		Carryover		Wreck Cove	1,945,778	2,284,545	-	4,230,324
49815		Transmission	2017 / 2018 Steel Tower Refurbishment	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	929,792	1,073,525	2,003,317
48535	H752	Hydro	HYD Scragg Lake Dam and Spillway Refurbishment	Power Production		Health & Safety		Request Approval	Exceeding $1million	Nictaux River	94,992	1,861,306	-	1,956,298
49806		Distribution	2017 Padmount Replacement Program	Distribution		Distribution System	Equipment Replacement	Request Approval	Exceeding $1million	Distribution Property	-	1,573,814	129,960	1,703,774
49774		Transmission	L5527 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	722,891	814,962	1,537,852
45306	T822	Transmission	Prime Brook Substation Addition	Transmission		Transmission Plant		Carryover		Transmission Plant General	2,414,322	973,184	-	3,387,506
47776	D761	Distribution	111S Prime Brook Feeder Exits & Feeders	Distribution		Distribution System	Requirement to Serve	Subsequent Submittal		Distribution Property	1,047,181	456,805	-	1,503,986
46587	T856	Transmission	Metro Voltage Support Add Capacitor	Transmission		Transmission Plant		Carryover		Transmission Plant General	2,072,652	1,204,111	-	3,276,763
26496	D009	Distribution	Meter Routine	Distribution	Routine	Metering Equipment		Routine		Distribution Property		3,216,686		3,216,686
47477	P967	General Plant	IT - Next Generation Firewall	General Plant		Work Support Facilities	Computers / IT	Carryover		General Plant	2,690,010	409,787	-	3,099,798
46757	T867	Transmission	88S Lingan 230kV BPS Upgrades	Transmission		Transmission Plant		Carryover		Transmission Plant General	287,487	1,561,855	1,231,321	3,080,663
45067	T801	Transmission	67N Onslow 345 KV Node Swap	Transmission		Transmission Plant		Carryover		Transmission Plant General	2,775,336	181,185	-	2,956,521
45066	T802	Transmission	Upgrade L6511 and L7019 Thermal Rating	Transmission		Transmission Plant		Carryover		Transmission Plant General	2,527,099	153,847	-	2,680,946
46811	T872	Transmission	2H Armdale Transformer Addition	Transmission		Transmission Plant		Carryover		Transmission Plant General	287,468	2,303,896	-	2,591,364
49043		General Plant	IT Contact Centre Telephony Infrastructure	General Plant		Work Support Facilities	Computers / IT	Carryover		General Plant	1,774,670	729,439	-	2,504,109
49813		Transmission	2017 Sacrificial Anode Installation Program	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	1,427,340	105,000	1,532,340
49814		Transmission	2017 / 2018 Steel Tower Life Extension	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	427,938	1,034,162	1,462,100
20706		General Plant	HYD - Security Improvements (PSAD)	General Plant	Routine	Hydro		Routine		Hydro General		523,267	1,918,409	2,441,675
48061	T884	Transmission	New Mobile Substation 7.5MVA	Transmission		Transmission Plant		Carryover		Transmission Plant General	16,561	520,609	1,899,622	2,436,792
23361	D008	Distribution	D008 Provincial Storm	Distribution	Routine	Distribution System	Requirement to Serve	Routine		Distribution Property		2,418,069		2,418,069
49532		Steam	TRE6 Air Heater Refurbishment	Power Production		Thermal		Request Approval	Exceeding $1million	Trenton Generating Station	-	1,428,236	-	1,428,236
49778		Transmission	L5535 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	1,261,920	-	1,261,920
49533		Steam	TRE6 Boiler Refurbishment	Power Production		Thermal		Request Approval	Exceeding $1million	Trenton Generating Station	-	1,259,454	-	1,259,454
49611		Distribution	New Distribution Rights-of-Way Phase 1	Distribution		Distribution System	Outage Performance	Carryover		Distribution Property	569,427	1,641,722	-	2,211,149
23120	T003	Transmission	PROVINCIAL-TRANS SUBSTATION PRIMARY EQUIPMENT REPLACEMENTS	Transmission	Routine	Transmission Plant		Routine		Transmission Plant General		2,199,801		2,199,801
47950	T881	Transmission	L5017 Replacements & Upgrades	Transmission		Transmission Plant		Carryover		L5017	1,305,526	873,013	-	2,178,539
49790		Transmission	L5505 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	575,817	647,754	1,223,571
49782		Transmission	L5027B Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	1,093,542	-	1,093,542
49877		Distribution	23H-302 Clayton Park Rebuild Phase II	Distribution		Distribution System	Deteriorated Conductor	Less than $250k		Distribution Property	-	215,859	-	215,859
49818		Transmission	2017/2018 Transmission Switch & Breaker Replacement	Transmission		Transmission Plant		Request Approval	Exceeding $1million	Transmission Plant General	-	496,339	578,133	1,074,472
47787		Distribution	2H Armdale New Feeder	Distribution		Distribution System	Requirement to Serve	Subsequent Submittal		Distribution Property	32,380	1,253,299	(0)	1,285,679
44981	T871	Transmission	2C Port Hastings Transformer Replacement	Transmission		Transmission Plant		Carryover		Transmission Plant General	217,987	1,695,987	-	1,913,974
38897	P816	General Plant	FAC Enviornmental Property Remediation and Site Management Routine	General Plant	Routine	Environment		Routine		General Plant		216,733	1,671,893	1,888,625
48254		General Plant	IT - Outage Comm Tech Cap Improvmnt	General Plant		Work Support Facilities	Computers / IT	Carryover		General Plant	1,195,195	677,904	-	1,873,099
40236	P061	General Plant	Transportation Vehicle Replacements	General Plant	Routine	Work Support Facilities	Vehicles	Routine		Vehicle		1,852,500		1,852,500
48117		General Plant	2H Armdale RTU Replacement	General Plant		Work Support Facilities	Telecommunications	Less than $250k		General Plant	-	133,595	-	133,595
29114	P031	General Plant	IT - NSPI Infrastructure Routine	General Plant	Routine	Work Support Facilities	Computers / IT	Routine		General Plant		1,810,000		1,810,000
48093	D686	Distribution	2016 Padmount Transformer Replacement Program	Distribution		Distribution System	Equipment Replacement	Carryover		Distribution Property	1,378,330	425,591	-	1,803,921

