

1 **Q. Please provide a detailed listing by year which reconciles the difference between NP's**  
 2 **approved 2014 Test Year rate base and the forecast 2016 rate base of \$1,054,192,000.**

3  
 4 **A. A. Evidence in Support of the Application**

5  
 6 Newfoundland Power has provided forecasts of 2015 and 2016 average rate base in  
 7 support of the Application. This evidence is substantially similar to those rate base  
 8 forecasts that are filed in a Newfoundland Power general rate application ("GRA") and  
 9 used by the Board to establish customer rates.<sup>1</sup>

10  
 11 Forecasts of average rate base are generally used by the Board in the assessment of returns  
 12 and establishment of customer rates. The Board is entitled to use such forecasts by virtue  
 13 of Section 80(4) of the *Public Utilities Act*. Newfoundland Power forecasts of rate base  
 14 provide a reliable basis for regulatory decision-making because of the comprehensive and  
 15 rigorous regulatory processes associated with the Board's consideration and prior approval  
 16 of capital expenditures pursuant to Section 41 of the *Public Utilities Act*.

17  
 18  
 19 **B. Regulation of Annual Capital Expenditures and Rate Base**

20  
 21 Section 41 of the *Public Utilities Act* requires Newfoundland Power to file an application  
 22 for approval of an annual capital budget each year ("capital budget applications"). As part  
 23 of each Newfoundland Power capital budget application, approval is sought for capital  
 24 expenditures in the succeeding year and the rate base for the last completed year.

25  
 26 Newfoundland Power capital budget applications, which are typically filed in the 2<sup>nd</sup>  
 27 quarter of a year, provide a comprehensive justification of proposed capital expenditures  
 28 for the ensuing year.<sup>2</sup> The capital budget application process approved by the Board  
 29 provides for a rigorous review of each capital budget application (which includes Requests  
 30 for Information by interested parties and the Board) prior to the Board's approving  
 31 appropriate capital expenditures in the 4<sup>th</sup> quarter of a year. Required reporting in each  
 32 capital budget application includes a 5-year capital plan and a status report on current year  
 33 capital expenditures.

34  
 35 Part of each Newfoundland Power capital budget application is a review, and approval, of  
 36 Newfoundland Power's rate base.<sup>3</sup> This review includes both forecast and historical  
 37 information associated with Newfoundland Power's rate base. Typically, the Board has  
 38 its financial consultants review Newfoundland Power's computations of rate base to

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<sup>1</sup> See, for example, *Newfoundland Power 2013/2014 General Rate Application*, Company Evidence, Exhibit 8 and *Newfoundland Power 2013/2014 Compliance Application*, Schedule 1, Appendix A.

<sup>2</sup> For example, *Newfoundland Power's 2015 Capital Budget Application* totaled approximately 880 pages.

<sup>3</sup> See, for example, *Newfoundland Power's 2015 Capital Budget Application*, Schedule D and 7.1 Rate Base: Additions, Deductions & Allowances.

1 ensure compliance with regulatory legislation and existing Board orders.<sup>4</sup> This occurs  
2 whether the forecast of rate base is contained in a capital budget application or the annual  
3 prospective regulation of Newfoundland Power's return.<sup>5</sup>  
4

5 Each year, Newfoundland Power is required to provide a comprehensive report on capital  
6 expenditures in the prior year. In addition, Newfoundland Power's annual return (filed  
7 pursuant to Section 59(2) of the *Public Utilities Act*) provides detailed computations  
8 which effectively reconcile Newfoundland Power's year to year calculations of rate base.<sup>6</sup>  
9

10 The comprehensive and continuing regulatory processes associated with regulatory  
11 oversight throughout the year of Newfoundland Power's capital expenditures and rate base  
12 provide a high degree of confidence in Newfoundland Power's forecasts of rate base. For  
13 example, Order No. P.U. 13 (2013) approved Newfoundland Power's customer rates for  
14 2013 and 2014, based upon a 2012 forecast of Newfoundland Power's 2013 and 2014 rate  
15 base.  
16

### 17 18 **C. Information Requested**

19  
20 Newfoundland Power's (i) annual capital budget applications, (ii) capital budget  
21 supplements and (iii) annual returns are provided to Newfoundland and Labrador Hydro  
22 ("Hydro") when they are filed with the Board.  
23

24 Accordingly, Hydro already has detailed information on planned and actual capital  
25 expenditures for each of the years 2014 and 2015. For the purposes of the Application,  
26 Newfoundland Power used the 2016 forecast of capital expenditures contained in the 2015  
27 Capital Plan contained in *Newfoundland Power's 2015 Capital Budget Application*.  
28 Together, these documents provide the essential information necessary to understand  
29 changes in Newfoundland Power's rate base from year to year.<sup>7</sup>  
30

31 Attachment A provides a copy of the 2015 Capital Plan contained in *Newfoundland*  
32 *Power's 2015 Capital Budget Application*. It is provided for Hydro's convenience.  
33

34 Attachment B to the response to Request for Information NLH-NP-001 provides the  
35 calculation of Newfoundland Power's rate base for 2014 test year, 2014 actual and 2015  
36 and 2016 forecasts. This information has been tabulated in a manner consistent with  
37 Newfoundland Power's historical calculations of rate base.

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<sup>4</sup> See, for example, Grant Thornton LLP's letter of July 31, 2014 on rate base calculations contained in *Newfoundland Power's 2015 Capital Budget Application*.

<sup>5</sup> See, for example, Grant Thornton LLP's letter of November 18, 2014 on forecast average rate base and rate of return on rate base calculations contained in *Newfoundland Power's 2015 Rate of Return on Rate Base Application*.

<sup>6</sup> See, for example, Returns 3 through 12 of *Newfoundland Power's 2014 Annual Return*.

<sup>7</sup> All of these documents, which total thousands of pages, can be found on the Board's website.

1           **D.       Relevance to the Application**

2  
3           In the Application, Newfoundland Power seeks the Board’s approval for 2016 deferred  
4           cost recovery to permit the Company to file its next GRA by June 1, 2016 with a 2017  
5           test year. If the Board approves the 2016 deferred cost recovery as proposed in the  
6           Application, then (i) Newfoundland Power will have the opportunity to earn a just and  
7           reasonable return in 2016; (ii) Hydro’s amended GRA will be concluded in as timely a  
8           manner as possible; and (iii) rates for customers served by the Island interconnected  
9           system will be established in an orderly manner.