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

CI#	Project #	Functional Class	Project Long Title	ACE Category	Routine Or Normal	Justification Criteria	Justification Sub Criteria	ACE Filing Type	Category per CA IR-31	Major Location	Prior Spend	2017 ACE	Subsequent Spend	Project Total
49775		Transmission	L5004 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Between $500,000 and $1 million	Transmission Plant General	-	995,712	-	995,712
47687	SF30	Steam	POT Boiler Chemical Recondition	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Point Tupper Generating Station	180,045	794,560	-	974,604
35583		Hydro	HYD Oil Release Risk Assessment Remediation Routine	Power Production	Routine	Hydro		Routine		Hydro General		218,370	1,363,497	1,581,866
35584		Hydro	HYD - Gate Refurbishment Routine	Power Production	Routine	Hydro		Routine		Hydro General		184,335	1,371,370	1,555,705
43678	T800	Transmission	Separate L8004/L7005 on Canso Crossing Double Circuit Tower(DCT)	Transmission		Transmission Plant		Subsequent Submittal		Transmission Plant General	2,291,247	13,892,444	-	16,183,691
49419		Steam	POT Boiler Refurbishment 2017	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Point Tupper Generating Station	-	969,292	-	969,292
49956		Distribution	505V Station Retirement	Distribution		Distribution System	Other	Less than $250k		Distribution Property	-	33,049	-	33,049
41350		Distribution	16W-301 Hebron Rebuild Phase 2	Distribution		Distribution System	Deteriorated Conductor	Request Approval	Between $500,000 and $1 million	Distribution Property	-	445,140	459,592	904,732
49057	SG33	Steam	TRE6 Excitation System Replacement	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Trenton Generating Station	429,945	474,066	-	904,011
49862		Distribution	50N-410 Rebuild Trenton	Distribution		Distribution System	Deteriorated Conductor	Less than $250k		Distribution Property	-	247,773	-	247,773
48114	T893	Transmission	2016 Steel Tower Life Extension - HRM	Transmission		Transmission Plant		Carryover		Transmission Plant General	894,195	591,115	-	1,485,310
49776		Transmission	L7008 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Between $500,000 and $1 million	Transmission Plant General	-	876,277	-	876,277
47753	D688	Distribution	24C-442GB Highway 16 Reconductor Phase 2	Distribution		Distribution System	Requirement to Serve	Carryover		Distribution Property	1,379,296	83,353	-	1,462,649
43200		Transmission	2017 Wood Pole Retreatment Program	Transmission		Pole Retreatment		Request Approval	Between $500,000 and $1 million	Transmission Plant General	-	841,821	0	841,821
12079	H629	Hydro	HYD - SHH - RUF 1&2 Runner Replacement	Power Production		Hydro		Carryover		Sheet Harbor	1,011,884	447,079	-	1,458,963
49535		Steam	TRE6 Mills Refurbishment 2017	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Trenton Generating Station	-	822,141	-	822,141
47551	H739	Hydro	HYD - SHH Controls Upgrade	Power Production		Hydro		Carryover		Sheet Harbor	90,419	1,309,702	-	1,400,121
49836		Distribution	11S-302 11S-401 Rebuild Coxheath Phase 2	Distribution		Distribution System	Outage Performance	Request Approval	Between $500,000 and $1 million	Distribution Property	-	340,322	467,134	807,456
49056	D746	Distribution	65V-302HAA Old Liverpool Rd Rebuild	Distribution		Distribution System	Deteriorated Conductor	Less than $250k		Distribution Property	27,245	127,408	-	154,653
45053	T818	Transmission	69Kv Structure Replacements West	Transmission		Transmission Plant		Subsequent Submittal		Transmission Plant General	175,508	321,656	4,320,853	4,818,017
47777	D705	Distribution	70W-321 Wiles Lake Road	Distribution		Distribution System	Equipment Replacement	Less than $250k		Distribution Property	66	99,876	0	99,942
49863		Distribution	73W-411H New Germany Recloser	Distribution		Distribution System	Equipment Replacement	Less than $250k		Distribution Property	-	53,820	-	53,820
50342		Transmission	Western Transmission System Voltage Support	Transmission		Transmission Plant		Subsequent Submittal		Transmission Plant General	-	300,000	3,700,000	4,000,000
47760	D691	Distribution	85S-402 Re-Insulate	Distribution		Distribution System	Equipment Replacement	Subsequent Submittal		Distribution Property	295,203	499,495	464,968	1,259,666
47914	T874	Transmission	L6537 Replacements and Upgrades	Transmission		Transmission Plant		Carryover		Transmission Plant General	636,124	553,521	-	1,189,645
49879		Transmission	77V-T52 Replacement	Transmission		Transmission Plant		Subsequent Submittal		Transmission Plant General	28,452	746,631	0	775,082
27867		Hydro	HYD - Roofing Routine	Power Production	Routine	Hydro		Routine		Hydro General		89,371	1,090,803	1,180,174
11622		Hydro	HYD - Routine Equipment Replacements	Power Production	Routine	Hydro		Routine		Hydro General		697,087	468,988	1,166,076
49957		Distribution	93V Feeder Expansion	Distribution		Distribution System	Overloaded Equipment	Less than $250k		Distribution Property	-	165,912	-	165,912
38896		General Plant	FAC Environment Site Assess Routine	General Plant	Routine	Environment		Routine		General Plant		205,438	953,816	1,159,254
44749	D527	Distribution	Tiverton Tower Refurbishment	Distribution		Distribution System	Equipment Replacement	Subsequent Submittal		Distribution Property	368,784	689,416	-	1,058,200
49253	T910	Transmission	U&U 20V-T1 Transformer Replacement	Transmission		Transmission Plant		Carryover		Transmission Plant General	457,127	697,343	-	1,154,470
50341		Distribution	2017 Substation Recloser Replacements	Distribution		Distribution System	Equipment Replacement	Subsequent Submittal		Distribution Property	-	577,388	-	577,388
49615		General Plant	AMO Competency Based Training & Procedure Management Ph 2	General Plant		Work Support Facilities	Computers / IT	Less than $250k		General Plant	48,909	79,617	-	128,526
23135	D006	Distribution	D006 Regulatory Replacements - Provincially	Distribution	Routine	Distribution System	Requirement to Serve	Routine		Distribution Property		1,078,010		1,078,010
49460	P104	General Plant	AMO DirectLine Permit Module Additions	General Plant		Work Support Facilities	Computers / IT	Less than $250k		General Plant	16,106	43,411	-	59,517
43202	P909	General Plant	Replace Mobile Radio System	General Plant		Work Support Facilities	Telecommunications	Subsequent Submittal		General Plant	340,109	2,975,666	3,221,925	6,537,700
46499	SG20	Steam	Stator Rewind Kit Capital Spare	Power Production		Thermal		Subsequent Submittal		Steam General	51,131	2,668,808	2,500,000	5,219,939
49617		General Plant	AMO Handheld Module Additions	General Plant		Work Support Facilities	Computers / IT	Less than $250k		General Plant	-	59,803	-	59,803
50016		General Plant	AMO Meridium Dashboard Ph II	General Plant		Work Support Facilities	Computers / IT	Less than $250k		General Plant	-	101,312	-	101,312
47949	T876	Transmission	L5028 Replacements and Upgrades	Transmission		Transmission Plant		Carryover		L5028	540,310	473,039	-	1,013,349
49857		General Plant	IT - Storage Infrastructure Upgrade	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	945,955	4,100,000	5,045,955
49860		General Plant	IT - Sharepoint Upgrade	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	1,971,915	2,050,000	4,021,915
26757	P002	General Plant	PROVINCIAL LINE TOOLS & EQUIPMENT REPLACEMENTS	General Plant	Routine	Work Support Facilities	Tools & Equipment	Routine		General Plant		976,000		976,000
49937		Gas Turbine	CT - BGT 1 Exterior Coating Refurbishment	Power Production		Thermal		Less than $250k		Burnside CT	-	52,117	-	52,117
49938		Gas Turbine	CT - BGT 2 Exterior Coating Refurbishment	Power Production		Thermal		Less than $250k		Burnside CT	-	52,117	-	52,117
49939		Gas Turbine	CT - BGT 3 Exterior Coating Refurbishment	Power Production		Thermal		Less than $250k		Burnside CT	-	52,117	-	52,117
46191	G181	Gas Turbine	Tusket Fuel System Upgrade	Power Production		Thermal		Carryover		Tusket Combustion Turbine	864,290	69,934	-	934,223
49976		Gas Turbine	CT - BGT 4 Exterior Coating Refurbishment	Power Production		Thermal		Less than $250k		Burnside CT	-	52,117	-	52,117
49958		General Plant	CT - BGT Road Repairs	General Plant		Thermal		Less than $250k		Burnside CT	-	82,161	-	82,161
49477		Steam	POA ID Fan Motor Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	902,961	-	902,961
43217	D573	Distribution	24C-442G Hwy 16 Rebuild Phase 1	Distribution		Distribution System	Deteriorated Conductor	Carryover		Distribution Property	830,189	72,259	-	902,447
23115	T001	Transmission	PROVINCIAL TRANSMISSION LINE REPLACEMENTS	Transmission	Routine	Transmission Plant		Routine		Transmission Plant General		882,026		882,026
49972		Gas Turbine	CT - LM6000 191-253 HPC Stages 3-5 Bushing Replacement	Power Production		Thermal		Less than $250k		LM6000	-	238,547	-	238,547
44826	D562	Distribution	2014 Build-to-Roadside	Distribution		Distribution System	Outage Performance	Carryover		Distribution Property	718,985	152,425	-	871,410
23121	T004	Transmission	PROVINCIAL- SUBSTATION ADDITIONS & MODIFICATIONS	Transmission	Routine	Transmission Plant		Routine		Transmission Plant General		870,603		870,603
45031	D630	Distribution	3N Oxford Conversion Phase 1	Distribution		Distribution System	Capacity	Carryover		Distribution Property	839,329	30,593	-	869,922
49473		Steam	POA Boiler Refurbishment	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	857,179	-	857,179
49971		Gas Turbine	CT - LM6000 191-332 HPC Stages 3-5 Bushings Replacement	Power Production		Thermal		Less than $250k		LM6000	-	237,952	-	237,952
43267	T835	Transmission	13V Gulch Hydro Replace 13V-GT1 and 13V-VR1	Transmission		Transmission Plant		Carryover		Transmission Plant General	422,881	414,950	-	837,830
49974		Gas Turbine	CT - TUC 4 LM6000 Metal Scan Upgrade	Power Production		Thermal		Less than $250k		LM6000	-	44,304	-	44,304
49932		Gas Turbine	CT - TUC 4 LM6000 Roof Skid Access	Power Production		Thermal		Less than $250k		LM6000	-	33,161	-	33,161
49975		Gas Turbine	CT - TUC 5 LM6000 Metal Scan Upgrade	Power Production		Thermal		Less than $250k		LM6000	-	44,304	-	44,304
49933		Gas Turbine	CT - TUC 5 LM6000 Roof Skid Access	Power Production		Thermal		Less than $250k		LM6000	-	33,161	-	33,161
44776	G177	Gas Turbine	CT - TUC#5 LM6000 Generator Stator Re-wedge	Power Production		Thermal		Subsequent Submittal		LM6000	31,665	1,041,614	-	1,073,280
49973		Gas Turbine	CT - TUS Control Room Halon Replacement	Power Production		Health & Safety		Less than $250k		Tusket Combustion Turbine	-	84,304	-	84,304
49961		Gas Turbine	CT - TUS Exhaust Stack Grating Replacement	Power Production		Health & Safety		Less than $250k		Tusket Combustion Turbine	-	25,205	-	25,205
49936		Gas Turbine	CT - VJ 2 Enclosure Coating Refurbishment	Power Production		Thermal		Less than $250k		Victoria Junction	-	57,550	-	57,550
46073		General Plant	IT - Lotus Notes/Oracle Applications Replacement	General Plant		Work Support Facilities	Computers / IT	Carryover		General Plant	667,224	105,395	-	772,619
49960		Gas Turbine	CT - VJ Exhaust Stack Grating Replacement	Power Production		Health & Safety		Less than $250k		Victoria Junction	-	41,500	-	41,500
48635	P987	General Plant	IT - Security Enhancements - Endpoint Data Encryption and Malware Protection	General Plant		Work Support Facilities	Computers / IT	Carryover		General Plant	692,382	64,760	-	757,142
43227	P943	General Plant	2014 RTU Replacements	General Plant		Work Support Facilities	Telecommunications	Carryover		General Plant	700,817	46,729	-	747,546

REDACTED (CONFIDENTIAL INFORMATION REMOVED)