10  
11           Newfoundland Power has filed its most current forecast of 2016 rate base in support of  
12           the Application. This forecast is calculated (i) in accordance with longstanding  
13           regulatory practice and Board orders and (ii) on the same basis as the 2012 forecast of  
14           Newfoundland Power’s 2014 rate base, which was used in the calculation of current  
15           customer rates.

16  
17           The forecast of 2016 rate base provided in support of the Application provides a  
18           reasonable basis for regulatory decision-making.

**Newfoundland Power Inc.  
2015 Capital Plan**

**2015 Capital Plan**

**June 2014**

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Appendix A: 2015-2019 Capital Plan

## 2015 Capital Plan

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### 1.0 Introduction

Newfoundland Power's 2015 Capital Plan provides an overview of the Company's 2015 Capital Budget together with an outlook for capital expenditure through 2019.

Newfoundland Power's 2015 Capital Budget totals \$94,211,000.

The Company's 2015 Capital Budget is part of a series of stable and predictable annual capital budgets which the Board has recognized assists in fostering stable and predictable rates for consumers.<sup>1</sup> Newfoundland Power's annual capital expenditure for the next 5 years is forecast to average approximately \$97 million. This level of annual expenditure is broadly consistent on an inflation adjusted basis with the annual capital expenditures in the period 2010 through 2014.<sup>2</sup>

The Company's annual capital budgets continue to focus on (i) plant replacement and (ii) meeting customer and sales growth. Together, expenditures on plant replacement and growth combine to account for 83% of expenditures over the next 5 years. This composition is broadly consistent with Newfoundland Power's capital budgets over the previous 5 years.

Over the past 5 years there have been 5 major disturbances that have impacted the Company's ability to serve its customers. In March 2010 an ice storm on the Bonavista Peninsula left 10,246 customers without electricity, some for as long as 6 days. In September 2010 Hurricane Igor affected 106,000 customers, with some being without electricity for 5 days. In September 2012 Tropical Storm Leslie affected 129,000 customers, with some being without electricity for 5 days. In January 2013 a breaker failure at the Holyrood Thermal Generating Station and the subsequent damage to generating unit #1 resulted in 173,000 Newfoundland Power customers losing electrical service. Finally, a series of system events in January 2014 resulted in as many as 187,501 customers being without electricity at one time. The Company responds to these major disturbances through the timely deployment of human resources and equipment including portable substations and emergency generation. The ability to respond effectively is supported through the increased use of technology and the upgrading and maintaining of electricity system assets.

Over the previous 5 year period the Company's use of technology in operations has expanded. Mobile computers were installed in Company line trucks over a 3 year period starting in 2009.<sup>3</sup> Annual expenditures in the Information Systems *Applications Enhancements* project have improved the Company's Internet presence, including the expanded use of social media for communicating with customers during major disturbances on the electricity system. Annual expenditures in the *Substations Refurbishment and Modernization* project have increased the amount of automation in the electricity system. Increased automation of substation equipment, particularly transmission line breakers and distribution feeder breakers and reclosers, has improved the electricity system's capability and flexibility to respond to both major disturbances and local system events.

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<sup>1</sup> See Order No. P.U. 36 (2002-2003).

<sup>2</sup> See Chart 3 on page 7 of this Capital Plan.

<sup>3</sup> The initial justification was based on documentation management but the applications have expanded over time with mobile work dispatch and vehicle location currently improving overall operating efficiency of line crews.

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The 2015 Capital Plan continues to expand the use of technology in operations. The *Substation Refurbishment and Modernization* project will complete the automation of substation based equipment. Over the 5-year plan the Company intends to automate all distribution feeders capable of communications back to the SCADA system. The Company is introducing a new project titled *Distribution Feeder Automation* to automate existing downline reclosers and to increase the presence of downline reclosers on heavily loaded distribution feeders. In 2015 and 2016 the Company will replace its 15 year old SCADA system with a new system that will be capable of integrating with geographic information and outage management systems. Following the completion of the SCADA replacement the 5-year capital plan includes the replacement of the Outage Management System (“OMS”). The combination of substation and feeder automation along with new SCADA and OMS technology has the potential to improve customer service delivery during normal operations and at times of major disturbances.

**2.0 2015 Capital Budget**

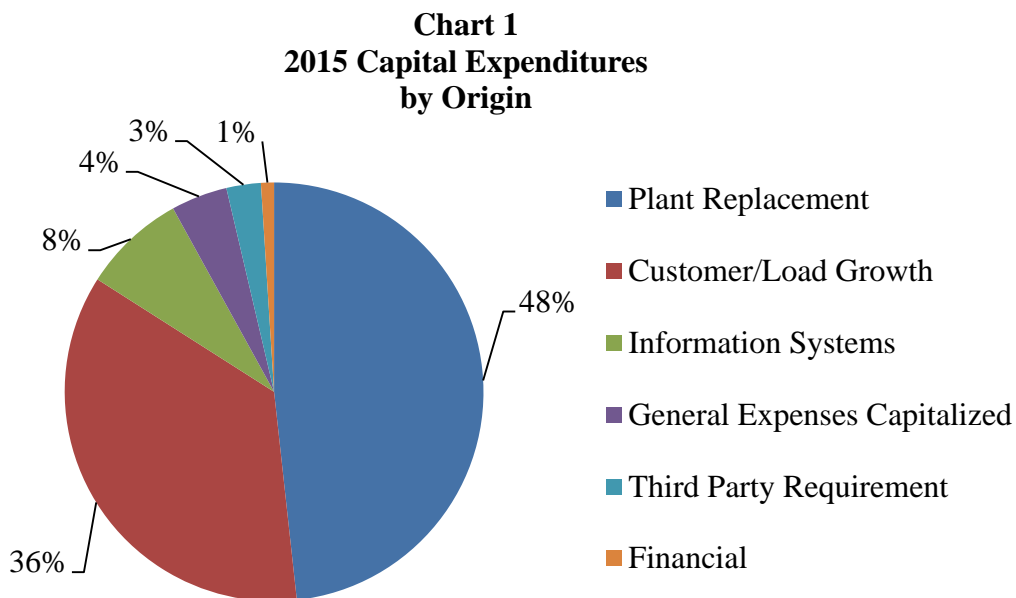
*Newfoundland Power’s 2015 capital budget is \$94,211,000.*

*This section of the 2015 Capital Plan provides an overview of the 2015 capital budget by origin (root cause) and asset class. In addition, this section summarizes 2015 capital projects by the various categories set out in the Board’s October 2007 Capital Budget Application Guidelines.*

**2.1 2015 Capital Budget Overview**

Newfoundland Power’s 2015 capital budget contains 39 projects totalling \$94.2 million.

Chart 1 shows the 2015 capital budget by origin, or root cause.

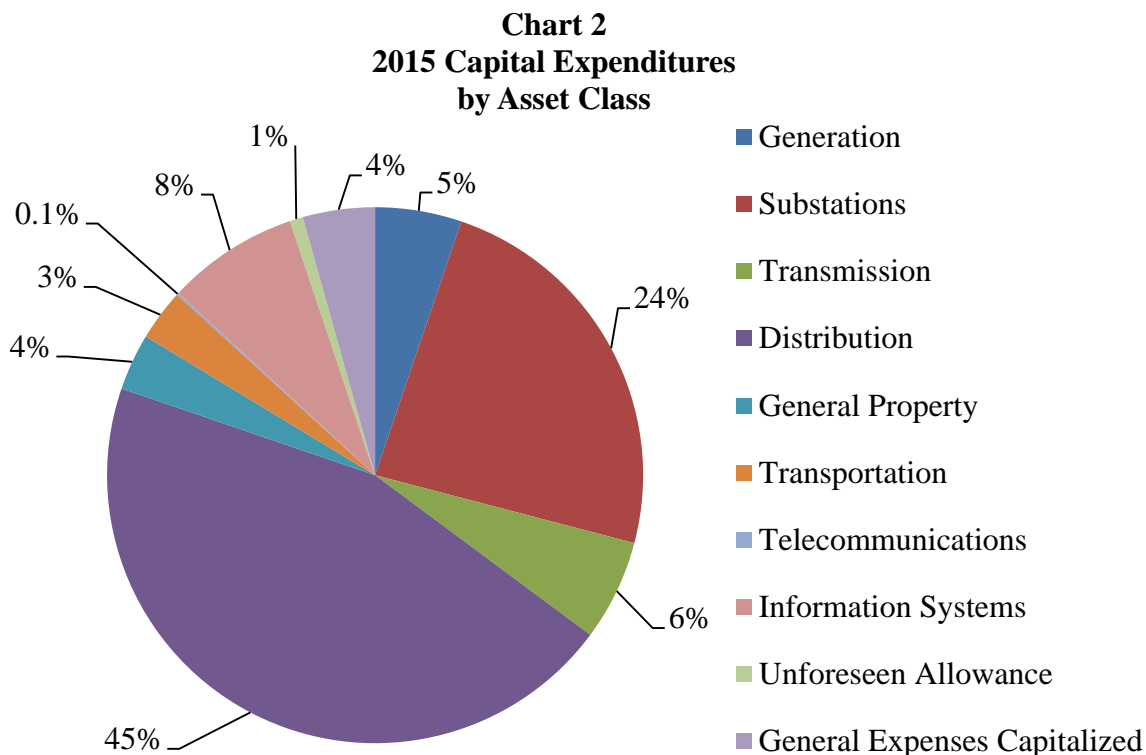




**2015 Capital Plan**

Approximately 48% of proposed 2015 capital expenditure is related to the replacement of plant. A further 36% of proposed 2015 capital expenditure is required to meet the Company’s obligation to serve new customers and meet the requirement for increased system capacity. The 8% of proposed 2015 capital expenditure associated with Information Systems includes the project to replace the Company’s SCADA system. The remaining 8% of forecast capital expenditures for 2015 relate to general expenses capitalized, third party requirements and financial carrying costs (allowance for funds used during construction). The allocation of 2015 capital expenditures is broadly consistent with capital budgets for the past 5 years.

Chart 2 shows the 2015 capital budget by asset class.



As in past years, Distribution capital expenditure accounts for the greatest percentage of overall expenditure at \$42.5 million, or 45% of the 2015 capital budget. Substations capital expenditure accounts for \$22.5 million, or 24% of the 2015 capital budget. Information Systems capital expenditure accounts for \$7.5 million or 8% of the 2015 capital budget. Transmission capital expenditure accounts for \$5.7 million, or 6% of the 2015 capital budget. Generation capital expenditure accounts for \$4.9 million, or 5% of the 2015 capital budget. Together, expenditure for these 5 asset classes comprises 88% of the Company’s 2015 capital budget.

Distribution capital expenditure is primarily driven by customer requests for new connections to the electrical system. While Distribution capital expenditures that address reliability have been reduced in recent years, in 2015 the Distribution Reliability Initiative will address reliability

## ***2015 Capital Plan***

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issues associated with 2 urban feeders. Otherwise expenditures in 2015 are expected to be similar to recent years.

In 2015, the Company plans to install new power transformers at Clarendville and Lethbridge substations in the Bonavista Peninsula area and Kenmount substation in the City of St. John's. Also in 2015, the Company will install a transformer from inventory at St. John's Main substation.<sup>4</sup> These projects are necessary to address growth in customer load in these areas.

Transmission lines proposed for rebuild in 2015 include 4 lines in the City of St. John's and one line in the Stephenville area.<sup>5</sup> Transmission line 14L operates between Memorial University and Stamp's Lane substations. Transmission line 15L operates between Molloy's Lane and Stamp's Lane substations. Transmission line 30L operates between Ridge Road and King's Bridge substations. Transmission line 69L operates between Kenmount and Stamp's Lane substations. Transmission line 400L operates between Newfoundland & Labrador Hydro's Bottom Brook terminal station and Wheeler's substation on the Hansen Highway outside of Stephenville.