CI#	Project #	Functional Class	Project Long Title	ACE Category	Routine Or Normal	Justification Criteria	Justification Sub Criteria	ACE Filing Type	Category per CA IR-31	Major Location	Prior Spend	2017 ACE	Subsequent Spend	Project Total
49959		Gas Turbine	CT - VJ Varec Gauges Upgrade/Refurbishment	Power Production		Thermal		Less than $250k		Victoria Junction	-	29,904	-	29,904
49469		Steam	POA Boiler Refractory Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	727,515	-	727,515
49935		Gas Turbine	CT - VJ1 Enclosure Coating Refurbishment	Power Production		Thermal		Less than $250k		Victoria Junction	-	55,933	-	55,933
49273	G205	Gas Turbine	CT-BGT2 Engine Refurbishment	Power Production		Thermal		Subsequent Submittal		Burnside CT	111,730	908,102	-	1,019,832
49874		Gas Turbine	CT-BGT Replace Halon Fire Protection	Power Production		Health & Safety		Less than $250k		Burnside CT	-	226,366	-	226,366
49940		Gas Turbine	LM6000 TUC5 Control System Upgrade	Power Production		Thermal		Subsequent Submittal		LM6000	-	1,018,769	-	1,018,769
49093	P995	General Plant	IT - Security Operations Center (SOC) and Security Information Event Monitoring (SIEM	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	285,692	2,191,284	-	2,476,976
29038	D051	Distribution	System Performance Improvement Routine	Distribution	Routine	Distribution System	Requirement to Serve	Routine		Distribution Property		599,717		599,717
43128	H685	Hydro	HYD - Gisborne Gearbox and Bearing Replacement	Power Production		Hydro		Carryover		Wreck Cove	561,718	118,358	-	680,076
49787	P106	General Plant	Intelligent Feeder/Storage Project (SDTC)	General Plant		Distribution System	Other	Subsequent Submittal		General Plant	88,559	1,276,653	1,034,156	2,399,368
49859		General Plant	IT - Windows Server 2008 Upgrade	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	158,886	1,910,373	2,069,258
49855		General Plant	Window 10 Migration Project	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	208,695	1,804,339	-	2,013,034
50153		General Plant	Self Serve Development Phase 2	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	1,827,720	-	1,827,720
48046		General Plant	Enhanced Fleet Monitoring Instrumentation	General Plant		Thermal		Less than $250k		General Plant	64,474	176,269	-	240,744
47163	H729	Hydro	HYD - Tusket Controls Upgrade	Power Production		Hydro		Carryover		Tusket River	94,770	550,989	-	645,759
49094	P996	General Plant	IT - Identity Access Management Infrastructure	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	211,147	1,500,000	-	1,711,147
39472		Hydro	HYD Mersey Hydro System Re-Development	Power Production		Hydro		Subsequent Submittal		Mersey River	-	300,000	83,700,000	84,000,000
23127	D010	Distribution	D010 Provincial Distribution ROW	Distribution	Routine	Distribution System	Outage Performance	Routine		Distribution Property		598,698		598,698
43827	T010	Transmission	Transmission ROW Widening Routine	Transmission	Routine	Transmission Plant		Routine		Transmission Plant General		598,698		598,698
49311	D758	Distribution	93V-312 Lower Saulnierville Conductor Overload P&A	Distribution		Distribution System	Deteriorated Conductor	Carryover		Distribution Property	116,451	463,733	-	580,184
29807	H541	Hydro	HYD - Tusket Falls Main Dam	Power Production		Health & Safety		Subsequent Submittal		Tusket River	576,999	3,697,643	5,666,023	9,940,664
46411	P946	General Plant	Hydro Asset Management Implementation	General Plant		Hydro		Carryover		Hydro General	564,107	26,974	-	591,082
49475		Steam	POA Air Heater Tube Replacement Phase 2	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	584,171	-	584,171
47659		Hydro	HYD - Fall River Controls Upgrade	Power Production		Hydro		Less than $250k		Fall River	19,381	95,201	111,472	226,054
47654	H757	Hydro	HYD - Gulch Penstock & Surge Tank Replacement	Power Production		Hydro		Subsequent Submittal		Bear River	102,830	3,526,825	-	3,629,655
41830		Wind	Wind - Routine Equipment Replacement	Power Production	Routine	Environment		Routine		Wind General		100,379	466,954	567,333
48533	H751	Hydro	HYD - Lequille Headpond Water Retaining Structures Refurbishment	Power Production		Health & Safety		Subsequent Submittal		Lequille River	109,938	1,809,228	-	1,919,166
48397	H760	Hydro	HYD - Mink Lake Dam Repair	Power Production		Health & Safety		Less than $250k		Tusket River	64,824	158,959	-	223,783
48712	H761	Hydro	HYD - Dam Instrumentation Upgrade	Power Production		Hydro		Less than $250k		Hydro General	23,647	195,996	-	219,643
48052		Hydro	HYD - Annapolis HVAC Upgrade	Power Production		Hydro		Subsequent Submittal		Hydro General	77,903	1,420,463	0	1,498,367
47655	H758	Hydro	HYD - Paradise Controls Upgrade	Power Production		Hydro		Less than $250k		Nictaux River	5,035	87,796	114,972	207,802
47648	H756	Hydro	HYD - Lequille Pipeline Replacement	Power Production		Hydro		Subsequent Submittal		Lequille River	54,521	1,329,928	(0)	1,384,448
49861		General Plant	IT - PI System Upgrade	General Plant		Work Support Facilities	Computers / IT	Request Approval	Between $500,000 and $1 million	General Plant	-	667,366	133,887	801,253
47876	H741	Hydro	HYD - Lequille Overhaul	Power Production		Hydro		Subsequent Submittal		Lequille River	79,968	1,075,450	-	1,155,418
38931	H578	Hydro	HYD - Harmony Partial Decommissioning	Power Production		Health & Safety		Subsequent Submittal		Harmony River	519,653	586,469	-	1,106,122
49596	H781	Hydro	HYD - Hells Gate 2 Overhaul	Power Production		Hydro		Subsequent Submittal		Black River	8,511	962,316	(0)	970,827
49476		Steam	POA SH3 Tube Replacement Phase 3	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	513,967	-	513,967
47678	H740	Hydro	HYD - Prince Mine Dam Decommissioning	Power Production		Health & Safety		Subsequent Submittal		Hydro General	57,804	761,647	-	819,451
23136	D007	Distribution	D007 Contractual Replacemens (Joint Use) - Provincial	Distribution	Routine	Distribution System	Joint Use Agreement	Routine		Distribution Property		508,021		508,021
47765	D704	Distribution	58C-405 / 11C Belle Cote Phase 2	Distribution		Distribution System	Pole Strength	Carryover		Distribution Property	250,815	253,027	-	503,843
47682	H759	Hydro	HYD - Lequille Switchgear Replacement	Power Production		Hydro		Subsequent Submittal		Lequille River	47,408	651,251	0	698,659
48913	H765	Hydro	HYD - Tusket Facility Refurbishment	Power Production		Hydro		Subsequent Submittal		Tusket River	1,648	656,308	0	657,956
49835		Hydro	HYD - Dive Site Risk Mitigation	Power Production		Health & Safety		Subsequent Submittal		Hydro General	-	315,851	334,682	650,533
16550	P028	General Plant	TELECOMMUNICATION SYSTEMS REPLACE AND MODS	General Plant	Routine	Work Support Facilities	Telecommunications	Routine		General Plant		476,554		476,554
48062	T878	Transmission	2016/2017 Reactor Breaker Replacements	Transmission		Transmission Plant		Carryover		Transmission Plant General	285,506	190,330	-	475,836
47403	D760	Distribution	Load Research Sample Update	Distribution		Distribution System	Requirement to Serve	Carryover		Distribution Property	390,852	81,190	-	472,042
49623		Hydro	HYD - Grand Lake Radio Communications Upgrade	Power Production		Hydro		Less than $250k		Lequille River	-	139,204	-	139,204
49598		Hydro	HYD - Gisborne Switchgear Replacement	Power Production		Hydro		Subsequent Submittal		Wreck Cove	30,059	593,754	(0)	623,814
49622		Hydro	HYD - Fourth Lake PLC Upgrades	Power Production		Hydro		Less than $250k		Sissiboo River	-	116,767	-	116,767
47166	H730	Hydro	HYD - McAskill Brook Decommissioning	Power Production		Health & Safety		Subsequent Submittal		Hydro General	102,948	459,736	-	562,684
14841	T016	Transmission	PROTECTION MODIFICATIONS AND REPLACEMENTS	Transmission	Routine	Transmission Plant		Routine		Transmission Plant General		449,111		449,111
47597		Steam	TRE6 Bottom Ash Chain Replacement	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Trenton Generating Station	-	793,792	-	793,792
49945		Hydro	HYD - Malay Falls Switchgear Replacement	Power Production		Hydro		Less than $250k		Sheet Harbor	-	43,459	11,269	54,729
46253	H763	Hydro	HYD - Lequille Tailrace Gate	Power Production		Hydro		Less than $250k		Lequille River	6,579	27,719	-	34,298
47734	D775	Distribution	1C-411 Highway 4 Reconductor	Distribution		Distribution System	Deteriorated Conductor	Carryover		Distribution Property	5,585	200,751	228,610	434,946
48914	H770	Hydro	HYD - Malay Falls Facility Repair	Power Production		Hydro		Subsequent Submittal		Sheet Harbor	1,648	444,589	0	446,237
48396	H749	Hydro	HYD - Bridge Remediation	Power Production		Health & Safety		Subsequent Submittal		Hydro General	65,681	338,935	-	404,616
47660		Hydro	HYD - Dickie Brook Controls Upgrade	Power Production		Hydro		Subsequent Submittal		Dickie Brook	12,985	94,032	200,234	307,251
49039	H768	Hydro	HYD - Lequille Controls Upgrade	Power Production		Hydro		Subsequent Submittal		Lequille River	5,819	298,302	(0)	304,121
49841		Distribution	23H-Rockingham Voltage Conversion-Phase 2	Distribution		Distribution System		Request Approval	Between $500,000 and $1 million	Distribution Property	-	424,818	318,395	743,213
49151		Steam	LIN Grating Refurbishment	Power Production		Health & Safety		Less than $250k		Lingan Generating Station	-	246,871	-	246,871
47116	SE14	Steam	LIN PE Flyash Surge System Bypass	Power Production		Thermal		Less than $250k		Lingan Generating Station	57,797	187,126	-	244,923
49912		Steam	ICP - Armour Stone Refurbishment Phase 2	Power Production		Health & Safety		Less than $250k		International Coal Pier	-	242,644	-	242,644
47834		Steam	ICP Ranger Motor Upgrade	Power Production		Thermal		Less than $250k		International Coal Pier	-	242,512	-	242,512
49873		Steam	LIN Seaweed Picker Upgrade	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	242,227	-	242,227
27857	S004	Steam	LIN-ROOFING ROUTINE	Power Production	Routine	Thermal		Routine		Lingan Generating Station		400,000		400,000
49313		Steam	ICP UU Mile 8.0 Track Replacement	Power Production		Thermal		Less than $250k		International Coal Pier	-	240,653	-	240,653
47761		Steam	LIN1 Boiler Refurbishment	Power Production		Thermal		Carryover		Lingan Generating Station	-	398,673	-	398,673
47960		Steam	LIN1 Control Valve Rebuild	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	237,623	-	237,623
49452		Steam	LIN3 Heater Level Controls Upgrade	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	235,135	-	235,135
48195	D762	Distribution	Halifax 4kV Conversion Ph 3	Distribution		Distribution System	Equipment Replacement	Carryover		Distribution Property	204,129	184,822	-	388,951
49858		General Plant	IT - Microsoft Exchange Upgrade	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	1,500,000	-	1,500,000

CI#	Project #	Functional Class	Project Long Title	ACE Category	Routine Or Normal	Justification Criteria	Justification Sub Criteria	ACE Filing Type	Category per CA IR-31	Major Location	Prior Spend	2017 ACE	Subsequent Spend	Project Total
10626	S001	Steam	LIN - Routine Equipment Replacements	Power Production	Routine	Thermal		Routine		Lingan Generating Station		383,162		383,162
48773	P990	General Plant	IT - VOIP Expansion to NSPI sites	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	99,731	1,400,000	-	1,499,731
10673	S001	Steam	TRE - Routine Equipment Replacements	Power Production	Routine	Thermal		Routine		Trenton Generating Station		377,929		377,929
47859		Steam	POA CEM Replacement	Power Production		Environment		Pt. Aconi		Point Aconi Generating Station	-	375,062	-	375,062
49480	P102	General Plant	IT - Disaster Recovery	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	212,674	1,270,691	-	1,483,365
49601		General Plant	IT - Data loss Prevention	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	40,380	1,158,633	-	1,199,013
49600		General Plant	IT - Network Architecture Redesign	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	150,228	1,033,597	-	1,183,826
49876		General Plant	Real Time Economic Dispatch	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	344,980	816,638	-	1,161,618
43278	D517	Distribution	Halifax 4kV Conversion Part-1	Distribution		Distribution System	Capacity	Carryover		Distribution Property	274,273	76,760	-	351,033
49602		General Plant	IT - Internal Vulnerability Assessment	General Plant		Work Support Facilities	Computers / IT	Less than $250k		General Plant	35,292	203,251	-	238,543
50112		General Plant	Consolidated Customer Web Portal	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	770,977	-	770,977
50113		General Plant	Customer Experience - Streetlight improvements	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	679,394	-	679,394
47751	P975	General Plant	Dynamic Transmission Limits	General Plant		Work Support Facilities	Telecommunications	Subsequent Submittal		General Plant	12,851	524,616	0	537,466
39304	P063	General Plant	Class 3 Work Vehicle Replacements	General Plant	Routine	Work Support Facilities	Vehicles	Routine		General Plant		335,000		335,000
49603		General Plant	IT - Patch Management	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	35,380	500,970	-	536,350
49536		Steam	TRE5 Boiler Refurbishments 2017	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Trenton Generating Station	-	717,589	-	717,589
10621	S001	Steam	TUC - Routine Equipment Replacements	Power Production	Routine	Thermal		Routine		Tufts Cove Generating Station		327,423		327,423
48238	P105	General Plant	Customer Billing Experience Improvements	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	366,598	124,280	-	490,878
48044		General Plant	Bentley Nevada Upgrade and Integration to Fleet Monitoring	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	17,838	383,621	0	401,459
48155		General Plant	2016 SCADA Application Upgrade	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	139,301	261,387	-	400,688
50295		General Plant	Electric Vehicle Infrastructure Deployment	General Plant		Work Support Facilities	Other	Subsequent Submittal		General Plant	-	300,000	100,000	400,000
50132		General Plant	Joint Regulation	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	236,175	151,529	387,704
49953		General Plant	IT - CIS High Availability	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	354,578	-	354,578
41511		Steam	TRE6 - Condenser Waterbox and Cooling Water Piping Refurbishment	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Trenton Generating Station	-	700,809	-	700,809
48063	T879	Transmission	2016/2017 Capacitor Bank Breaker Replacements	Transmission		Transmission Plant		Carryover		Transmission Plant General	98,358	203,101	-	301,459
46572		General Plant	2017 RTU Replacement Program	General Plant		Work Support Facilities	Telecommunications	Request Approval	Between $500,000 and $1 million	General Plant	-	350,914	342,441	693,354
47915		Transmission	L5053 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Between $500,000 and $1 million	L5053	-	692,706	-	692,706
47956		Transmission	L7004 Replacements and Upgrades	Transmission		Transmission Plant		Request Approval	Between $500,000 and $1 million	Transmission Plant General	-	672,131	-	672,131
48072		General Plant	2016 ADMS Switch Order Management	General Plant		Distribution System	Outage Performance	Carryover		General Plant	159,438	133,672	-	293,109
49431		Steam	LIN Mill Refurbishment 2017	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Lingan Generating Station	-	665,839	-	665,839
48631	H755	Hydro	HYD - Gulch Spillway Refurbishment	Power Production		Health & Safety		Request Approval	Between $500,000 and $1 million	Bear River	67,803	549,231	-	617,034
49675		Steam	TUC2 Cooling Water Piping Refurbishment	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Tufts Cove Generating Station	-	568,673	-	568,673
49482		Steam	POA Coal System Refurbishment	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	279,400	-	279,400
11611		General Plant	Hydro Production Tools, Test Equipment	General Plant	Routine	Work Support Facilities	Tools & Equipment	Routine		General Plant		90,000	181,966	271,966
10645	S001	Steam	POT - Routine Equipment Replacements	Power Production	Routine	Thermal		Routine		Point Tupper Generating Station		266,813		266,813
46365	P108	General Plant	Maximo Enhancements for Substation Field Mobility	General Plant		Work Support Facilities	Computers / IT	Carryover		General Plant	122,699	140,979	-	263,678
49494		Steam	POA CW 4160V Cable Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	263,426	-	263,426
47953		Steam	LIN Railcar Positioner Refurbishment	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Lingan Generating Station	-	566,619	0	566,619
48774	H764	General Plant	HYD - Milton Shop HVAC Upgrade	General Plant		Health & Safety		Request Approval	Between $500,000 and $1 million	Mersey River	11,257	553,090	0	564,347
49478		Steam	POA Pedestrian Bridge Replacement	Power Production		Health & Safety		Pt. Aconi		Point Aconi Generating Station	-	253,729	-	253,729
46366	T854	Transmission	65V Middleton Substation RTU Addition	Transmission		Transmission Plant		Carryover		Transmission Plant General	172,715	79,860	-	252,574
14973	T018	Transmission	PRIMARY EQUIPMENT SPARES	Transmission	Routine	Transmission Plant		Routine		Transmission Plant General		250,000		250,000
49799		Distribution	532N Elm Street Conversion Phase 1	Distribution		Distribution System		Request Approval	Between $500,000 and $1 million	Distribution Property	-	548,688	-	548,688
49897		Steam	POT - Fire System Upgrades 2017	Power Production		Health & Safety		Request Approval	Between $500,000 and $1 million	Point Tupper Generating Station	-	538,437	-	538,437
49439		Steam	LIN Plant Siding Replacement	Power Production		Health & Safety		Less than $250k		Lingan Generating Station	-	233,859	-	233,859
49436		Steam	LIN Reclaim Refurbishment	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	233,494	-	233,494
49672		Steam	TUC3 Feedwater Valve Replacement	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	232,799	-	232,799
43195	D476	Distribution	2013 Remote Communication on Reclosers	Distribution		Distribution System	Equipment Replacement	Carryover		Distribution Property	145,781	98,558	-	244,339
48893	SG41	Steam	TUC3 IP Turbine Refurbishment	Power Production		Thermal		Subsequent Submittal		Tufts Cove Generating Station	460,201	4,338,274	(0)	4,798,475
49684		Steam	TUC 4kv/600V Breaker Replacement	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	232,694	-	232,694
49553		Steam	TRE Asbestos Abatement 2017	Power Production		Health & Safety		Less than $250k		Trenton Generating Station	-	226,451	-	226,451
49490		Steam	POA SA Compressor Controls Upgrade	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	241,187	-	241,187
49792		Transmission	2017 Transmission Line Retirement Program	Transmission		Health & Safety		Request Approval	Between $500,000 and $1 million	Transmission Plant General	-	526,064	-	526,064
49821		Transmission	Mersey River Hydro Spare Transformer	Transmission		Transmission Plant		Request Approval	Between $500,000 and $1 million	Transmission Plant General	-	101,450	418,544	519,994
49483		Steam	POA Ash System Refurbishment	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	240,180	-	240,180
49666		Steam	TUC1 South Boiler Feedpump Refurbishment	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	226,025	-	226,025
49716		Steam	TUC Asbestos Abatement	Power Production		Health & Safety		Less than $250k		Tufts Cove Generating Station	-	222,812	-	222,812
49430		Steam	LIN CW Pump Refurbishment 2017	Power Production		Thermal		Request Approval	Between $500,000 and $1 million	Lingan Generating Station	-	516,270	-	516,270
49878		Transmission	2017 Substation Insulator Replacement Program	Transmission		Transmission Plant		Request Approval	Between $500,000 and $1 million	Transmission Plant General	-	508,893	-	508,893
48776		Steam	LIN PA Plant Lighting Upgrade	Power Production		Health & Safety		Less than $250k		Lingan Generating Station	-	222,312	-	222,312
49693		Steam	TUC HFO Piping Refurbishments	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	219,022	-	219,022
49432		Steam	LIN PF Line Refurbishment	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	215,899	-	215,899
46434	SF22	Steam	TRE6 Coal Pile Reclaim Markers	Power Production		Thermal		Carryover		Trenton Generating Station	140,524	92,888	-	233,412
49519		Steam	POT - Asbestos management 2017	Power Production		Health & Safety		Less than $250k		Point Tupper Generating Station	-	213,811	-	213,811
49420		Steam	POT - Plant siding 2017	Power Production		Health & Safety		Less than $250k		Point Tupper Generating Station	-	211,116	-	211,116
43114	SC43	Steam	POA - Screw Cooler Trough Replacement	Power Production	CO	Thermal		Pt. Aconi		Point Aconi Generating Station	181,319	48,366	-	229,684
49433		Steam	LIN1 SH5 Boiler Tube Replacement	Power Production		Thermal		Request Approval	Between $250,000 and $500,000	Lingan Generating Station	-	493,396	-	493,396
49444		Steam	LIN1 Misc. Valve Refurbishment	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	210,463	-	210,463
49435		Steam	LIN Heavy Oil Line Refurbishment Phase 2	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	210,252	-	210,252
47593	SG65	Steam	TRE Dechlorination System	Power Production		Thermal		Carryover		Trenton Generating Station	12,424	25,179	188,451	226,054
49540		Steam	TRE6 6C Hydrogen/Water/Water Cooler Replacement	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	208,260	-	208,260
41226	SB05	Steam	LIN - Boiler Feed Pump Proportional Valve Replacements - Unit #1	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	207,980	-	207,980