In 2015, the Company plans to initiate a 2-year project to replace the penstock at the Pierre's Brook hydro plant. The Company will also complete projects to refurbish the Seal Cove and Tors Cove hydro plants in 2015.

### ***2.2 The Capital Budget Application Guidelines***

On October 29, 2007, the Board issued Policy No. 1900.6, referred to as the Capital Budget Application Guidelines (the "CBA Guidelines"), providing for definition and categorization of capital expenditures for which a public utility requires prior approval of the Board. Newfoundland Power's 2015 Capital Budget Application complies with the CBA Guidelines.

The 2015 Capital Budget Application includes 39 projects, as detailed in *Schedule A*. Included in *Schedule B* is a summary of these projects organized by definition, classification, and costing method.

The following section provides a summary of each of these views of the 2015 Capital Budget, along with a summary of costs segmented by materiality.

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<sup>4</sup> This substation transformer was last in service at Hardwoods substation. The transformer is planned to be replaced at Hardwoods substation by a new unit in 2014. The project was included in the 2014 Capital Budget Application and approved on Order No. P.U. 27 (2013).

<sup>5</sup> These transmission lines are deteriorated and have reached a point where continued maintenance is no longer feasible.

**2015 Capital Plan**

**2015 Capital Projects by Definition**

Table 1 summarizes Newfoundland Power’s proposed 2015 capital projects by definition as set out in the CBA Guidelines.

**Table 1  
2015 Capital Projects  
By Definition**

<b>Definition</b>	<b>Number of Projects</b>	<b>Budget (000s)</b>
Pooled	26	\$56,199
Clustered <sup>6</sup>	8	29,869
Other	5	8,143
<b>Total</b>	<b>39</b>	<b>\$94,211</b>

There are a total of 33 *pooled* or *clustered* projects accounting for 91% of total expenditures.

**2015 Capital Projects by Classification**

Table 2 summarizes Newfoundland Power’s proposed 2015 capital projects by classification as set out in the CBA Guidelines.

**Table 2  
2015 Capital Projects  
By Classification**

<b>Classification</b>	<b>Number of Projects</b>	<b>Budget (000s)</b>
Normal	36	\$92,024
Mandatory	1	429
Justifiable	2	1,758
<b>Total</b>	<b>39</b>	<b>\$94,211</b>

There are 36 *normal* projects accounting for 98% of total expenditures.

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<sup>6</sup> Projects that have some items that are defined as Clustered and some other items that are defined as either Pooled or Other are included as Clustered for the purpose of this table.

**2015 Capital Plan**

**2015 Capital Projects Costing**

Table 3 summarizes Newfoundland Power’s proposed 2015 capital projects by costing method (i.e., identified need vs. historical pattern) as set out in the CBA Guidelines.

**Table 3  
2015 Capital Projects  
By Costing Method**

<b>Method</b>	<b>Number of Projects</b>	<b>Budget (000s)</b>
Identified Need	24	\$48,230
Historical Pattern	15	45,981
<b>Total</b>	<b>39</b>	<b>\$94,211</b>

Projects with costing method based on *identified need* account for 51% of total expenditures, while those based on *historical pattern* account for 49% of total expenditures.

**2015 Capital Projects Materiality**

Table 4 segments Newfoundland Power’s proposed 2015 capital projects by materiality as set out in the CBA Guidelines.

**Table 4  
2015 Capital Projects  
Segmentation by Materiality**

<b>Segment</b>	<b>Number of Projects</b>	<b>Budget (000s)</b>
Under \$200,000	4	\$636
\$200,000 - \$500,000	9	3,521
Over \$500,000	26	90,054
<b>Total</b>	<b>39</b>	<b>\$94,211</b>

There are 26 projects budgeted at over \$500,000 accounting for 96% of total expenditures.

**2015 Capital Plan**

**3.0 5-Year Outlook**

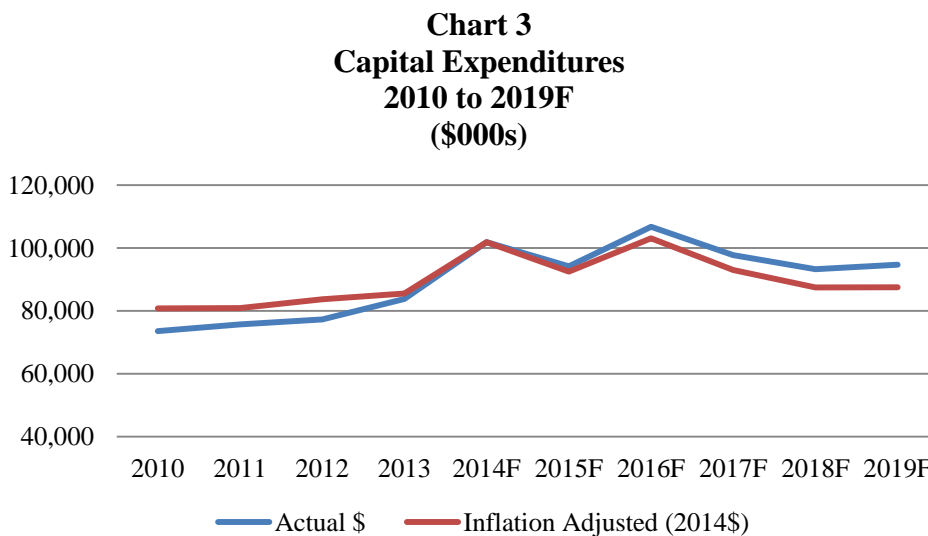
*Newfoundland Power’s 5-year capital outlook for 2015 through 2019 includes forecast average annual capital expenditure of \$97.3 million. Over the 5 year period 2010 through 2014, the average annual capital expenditure is expected to be \$83.4 million.*

*The increase in forecast annual capital expenditure reflects inflation and requirements for specific projects related to replacement of deteriorated facilities, meeting customer and load growth, replacing the Company’s SCADA system, maintaining compliance with federal regulations and a new portable generator. Annual expenditure through the forecast period is broadly consistent on an inflation adjusted basis with that in the period 2010 through 2014.*

**3.1 Capital Expenditures: 2010-2019**

The Company plans to invest \$487 million in plant and equipment during the 2015 through 2019 period. On an annual basis, capital expenditures are expected to average approximately \$97.3 million and range from a low of \$93.3 million in 2018 to a high of \$106.8 million in 2016.<sup>7</sup>

Chart 3 shows actual capital expenditures for the period 2010 through 2013 and forecast capital expenditures for the period 2014 through 2019.<sup>8</sup> For comparison purposes, the annual capital expenditures are also expressed in 2014 dollars to remove the effects of inflation.