CI#	Project #	Functional Class	Project Long Title	ACE Category	Routine Or Normal	Justification Criteria	Justification Sub Criteria	ACE Filing Type	Category per CA IR-31	Major Location	Prior Spend	2017 ACE	Subsequent Spend	Project Total
10718	S001	Steam	POA - Routine Equipment Replacements	Power Production	Routine	Thermal		Pt. Aconi		Point Aconi Generating Station		225,568		225,568
49918		Distribution	54H-303 Underground Device Replacements Phase I	Distribution		Distribution System	Deteriorated Conductor	Request Approval	Between $250,000 and $500,000	Distribution Property	-	469,604	-	469,604
49541		Steam	TRE6 6B Hydrogen/Water/Water Cooler Replacement	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	207,072	-	207,072
49539		Steam	TRE6 Burner Automation System Replacement	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	207,072	-	207,072
49542		Steam	TRE5 Main Boiler Stop Valves Rebuild	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	205,883	-	205,883
49466		Steam	PTMT - Dock and Inhaul Conveyor Replacement	Power Production		Health & Safety		Request Approval	Between $250,000 and $500,000	Strait Marine Terminal	-	467,607	-	467,607
41229	SB17	Steam	LIN - Cable Spreading Rooms Fire Protection	Power Production		Health & Safety		Less than $250k		Lingan Generating Station	38,306	161,946	-	200,252
49545		Steam	TRE5 DCS Server Upgrade	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	200,031	-	200,031
49428		Steam	LIN Ash Site Capping	Power Production		Environment		Less than $250k		Lingan Generating Station	-	195,122	-	195,122
49546		Steam	TRE6 FW Heater Level Control	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	187,434	-	187,434
49547		Steam	TRE5 5-1 BFP Refurbishment	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	185,294	-	185,294
48057		Transmission	Replace 69kV cables between 2S and 83S	Transmission		Transmission Plant		Request Approval	Between $250,000 and $500,000	Transmission Plant General	-	459,931	-	459,931
20945	P006	General Plant	REPLACEMENT AND ADDITIONAL WORK VEHICLES (P006)	General Plant	Routine	Work Support Facilities	Vehicles	Routine		General Plant		210,202		210,202
49549		Steam	TRE5 5-3 Mill Refurbishment	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	180,147	-	180,147
49500		Steam	PHB - Fuel System Refurbishment 2017	Power Production		Thermal		Less than $250k		Port Hawkesbury Biomass	-	178,127	-	178,127
47642		Steam	TRE6 Feeder Controls Upgrade	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	171,040	-	171,040
49470		Steam	POA Boiler Arrowhead Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	207,515	-	207,515
50020		Steam	LIN CEM Replacement Phase 1	Power Production		Environment		Less than $250k		Lingan Generating Station	-	170,281	-	170,281
49550		Steam	TRE5 FW Heater Level Controls	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	169,776	-	169,776
49551		Steam	TRE5 CEMS Replacement	Power Production		Environment		Less than $250k		Trenton Generating Station	-	162,647	-	162,647
49487		Steam	POA Turbine Valve Refurbishment	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	202,062	-	202,062
49594		Gas Turbine	LM6000 TUC5 Airhouse Upgrade	Power Production		Environment		Subsequent Submittal		LM6000	839,229	833,200	(839,229)	833,200
49926		Gas Turbine	LM6000 TUC4 Airhouse Upgrade	Power Production		Environment		Subsequent Submittal		LM6000	-	815,633	-	815,633
38848	P032	General Plant	FAC - Equipment & Warehouse Routine	General Plant	Routine	Work Support Facilities	Buildings	Routine		General Plant		200,000		200,000
49468		Steam	POA Boilerhouse Window Upgrade Phase 1	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	199,397	-	199,397
47703	SF73	Steam	POT - Replace DCS servers	Power Production		Thermal		Carryover		Point Tupper Generating Station	161,814	37,337	-	199,151
49493		Steam	POA Reheat Bypass Actuator Upgrade	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	198,749	-	198,749
49950		Gas Turbine	LM6000 TUC4 SPRINT Nozzle Refurbishment	Power Production		Thermal		Less than $250k		LM6000	-	166,061	-	166,061
50142		Steam	POA Frontwall Pipe Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	189,061	-	189,061
46623	D666	Distribution	Rights for Existing Facilities on Railway Lands	Distribution		Distribution System	Other	Carryover		Distribution Property	6,719	180,739	0	187,458
49949		Gas Turbine	LM6000 TUC4 Control System Replacement	Power Production		Thermal		Subsequent Submittal		LM6000	-	710,815	-	710,815
47118		Gas Turbine	CT Tusket Hydraulic Starter	Power Production		Thermal		Subsequent Submittal		Tusket Combustion Turbine	-	317,015	-	317,015
49951		Gas Turbine	LM6000 TUC5 SPRINT Nozzle Refurbishment	Power Production		Thermal		Less than $250k		LM6000	-	166,061	-	166,061
48039		General Plant	Meridium 4.0	General Plant		Work Support Facilities	Computers / IT	Less than $250k		General Plant	-	76,328	-	76,328
23511	D018	Distribution	Primary Equipment Spares - Distribution Plant	Distribution	Routine	Distribution System	Requirement to Serve	Routine		Distribution Property		175,000		175,000
49707		Steam	TUC2 High Voltage Bushing Replacement	Power Production		Thermal		Request Approval	Between $250,000 and $500,000	Tufts Cove Generating Station	-	440,082	-	440,082
49537		Steam	TRE6 Analytical Panel Upgrade	Power Production		Thermal		Request Approval	Between $250,000 and $500,000	Trenton Generating Station	-	438,216	-	438,216
43646	S001	Steam	PHB - Routine Equipment Replacements	Power Production	Routine	Thermal		Routine		Port Hawkesbury Biomass		170,000		170,000
47531	SE46	Steam	TRE6 Turbine Refurbishments	Power Production		Thermal		Subsequent Submittal		Trenton Generating Station	822,487	1,500,000	-	2,322,487
43239	SF66	Steam	LIN4 BFP Proportional Recirculation Line Control	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	160,757	-	160,757
49667		Steam	TUC1 Oil Purifier I&C Heater Replacement	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	160,593	-	160,593
49501		Steam	PHB - Selective Turbine Valve Refurbishment	Power Production		Thermal		Less than $250k		Port Hawkesbury Biomass	-	160,479	-	160,479
27855	S004	Steam	POT-ROOFING ROUTINE	Power Production	Routine	Thermal		Routine		Point Tupper Generating Station		163,963		163,963
49438		Steam	LIN A Gallery Floor Replacement	Power Production		Health & Safety		Subsequent Submittal		Lingan Generating Station	-	593,814	-	593,814
49991		Steam	TUC1 CEMS	Power Production		Environment		Less than $250k		Tufts Cove Generating Station	-	159,167	-	159,167
49554		Steam	TRE Ash Site Management 2017	Power Production		Environment		Less than $250k		Trenton Generating Station	-	157,989	-	157,989
47602		Steam	TRE Oil Forwarding Pump Area Fire Protection	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	157,695	-	157,695
49499		Steam	PHB - Boiler Refurbishment 2017	Power Production		Thermal		Subsequent Submittal		Port Hawkesbury Biomass	-	484,730	-	484,730
49496		Steam	POA Lime Stone Fan Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	160,124	-	160,124
49677		Steam	TUC2 Replace Bailey Control Valves	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	156,173	-	156,173
49833		Transmission	2017 Oil Containment Program	Transmission		Environment		Request Approval	Between $250,000 and $500,000	Transmission Plant General	-	397,993	34,525	432,518
47963		Steam	LIN Waster Water Stand Pipe Refurbishment	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	152,791	-	152,791
49676		Steam	TUC2 CEMS	Power Production		Environment		Less than $250k		Tufts Cove Generating Station	-	150,374	-	150,374
49913		Steam	ICP - Railway Tie Upgrade Program	Power Production		Thermal		Less than $250k		International Coal Pier	-	149,894	-	149,894
49680		Steam	TUC Heavy/Light Oil Pump Area Fire Protection	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	143,448	-	143,448
49467		Steam	POT - SSC refurbishment	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	142,988	-	142,988
45832	SF21	Steam	TUC6 Boiler Purge Credit	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	287	138,577	(0)	138,864
49471		Steam	POA Expansion Joint Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	147,883	-	147,883
49486		Steam	POA Cable Spreading Room Fire Stop	Power Production		Health & Safety		Pt. Aconi		Point Aconi Generating Station	-	145,788	-	145,788
10634	G001	Gas Turbine	CT - Routine Equipment Replacements	Power Production	Routine	Thermal		Routine		Tusket Combustion Turbine		144,000		144,000
49704		Steam	TUC3 Replace Coils	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	137,236	-	137,236
47893	SG06	Steam	TUC3 PE Generator Hydrogen Panel Replacement	Power Production		Thermal		Request Approval	Between $250,000 and $500,000	Tufts Cove Generating Station	2,616	421,182	(0)	423,798
16551	P027	General Plant	TELECOMMUNICATION RADIO AND FIBRE OPTIC BLDG UPGRADE	General Plant	Routine	Work Support Facilities	Telecommunications	Routine		General Plant		141,942		141,942
50071		General Plant	T&D Inspection Application Upgrade Phase 1	General Plant		Work Support Facilities		Request Approval	Between $250,000 and $500,000	General Plant	147,589	263,602	-	411,191
49880		General Plant	Meter Shop Test Console Replacement	General Plant		Work Support Facilities	Tools & Equipment	Request Approval	Between $250,000 and $500,000	General Plant	-	208,631	201,826	410,457
47671		General Plant	PTMT - Cathodic protection system refurbishment	General Plant		Thermal		Less than $250k		Strait Marine Terminal	-	101,393	-	101,393
47769		Distribution	509V-301 Overcove Rd Replacements	Distribution		Distribution System	Deteriorated Conductor	Request Approval	Between $250,000 and $500,000	Distribution Property	-	402,493	-	402,493
49455		Steam	LIN1 Bus Duct IR Window and Temperature Sensor Installation	Power Production		Health & Safety		Less than $250k		Lingan Generating Station	-	135,782	-	135,782
50143		Steam	POA BA Center Drain Valve Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	134,194	-	134,194
49697		Steam	TUC2 Replace Oil Purifier I&C Heater	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	135,621	-	135,621
49825		General Plant	Radio Site Grounding Review & Upgrade	General Plant		Work Support Facilities	Telecommunications	Less than $250k		General Plant	-	228,414	-	228,414
38243	P814	General Plant	New Telecommunications Spares Routine	General Plant	Routine	Work Support Facilities	Telecommunications	Routine		General Plant		131,844		131,844

CI#	Project #	Functional Class	Project Long Title	ACE Category	Routine Or Normal	Justification Criteria	Justification Sub Criteria	ACE Filing Type	Category per CA IR-31	Major Location	Prior Spend	2017 ACE	Subsequent Spend	Project Total
16073	P010	General Plant	SCADA IMPROVEMENTS ROUTINE	General Plant	Routine	Work Support Facilities	Computers / IT	Routine		General Plant		131,525		131,525
50292		General Plant	FAC - Kempt Road Depot Truck Bay	General Plant		Work Support Facilities	Buildings	Subsequent Submittal		General Plant	-	340,656		340,655
49798		Transmission	2017 / 2018 Capacitor Bank Breaker Replacements	Transmission		Transmission Plant		Request Approval	Between $250,000 and $500,000	Transmission Plant General	-	175,347	202,803	378,150
50115		General Plant	Customer Support System Enhancement	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	310,647	22,200	332,847
48837	P993	General Plant	AMO Fleet Environmental Data Management	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	12,811	304,404	-	317,215
50021		Transmission	91H Tufts Cove Bus and Line Upgrades	Transmission		Transmission Plant		Subsequent Submittal		Transmission Plant General	-	417,178	-	417,178
49111	SG42	Steam	POT - Air heater refurbishment	Power Production		Thermal		Subsequent Submittal		Point Tupper Generating Station	9,036	462,168	0	471,204
49427		Steam	LIN Coal Plant Structural Refurbishment Phase 3	Power Production		Health & Safety		Request Approval	Between $250,000 and $500,000	Lingan Generating Station	-	365,003	-	365,003
49472		Steam	POA Valve Component Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	126,391	-	126,391
49928		Transmission	3S Gannon Rd. Bus Reconfiguration	Transmission		Transmission Plant		Subsequent Submittal		Transmission Plant General	-	364,777	-	364,777
49899		Distribution	10H Halifax 4kV Conversion Year 4	Distribution		Distribution System	Capacity	Subsequent Submittal		Distribution Property	-	254,608	-	254,608
49654		Steam	TUC Refurbishment Gas Compressor 6A/6B	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	133,870	-	133,870
49711		Steam	TUC Low Load Oil Operation, Flue Gas monitoring	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	130,429	-	130,429
47774	D766	Distribution	546C-311 West Bay Upgrade	Distribution		Distribution System	Overloaded Equipment	Carryover		Distribution Property	109,022	10,816	-	119,838
49678		Steam	TUC2 Replace Secondary Air Damper Drives	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	130,404	-	130,404
49543		Steam	TRE6 Conveyor Refurbishments	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	130,163	-	130,163
49556		Steam	TRE Excavator GPS System	Power Production		Health & Safety		Less than $250k		Trenton Generating Station	-	129,416	-	129,416
46485	SF02	Steam	TUC1 - Gas Block Valves	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	29,201	98,418	-	127,619
49791		Distribution	3N Oxford Conversion Phase 3	Distribution		Distribution System		Request Approval	Between $250,000 and $500,000	Distribution Property	-	358,369	-	358,369
49708		Steam	TUC2 HEP/FAC Surveys	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	125,409	-	125,409
50131		Steam	POA Coal Cracker Refurbishment	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	111,286	-	111,286
27858	S004	Steam	POA-ROOFING ROUTINE	Power Production	Routine	Thermal		Pt. Aconi		Point Aconi Generating Station		110,759		110,759
49512	SG94	Steam	POT - PLC Migration - Coal system	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	125,038	-	125,038
49449		Steam	LIN GSCW Line Replacement	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	121,615	-	121,615
49443		Steam	LIN Coal System Guard Upgrade Phase 3	Power Production		Health & Safety		Less than $250k		Lingan Generating Station	-	120,131	-	120,131
49709		Steam	TUC2 Replace Coils	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	116,612	-	116,612
49434		Steam	LIN CW Screen Refurbishment 2017	Power Production		Thermal		Request Approval	Between $250,000 and $500,000	Lingan Generating Station	-	347,062	-	347,062
49456		Steam	LIN1 Electric Motor Refurbishment	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	113,171	-	113,171
49481		Steam	POA Plant Access Replacement	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	105,315	-	105,315
49457		Steam	LIN3 Electric Motor Refurbishment	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	111,829	-	111,829
49458		Steam	LIN4 Electric Motor Refurbishment	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	111,829	-	111,829
49867		Distribution	55V-313-Berwick North Replacements	Distribution		Distribution System	Deteriorated Conductor	Request Approval	Between $250,000 and $500,000	Distribution Property	-	345,565	-	345,565
49591		Distribution	3S Feeder Exit Cable Replacement	Distribution		Distribution System	Deteriorated Conductor	Request Approval	Between $250,000 and $500,000	Distribution Property	23,507	312,334	-	335,842
49463		Steam	POT Coal Mill Overhauls 2017	Power Production		Thermal		Request Approval	Between $250,000 and $500,000	Point Tupper Generating Station	-	328,410	-	328,410
49891		Distribution	509V Recloser and Voltage Regulator Replacement	Distribution		Distribution System	Equipment Replacement	Request Approval	Between $250,000 and $500,000	Distribution Property	-	319,649	-	319,649
49921		Steam	TRE6 6-4, 6-5, 6-6 Feedwater Heater Refurbishments	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	110,358	-	110,358
48158	P018	General Plant	Environmental Equipment Replacement Routine	General Plant	Routine	Environment		Routine		General Plant		100,000		100,000
28430	P041	General Plant	FAC - Land Acquisition Routine	General Plant	Routine	Land and Right-of-Way		Routine		General Plant		100,000		100,000
27856	S004	Steam	TRE-ROOFING ROUTINE	Power Production	Routine	Thermal		Routine		Trenton Generating Station		100,000		100,000
49516		Steam	PTMT - Fire system refurbishment	Power Production		Health & Safety		Less than $250k		Strait Marine Terminal	-	109,189	-	109,189
50012		Steam	ICP #2 Gate/Chute Refurbishment	Power Production		Thermal		Less than $250k		International Coal Pier	-	108,186	-	108,186
45206	S004	Steam	PHB - Roofing Routine	Power Production	Routine	Thermal		Routine		Port Hawkesbury Biomass		98,675		98,675
49459		Steam	LIN34 HMI TSC Upgrades	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	106,912	-	106,912
49429		Steam	LIN Coal Pile Run Off Pond Expansion	Power Production		Environment		Request Approval	Between $250,000 and $500,000	Lingan Generating Station	-	311,793	-	311,793
49689		Steam	TUC3 HP Heater Level Controls	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	106,055	-	106,055
49682		Steam	TUC2 HP Heater Level Controls	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	105,984	-	105,984
49538		Steam	TRE6 Generator Refurbishment	Power Production		Thermal		Subsequent Submittal		Trenton Generating Station	-	411,766	-	411,766
49474		Steam	POA Coal System Guard Upgrade Phase 3	Power Production		Health & Safety		Pt. Aconi		Point Aconi Generating Station	-	91,943	-	91,943
33867	S005	Steam	POT - Heat Rate Routine	Power Production	Routine	Thermal		Routine		Point Tupper Generating Station		84,967		84,967
50073		Distribution	4S-332 Bernard Lind Drive Conversion	Distribution		Distribution System	Deteriorated Conductor	Request Approval	Between $250,000 and $500,000	Distribution Property	-	302,893	-	302,893
47553		Steam	TRE6 Turbine Main Valves	Power Production		Thermal		Subsequent Submittal		Trenton Generating Station	-	392,887	-	392,887
49484		Steam	POA Diesel Generator Controls Upgrade	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	82,646	-	82,646
49674		Steam	TUC2 Boiler Selective Waterwall Tube Replacements	Power Production		Thermal		Subsequent Submittal		Tufts Cove Generating Station	-	390,898	-	390,898
49670		Steam	TUC1 4kv/600V Breaker Replacement	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	104,851	-	104,851
49442		Steam	LIN Facilities Upgrade	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	104,630	-	104,630
33869	S005	Steam	TRE - Heat Rate Routine	Power Production	Routine	Thermal		Routine		Trenton Generating Station		80,000		80,000
11627	P016	General Plant	POT - Tools and Equipment Routine	General Plant	Routine	Work Support Facilities	Tools & Equipment	Routine		Point Tupper Generating Station		80,000		80,000
11621	P016	General Plant	TRE - Tools and Equipment Routine	General Plant	Routine	Work Support Facilities	Tools & Equipment	Routine		Trenton Generating Station		80,000		80,000
49453		Steam	LIN Stores Fire Protection Upgrade	Power Production		Health & Safety		Less than $250k		Lingan Generating Station	-	104,232	-	104,232
49464		Steam	POT - E Coal Conveyor Refurbishment	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	103,388	-	103,388
49915		Steam	ICP Railcenter Security System Upgrade	Power Production		Thermal		Less than $250k		International Coal Pier	-	101,139	-	101,139
49715		Steam	TUC Upgrade PLC Control Panel	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	99,875	-	99,875
49279		Steam	POT - Bay door replacements 2017	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	98,378	-	98,378
33863	S005	Steam	LIN - Heat Rate Routine	Power Production	Routine	Thermal		Routine		Lingan Generating Station		76,439		76,439
49510		Steam	POT - Refurbish travelling screens and replace panels	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	98,297	-	98,297
11648	P016	General Plant	LIN - Tools and Equipment Routine	General Plant	Routine	Work Support Facilities	Tools & Equipment	Routine		Lingan Generating Station		75,000		75,000
49445		Steam	LIN Feeder Controls Upgrades	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	93,733	-	93,733
49651		General Plant	TUC Office Block Facility Upgrade	General Plant		Work Support Facilities	Buildings	Less than $250k		Tufts Cove Generating Station	-	83,716	-	83,716
49491		Steam	POA ISO Phase Buss Temperature Monitor	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	72,009	-	72,009
16192	P009	General Plant	MOBILE TRANFORMER & TRACK ROUTINE	General Plant	Routine	Work Support Facilities	Vehicles	Routine		General Plant		70,978		70,978
43243	SE88	Steam	POA - Wellfield Communication	Power Production	CO	Thermal		Pt. Aconi		Point Aconi Generating Station	4,093	65,673	0	69,766
50011		Steam	ICP Ranger Conveyor Structural Refurbishment Phase 2	Power Production		Thermal		Less than $250k		International Coal Pier	-	92,330	-	92,330