Overall planned capital expenditures for the 5-year period from 2015 through 2019 are expected to be greater than those in the 5-year period from 2010 through 2014. As shown in Chart 3 this

<sup>7</sup> The Company plans to replace the Pierre’s Brook penstock with a construction cost of \$13.2 million in 2016.  
<sup>8</sup> The 2014 forecast capital expenditure includes supplemental capital expenditures for the Bell Island Submarine Cable Replacement and distribution feeder improvements and substation refurbishment application approved by Board Order Nos. P.U. 43 (2013) and P.U. 14 (2014) respectively.

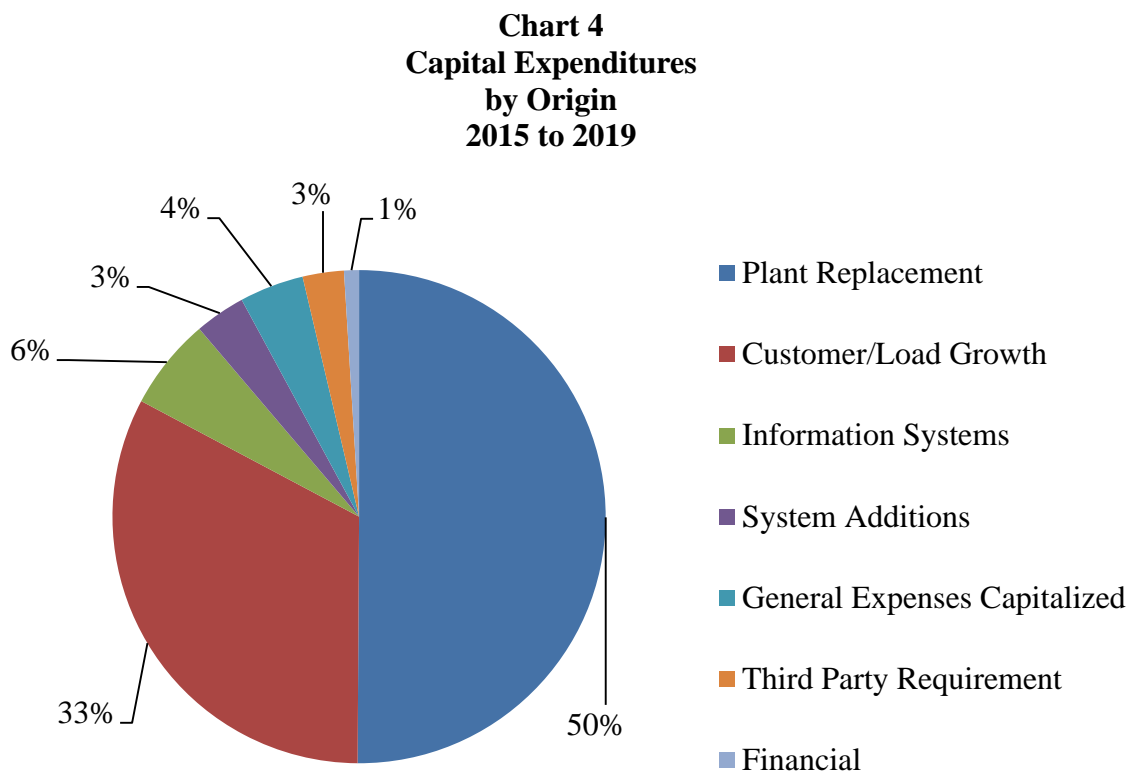
is principally the result of inflation.<sup>9</sup> Forecast requirements for the 5-year period from 2015 through 2019 include additional power transformers due to load growth, changes in meter regulations, replacement of Pierre’s Brook penstock, mobile generation and the SCADA system replacement.

The replacement of plant has been, and will continue to be, the dominant driver of Newfoundland Power’s capital budget, accounting for approximately 50% of total expenditure for the 10-year period from 2010 through 2019. Over the same 10-year period, capital expenditures to meet increased customer connections and electricity sales account for approximately 33% of total expenditures.

### 3.2 2015-2019 Capital Expenditures

#### 3.2.1 Overview

Chart 4 shows aggregate forecast capital expenditures by origin for the period 2015 through 2019.