CI#	Project #	Functional Class	Project Long Title	ACE Category	Routine Or Normal	Justification Criteria	Justification Sub Criteria	ACE Filing Type	Category per CA IR-31	Major Location	Prior Spend	2017 ACE	Subsequent Spend	Project Total
49495		Steam	POA 4160v Motor Refurbishment	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	67,125	-	67,125
49511		Steam	POT - Replace ID fan damper drives	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	92,186	-	92,186
49695		Steam	TUC Paint Roofs of HFO Storage Tank 2&4	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	81,390	-	81,390
49686		Steam	TUC3 Boiler Modulation Control Upgrade	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	80,024	-	80,024
49514		Steam	POT - LP heaters level controls	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	79,992	-	79,992
49681		Steam	TUC2 Boiler Modulation Control Upgrades	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	79,641	-	79,641
49492		Steam	POA 4KV 600V Breaker Refurbishment	Power Production		Thermal		Pt. Aconi		Point Aconi Generating Station	-	63,924	-	63,924
27854	S004	Steam	TUC-ROOFING ROUTINE	Power Production	Routine	Thermal		Routine		Tufts Cove Generating Station		63,228		63,228
49544		Steam	TRE5 Conveyor Refurbishments	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	78,098	-	78,098
25646	P040	General Plant	TUC - DCMS Equipment Replacement Routine	General Plant	Routine	Thermal		Routine		Tufts Cove Generating Station		60,917		60,917
49557		Steam	TRE6 Coal Feeder Gauge Replacements	Power Production		Thermal		Less than $250k		Trenton Generating Station	-	78,098	-	78,098
44587		Steam	POT - Selective Ash Site Capping	Power Production		Environment		Less than $250k		Point Tupper Generating Station	-	76,971	-	76,971
49663		Steam	TUC Nitrogen Generator	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	74,658	-	74,658
49454		Steam	LIN3 Generator Bus Duct Temperature Sensors	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	73,153	-	73,153
49060		Steam	POT - Condenser Dog Bone Expansion Joint Replacement	Power Production		Thermal		Subsequent Submittal		Point Tupper Generating Station	-	298,253	-	298,253
43033		Steam	POT - Breaker replacements and refurbishments	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	67,757	-	67,757
49517		Steam	PTMT - Replace Dock Transformer	Power Production		Thermal		Less than $250k		Strait Marine Terminal	-	65,784	-	65,784
49902		General Plant	2017 Telecom Building Replacement - Wittenburg	General Plant		Work Support Facilities	Building Replacement/Modificatic	Request Approval	Between $250,000 and $500,000	General Plant	-	294,000	-	294,000
49502		Steam	PHB - Fire Suppression Expansion	Power Production		Health & Safety		Less than $250k		Port Hawkesbury Biomass	-	65,599	-	65,599
11589	P016	General Plant	TUC - Tools and Equipment Routine	General Plant	Routine	Work Support Facilities	Tools & Equipment	Routine		Tufts Cove Generating Station		55,000		55,000
49866		Distribution	512N-Toney River Replacements	Distribution		Distribution System		Request Approval	Between $250,000 and $500,000	Distribution Property	-	285,219	-	285,219
49687		Steam	TUC3 Bus Duct/Gen Terminal Monitoring System	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	64,674	-	64,674
49699		Steam	TUC6 Access Doors	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	64,304	-	64,304
49558		Steam	TRE6 Bus Bar Repairs/IR Windows	Power Production		Health & Safety		Less than $250k		Trenton Generating Station	-	62,478	-	62,478
49917		Steam	ICP Coal Load Out Hydraulics Upgrades	Power Production		Thermal		Less than $250k		International Coal Pier	-	60,541	-	60,541
49671		Steam	TUC1 Rotating Element Extraction Pump Refurbishment	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	60,000	-	60,000
21484	P016	General Plant	POA - Tools and Equipment Routine	General Plant	Routine	Thermal		Pt. Aconi		Point Aconi Generating Station		52,530		52,530
49515		Steam	POT - Replacement of Graver valves and solenoids	Power Production		Thermal		Less than $250k		Point Tupper Generating Station	-	59,496	-	59,496
49683		Steam	TUC2 Bus Bar Inspection/Repair IR Windows	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	57,644	-	57,644
49688		Steam	TUC3 Analytical Panel Upgrades	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	55,050	-	55,050
49700		Steam	TUC6 Vacuum Cooler	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	54,610	-	54,610
47903		Steam	TUC2 Lube Oil Coolers' Inlet/Outlet Waterbox Replacement	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	54,494	-	54,494
47909		Steam	TUC Nat Gas Valves Refurbishment	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	54,153	-	54,153
26526	P002	General Plant	METER SHOP - TOOLS AND EQUIPMENT	General Plant	Routine	Work Support Facilities	Tools & Equipment	Routine		General Plant		50,000		50,000
49705		Steam	TUC3 Bus Bar IR Windows	Power Production		Health & Safety		Less than $250k		Tufts Cove Generating Station	-	52,995	-	52,995
48868	SG74	Steam	AMO Fleet TWIP Upgrades	Power Production		Thermal		Subsequent Submittal		Steam General	23,166	257,442	-	280,608
33871	S005	Steam	TUC - Heat Rate Routine	Power Production	Routine	Thermal		Routine		Tufts Cove Generating Station		47,690		47,690
16365	P025	General Plant	MOBILE RADIO ROUTINE	General Plant	Routine	Work Support Facilities	Telecommunications	Routine		General Plant		46,048		46,048
33865	S005	Steam	POA - Heat Rate Routine	Power Production	Routine	Thermal		Pt. Aconi		Point Aconi Generating Station		44,725		44,725
49437		Steam	LIN Vacuum Pump Cooler Refurbishment	Power Production		Thermal		Request Approval	Between $250,000 and $500,000	Lingan Generating Station	-	282,034	-	282,034
49653		Steam	TUC Dehumidifier Air Unit	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	51,073	-	51,073
49701		Steam	TUC6 Turbine Control Valves	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	50,584	-	50,584
49662		Steam	TUC Aquarian Migration	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	48,757	-	48,757
49673		Steam	TUC1 Extraction Pump Rotork Valve Actuator	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	48,479	-	48,479
43648	P016	General Plant	PHB - Tools and Equipment Routine	General Plant	Routine	Thermal		Routine		Port Hawkesbury Biomass		40,000		40,000
25626	P040	General Plant	TRE - DCMS Equipment Replacement Routine	General Plant	Routine	Thermal		Routine		Trenton Generating Station		40,000		40,000
25647	P040	General Plant	POA - DCMS Equipment Replacement Routine	General Plant	Routine	Thermal		Pt. Aconi		Point Aconi Generating Station		35,000		35,000
47870		Steam	LIN Cofferdam Outer Cell Refurbishment	Power Production		Thermal		Less than $250k		Lingan Generating Station	-	44,692	-	44,692
47907		Steam	TUC6 Vacuum Pumps' Seal Water Cooler Upgrade	Power Production		Thermal		Less than $250k		Tufts Cove Generating Station	-	40,501	-	40,501
49832		General Plant	Victoria Junction Substations Fiber Links	General Plant		Work Support Facilities	Buildings	Less than $250k		General Plant	-	65,972	-	65,972
49922		Transmission	Western Switching Upgrades	Transmission		Transmission Plant		Subsequent Submittal		Transmission Plant General	-	353,906	-	353,906
43386	SF67	Steam	POT - LP dosing automation	Power Production		Thermal		Carryover		Point Tupper Generating Station	19,047	11,407	-	30,454
25668	P040	General Plant	LIN - DCMS Equipment Replacement Routine	General Plant	Routine	Thermal		Routine		General Plant		30,000		30,000
25667	P040	General Plant	POT - DCMS Equipment Replacement Routine	General Plant	Routine	Work Support Facilities	Computers / IT	Routine		Point Tupper Generating Station		30,000		30,000
49929		Transmission	Tap Changer Replacements	Transmission		Transmission Plant		Subsequent Submittal		Transmission Plant General	-	262,526	-	262,526
49839		General Plant	Gas Turbine Tools & Equipment	General Plant	Routine	Work Support Facilities	Tools & Equipment	Routine		Gas Turbine General		28,000		28,000
49856		General Plant	IT - ITSM Replacement	General Plant		Work Support Facilities	Computers / IT	Subsequent Submittal		General Plant	-	300,000	-	300,000
21485	P035	General Plant	POA - KELLY ROCK LIMESTONE QUARRY (CAPITAL EXPENDITURES)	General Plant	Routine	Thermal		Pt. Aconi		Steam General		21,291		21,291
28522	P040	General Plant	CT'S - DCMS Equipment Replacement Routine	General Plant	Routine	Thermal		Routine		General Plant		20,000		20,000