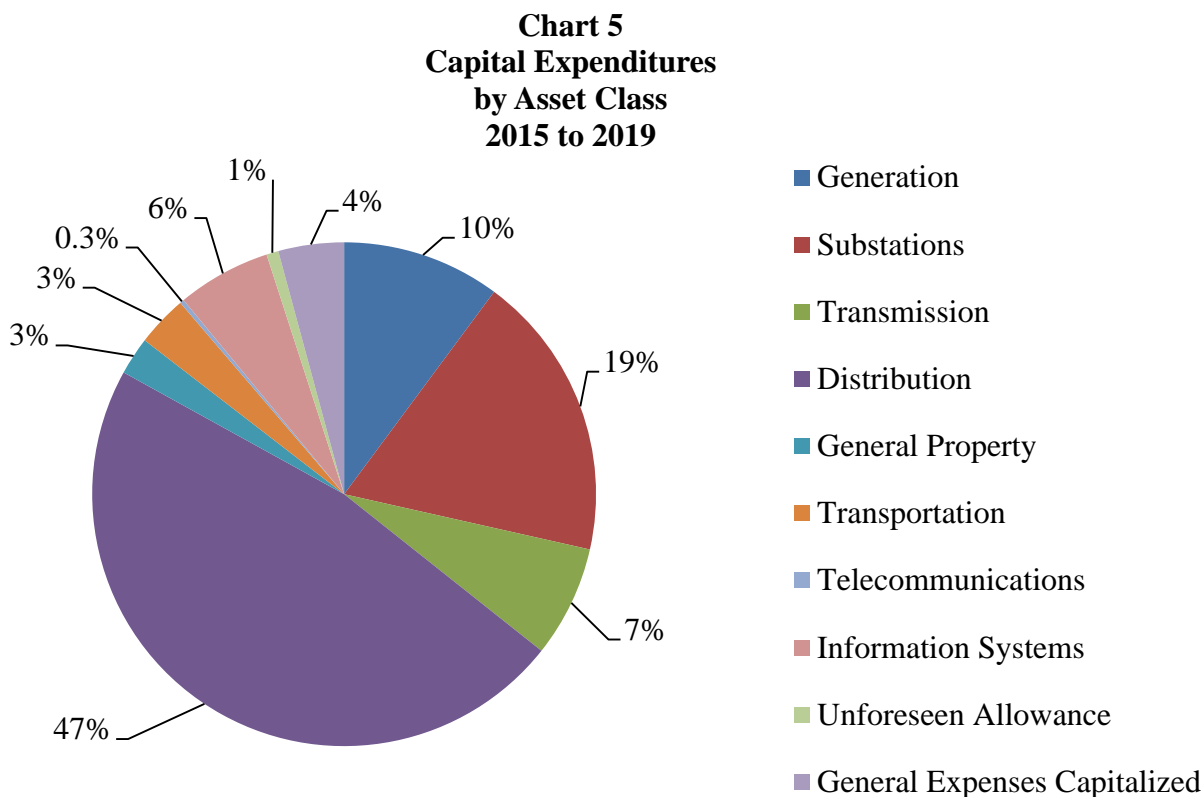
<sup>9</sup> With the exception of 2014 and 2016, the inflation adjusted curve is relatively flat. The increase in forecast capital expenditure in 2014 is attributable to the \$15 million project to replace the Bell Island submarine cable. The increase in forecast capital expenditure in 2016 is attributable to the \$13 million project to replace the Pierre’s Brook penstock.

**2015 Capital Plan**

Plant replacement accounts for 50% of all planned expenditures over the 5-year period from 2015 through 2019. This is the same as the average of 50% in the previous 5-year period from 2010 through 2014. Capital expenditure related to customer and load growth accounts for 33% of planned expenditures for this period. This is practically the same as the average of 34% in the previous 5-year period from 2010 through 2014.

The remaining 17% of total capital expenditures for the 2015 through 2019 period relate to a variety of origins including information systems, system additions, general expenses capitalized, third party requirements and financial costs.

Chart 5 shows aggregate forecast capital expenditures for the period 2015 through 2019 by asset class.



The Distribution asset class accounts for 47% of all planned expenditures over the next 5 years, followed by Substations (19%), Generation (10%) and Transmission (7%). The remaining six asset classes account for 17% of total capital expenditures for the 2015 through 2019 period.

Overall, planned expenditures for the period 2015 through 2019 are expected to remain relatively stable in all asset classes with the exception of generation and substations which vary annually due to refurbishment and system load growth requirements, and the addition of portable generation over the forecast period.

## *2015 Capital Plan*

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A summary of planned capital expenditures by asset class and by project for 2015 to 2019 is provided in Appendix A.

### *3.2.2 Generation*

Generation capital expenditures will average approximately \$9.9 million per year from 2015 through 2019, which is greater than the annual average of \$7.3 million from 2010 through 2014.

Generation capital expenditures on the Company's 23 hydroelectric plants, 3 gas turbines and 2 diesel plants are primarily driven by:

- breakdown capital maintenance;
- generation preventive capital maintenance; and
- specific capital project initiatives, such as plant refurbishment.

The Company has a preventive maintenance program in place for generation assets. The level of expenditure for capital maintenance, both breakdown and preventive, is expected to be relatively stable over the forecast period and generally consistent with the historical average.

Due to the age of the Company's fleet of generating plants, significant refurbishment will continue to be required over the planning period. Over the next 5 years, the Company plans to continue the practice adopted in recent years of undertaking major plant refurbishment while also identifying opportunities to increase energy production and reduce losses at existing facilities. Specifically, the following major capital projects are planned:

- In 2015 and 2016, the Company plans to replace the Pierre's Brook woodstave penstock, refurbish the existing surge tank and upgrade the plant controls at an estimated cost of \$15.8 million. Work in 2015 will involve upfront engineering as well as necessary work required for the plant access road. The penstock replacement, surge tank refurbishment and plant controls upgrade are planned for 2016.
- In 2015, 2017 and 2018, the Company plans to refurbish the generators, turbines and wicket gates on all 3 generators along with the automation of G1 at the 76 year old Tors Cove hydroelectric plant at an estimated total cost of \$5.2 million.
- In 2016 and 2017, the Company plans to purchase a 5 MW mobile generator at an estimated cost of \$9.0 million. The mobile generator will be used for both emergency generation and to minimize customer outages during planned work.<sup>10</sup>
- In 2018, the Company plans to replace the runner at the Cape Broyle hydro plant to increase hydro production by 0.9 GWh at an estimated cost of \$0.9 million.
- In 2019, the Company plans to replace the final section of woodstave penstock at the 108 year old Petty Harbour hydroelectric plant at an estimated cost of \$2.1 million. The remaining section of woodstave penstock was replaced in 1999 with a steel penstock.

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<sup>10</sup> The existing mobile gas turbine will be 43 years old in 2016.



Newfoundland Power’s gas turbines range in age from 39 years to 45 years.<sup>11</sup> Historically, these thermal generators have been used to support system peaks for very limited periods of time each year, to allow for system maintenance in their local areas and to provide backup in the event of localized outages. Increased use of the gas turbines during the past 2 winter seasons is a significant change in usage.<sup>12</sup>

Newfoundland Power’s 2014 Five Year Capital Plan included budgetary cost estimates for the overhaul of the Greenhill gas turbine in 2017 and the Wesleyville gas turbine in 2018. The timing, anticipated scope and cost estimates for these overhauls were based upon the historical level of usage for these units. Condition assessments for the Company’s gas turbines are underway in light of potential increased use. The timing, scope and cost estimates for gas turbine equipment overhauls or complete system replacements will not be known until the condition assessments are completed. It is anticipated that the review will be completed in late 2014. No budgetary cost estimates associated with the overhaul of the Company’s gas turbines are included in the 2015 Five Year Capital Plan.

### 3.2.3 Transmission

Transmission capital expenditures are expected to average \$6.9 million annually from 2015 through 2019 compared with \$4.8 million annually from 2010 through 2014.

The Company operates approximately 2,000 km of transmission lines. Transmission capital expenditures are primarily driven by:

- breakdown capital maintenance;
- transmission preventive capital maintenance; and
- third party requests.

The Company has a maintenance program in place for its transmission assets. The level of expenditure for capital maintenance, both breakdown and preventive, is expected to be relatively stable over the forecast period.

In its 2006 Capital Budget Application, the Company submitted its 10-year transmission strategy in the report titled *3.1 Transmission Line Rebuild Strategy*. The report outlined the need to completely rebuild certain sections of aging transmission lines that are deteriorated. This proactive approach to managing transmission assets is expected to reduce failures over the long term. An update of the strategic plan is included in the report *3.1 Transmission Line Rebuild Strategy* included with the 2015 Capital Budget Application.

In 2018 the Company anticipates that a new transmission line will be required to supply substations in the area from Torbay to Portugal Cove at an estimated cost of approximately \$1.6 million. In 2011 the Company installed a new 25 MVA transformer in Pulpit Rock substation

<sup>11</sup> The Greenhill gas turbine is 39 years old, the Wesleyville gas turbine is 45 years old and the mobile gas turbine is 40 years old.

<sup>12</sup> The rate of wear in a gas turbine is significantly affected by the number of times the turbine is stopped and started as each stop/start cycle involves extreme temperature changes and material expansion and contraction within the turbine. See, for example, *Technology Characterization: Gas Turbines* prepared for the Environmental Protection Agency, Washington DC, December 2008 at page 18.

## *2015 Capital Plan*

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and in 2017 the Company plans to install a new 25 MVA transformer in Broad Cove substation. Both transformers are required due to customer and load growth in the area. The transmission lines supplying these 2 substations are radial with no contingency for the loss of supply other than mobile generation. The construction of new transmission is required to provide redundancy of supply to this growing area.

### *3.2.4 Substations*

Substations capital expenditures are expected to average \$17.9 million annually from 2015 through 2019, a material increase from the average of \$13.7 million annually from 2010 through 2014. The increase in expenditure is largely attributable to the requirement for additional system capacity to serve increased customer load and increasing the automation of transmission line breakers and distribution feeder breakers and reclosers.

The Company operates 130 substations containing approximately 4,000 pieces of critical electrical equipment. Substation capital expenditures are primarily driven by:

- breakdown capital maintenance;
- substation preventive capital maintenance;
- Government regulations regarding the elimination of PCBs; and
- system load growth.

The Company has a preventive capital maintenance program in place for its substation assets. Preventive maintenance is expected to ensure that the overall reliability of substation assets remains stable.

In its 2007 Capital Budget Application, the Company submitted its 10-year substation strategy in a report titled *Substation Strategic Plan*. The 2007 plan addressed substation refurbishment and modernization work in 80% of the Company's substations in an orderly way over a multi-year planning horizon. This is consistent with the maintenance of reasonable year to year stability in the Company's annual capital budgets. Since 2007, work performed as part of the Substation Refurbishment and Modernization capital project has broadly reflected this approach. An update of the strategic plan is included in the report *2.1 2015 Substation Refurbishment and Modernization* filed with the 2015 Capital Budget Application.

The system events of January 2-8, 2014, particularly the lengthy customer outages and the successive rotating power outages revealed control limitations on the Company's transmission and distribution systems. SCADA control and monitoring has been implemented on approximately 91% of Newfoundland Power's transmission lines and approximately 60% of distribution feeders.<sup>13</sup> The 5-Year Capital Plan will include projects to complete the automation of the remaining distribution feeders. The *2015 Substation Refurbishment and Modernization* project includes the automation of 25 distribution feeders and 4 additional transmission line breakers.

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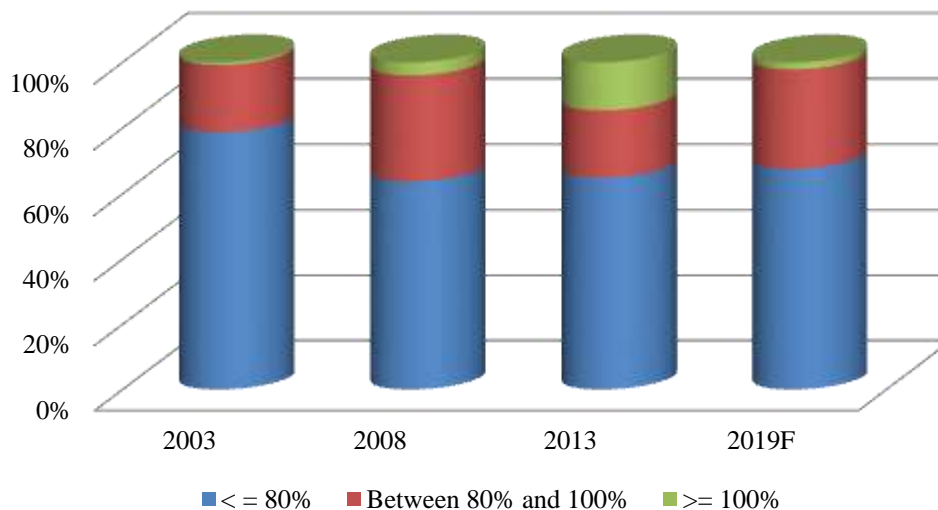
<sup>13</sup> The level of monitoring is dependent on the type of protection and communication equipment installed at the substation and ranges from monitoring equipment status to the ability to remotely control equipment and configure protection settings.

The Company forecasts a number of significant substations projects will be required due to system load growth over the planning period. Capital expenditures will be required to increase system capacity, particularly power transformation capacity.