Request IR-32:

Referring to CI# 47597 (Trenton 6 bottom ash chain replacement), please provide the following:

(a) Provide date of most recent bar loop style chain replacement?

(b) Please confirm whether the bar loop style chain is replaced roughly every two years

(c) Please explain the difference in initial replacement cost of $450,000 as opposed to the $175,000 for subsequent projected replacements in years 2019, 2021, 2025, and 2025.

(d) Please confirm the projected outage duration for 2018 is 8760 per the EAM workbook on the 'Avoided Cost Summary' tab and explain the rationale for assume the chain failure would take the plant offline for an entire year.

(e) Please confirm whether the current bar loop style chain is more likely to fail unexpectedly than the proposed round link style chain. If so, please explain

Response IR-32:

(a) The bottom ash bar loop chain was most recently replaced in 2014. However, there were maintenance and repairs conducted on the bottom ash system in 2015 and 2016. While the system was down at those times, the opportunity was used to replace 2/3 of the chain in 2015 and the remaining 1/3 in 2016.

(b) Yes, the bar loop style chain is expected to be replaced every two years based on utilization.

(c) The initial replacement cost of $450,000 as opposed to the subsequent cost of $175,000 in later years is due to the other components of the project for 2017 which include the flight bars, idler rebuild and internal plates, in addition to the chain replacement. These other components have a much longer anticipated life and will not require replacement in subsequent years.

(d) In the event of a failure, the unit can no longer operate, and there is no method to repair the chain without completing this capital work order. In cases like this, the do nothing option results in the plant being offline permanently (8760 hours per year) in the event of a failure.

(e) The proposed round link style chain has similar failure mechanisms as the previous design which is predominantly related to wear. The round link style is not expected to have a higher unplanned failure rate and is expected to have more than doubled the operating time between wear driven replacement.

Request IR-33:

Referring to CI# 47687 (Point Tupper Unit 2 – POT boiler chemical recondition), please provide the cost of the most recent chemical recondition undertaken at POT Unit #2 boiler.

Response IR-33:

Point Tupper Unit 2 Boiler has not been chemically reconditioned since commissioning in 1987. Chemical reconditioning is driven by the condition assessment of boiler components. Please refer to page 219 of the 2017 ACE Plan for project justification. NS Power's most recent chemical reconditioning was completed in 2015 as part of CI 46472 at Lingan Unit #3 at a cost of $465,400. Point Tupper Unit 2 chemical reconditioning utilizes a different process than Lingan Unit 3 due to the evident hydrogen damage mechanism in the boiler waterwalls. This damage mechanism needs to be mitigated with a different chemical solvent than Lingan Unit 3 which will leads to higher engineering and waste disposal costs.

Request IR-34:

Referring to CI# 49430 please explain why the projected cost for the CW pump refurbishment is higher than the two noted recent Lingan CW pump refurbishment projects.

Response IR-34:

The projected cost of the CW pump refurbishment is higher than the two recent CW pump refurbishment projects due to the requirement in CI# 49430 to replace the suction bell casting (original to unit) which was not required in the previous two CW pump refurbishments.

Request IR-35:

Referring to CI# 47953 (Lingan - coal plant repositioner), please address the following items:

(a) Please provide the total tons of coal currently stored in the coal piles at Lingan.

(b) Roughly, how many day of operation do the current coal piles correspond to?

(c) Would the unexpected failure of the railcar positioner interfere with the plant's ability to make use of its onsite coal pile?

Response IR-35:

(a) As of December 9, 2016, the total coal stored at Lingan is [redacted] tonnes.

(b) Using a maximum load of 5500 tonnes per day the station can operate for [redacted] days.

(c) The railcar positioner is used to offload coal from rail cars; therefore, it would not affect the use of the on-site coal pile. Once coal is offloaded from the rail cars, other fuel handling equipment is used to transport the coal to the pile and eventually into the fuel delivery system.

Request IR-36:

Referring to CI# 49057 please provide the expected service life for the current excitation system at Trenton Unit 6.

Response IR-36:

The current excitation system at Trenton Unit 6 is original to the plant, therefore is approximately 25 years old. The service life of the current excitation system is now deemed to be ended due to the lack of availability of third party technical support and spare parts. The expected service life of an asset such as this is dependent on the availability of spare parts and technical support, therefore could not have been known when the system was installed in 1991. In this case the unit reached the end of its serviceable life when the condition assessment, completed in 2016, identified there were obsolete components with no technical support available.

Request IR-37:

Referring to CI# 49431, please provide the expected uptime between refurbishments for the mills at Lingan.

Response IR-37:

The uptime between refurbishments for the mills at Lingan historically has been four years. Uptime between future refurbishment will be determined by unit utilization and fuel blend. Refurbishments are completed based on condition assessments. As unit utilization on these units' changes, the expected uptime during refurbishments will change accordingly. If utilization of the unit decreases, the uptime between refurbishments will increase.

Request IR-38:

Referring to CI# 49533 (Trenton Unit 6 – boiler refurbishment), please explain why there is no information provided for 2016 in the Cash Summary tab of the EAM sheet.

Response IR-38:

This project is scheduled to start in 2017, with no activity occurring in 2016.