Over the 2015 to 2019 forecast period there is a requirement to install 11 substation transformers to accommodate load growth.<sup>14</sup> In 2015, as a result of customer and load growth experienced over the past decade new power transformers will be required at Clarenville, Lethbridge and Kenmount substations. Also in 2015 an existing substation transformer will be relocated to St. John's Main Substation.<sup>15</sup> Commencing in 2016 and continuing through 2019, 5 new substation transformers will be required for the Northeast Avalon Peninsula and Grand Falls areas.<sup>16</sup> The Company will also relocate 2 transformers to substations in St. John's and the Codroy Valley that will become available as a result of the 8 new transformer purchases.

Chart 6 shows substation transformer capacity utilization on peak for substations located across the Company's service territory.

**Chart 6**  
**Substation Transformer Capacity Utilization on Peak**  
**2003, 2008, 2013 and 2019F**



<sup>14</sup> By comparison, in the period 2010 through 2014, Newfoundland Power has purchased 7 new power transformers and relocated 2 power transformers to serve increased customer load. The purchase of new transformers and the relocation of other transformers to serve customer load growth are in addition to the requirement to replace aged or deteriorated equipment.

<sup>15</sup> Planning studies for the Lethbridge, Clarenville, Kenmount and St. John's Main service areas are included in the 2015 Capital Budget Application report *2.2 2015 Additions Due To Load Growth*.

<sup>16</sup> The Company's annual Capital Budget Applications will include engineering studies detailing the requirements for additional power transformers in the years in which they are required.

In 2003, approximately 21% of substation transformers had capacity utilization on peak of 80% or greater. By 2013, the proportion of substation transformers with capacity utilization on peak of 80% or greater had increased to 36%. This reflects the impact of customer load growth on substation transformer capacity utilization. With load growth forecast to be in the 1% to 2% range through the planning period, the capacity utilization on peak of substation transformers will continue to increase. The addition of 8 new substation transformers and relocation of 3 other substation transformers forecast in this 5-year capital plan will not materially change the proportion of substation transformers with capacity utilization on peak of 80% or greater. It does however reduce significantly the number of transformers at or above 100% utilization on peak.<sup>17</sup> The Company's annual capital budget applications will include engineering studies detailing the requirements for additional substation transformers in the years in which they are required.

The Company will meet the Government of Canada's regulatory requirement to remove from service all bushings and instrument transformer equipment containing oil at or above 500 mg/kg by December 31, 2014.<sup>18</sup> Equipment with PCB concentrations greater than 50 mg/kg and less than 500 mg/kg must be removed from service by 2025. The 5-year capital plan includes expenditures of approximately \$3.6 million to address PCB concentrations greater than 50 mg/kg and less than 500 mg/kg in advance of the 2025 deadline.

### 3.2.5 Distribution

Distribution capital expenditures from 2015 through 2019 are expected to increase to an average of approximately \$46.1 million annually, compared to an average of \$43.9 million annually from 2010 through 2014.

The Company operates approximately 9,500 km of distribution lines serving approximately 257,000 customers. Distribution capital expenditures are primarily driven by:

- new customers;
- third party requests;
- breakdown capital maintenance;
- distribution preventive capital maintenance;
- system load growth; and
- specific capital project initiatives, such as trunk feeder rebuilds.

The number of new customer connections is forecast to decrease towards the end of the planning period. Over the 5-year period from 2015 to 2019 the number of new customer connections will decrease by 7.3%. Over the same 5-year period capital expenditures associated with new customer connections is forecast to increase by 3.8%. This increase in capital expenditures is primarily due to inflation. The costs to connect new customers to the electricity system are included in several distribution projects including *Extensions, Transformers, Services, Meters* and *Street Lighting*.

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<sup>17</sup> The reduction in the number of transformers at or above 100% utilization on peak is reflected in the distribution of transformer additions over the 2015 to 2019 period. For example, 8 of the 11 transformer additions will occur in the first 2 years of the 5-year plan.

<sup>18</sup> Newfoundland Power has been granted a permit extending the deadline to remove from service equipment containing oil at or above 500 mg/kg to December 31, 2014.

Table 5 shows the forecast number of new customer connections and the total capital expenditures associated with those connections over the next 5 years.

**Table 5  
New Customer Connections**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>
New Customer Connections	4,749	4,731	4,549	4,410	4,402
Average Cost/Connection	\$4,724	\$4,847	\$5,005	\$5,169	\$5,291
Capital Expenditure (000s)	\$22,436	\$22,929	\$22,770	\$22,795	\$23,289

Over the period 2015 to 2019, the expenditure associated with new customer connections is forecast to be within the range of \$22 million to \$23 million, or approximately 24% of the annual capital expenditures.

Distribution capital expenditures are required to relocate or replace distribution lines to meet third party requests from governments, telecommunications companies and individual customers. In 2015, the expenditures associated with third party requests are estimated at \$2.5 million. Over the remainder of the 5-year period, these expenditures are forecast to remain stable and approximate an average of \$2.6 million.

Capital expenditures associated with the replacement of meters are typically based upon historical expenditures. A detailed description of the Company’s strategy to deal with new regulations and improved efficiency in the metering function can be found in the report **4.3 2013 Meter Strategy** filed with the 2013 Capital Budget Application. In 2015, the Company has included a project to replace all existing non-AMR meters on the Burin Peninsula. The Company will pilot new technology to reduce the number of meter reading days to read the approximate 11,000 meters on the Burin Peninsula from 26 days to possibly 4 days. The report **4.4 Burin AMR Project** filed with the 2015 Capital Budget Application provides the details on the savings achieved by converting all meters to AMR technology.

The Company has a preventive capital maintenance program in place for its Distribution assets. However, in-service failures of distribution plant and equipment are unavoidable. The Company expects its efforts in preventive maintenance will counter the continuous aging of its distribution assets such that the capital expenditure due to distribution plant and equipment failures will approximate the historical average cost and while there will be fluctuations, costs are forecast to remain relatively stable over the next 5 years.

In the 2013 Capital Budget Application, the Company outlined its preventive capital maintenance program for Distribution assets in the report **4.4 Rebuild Distribution Lines Update**. The expenditures associated with the preventive capital maintenance program are budgeted in the annual *Rebuild Distribution Lines* project. The Company plans to perform preventive capital maintenance on approximately 43 distribution feeders per year over the planning period.

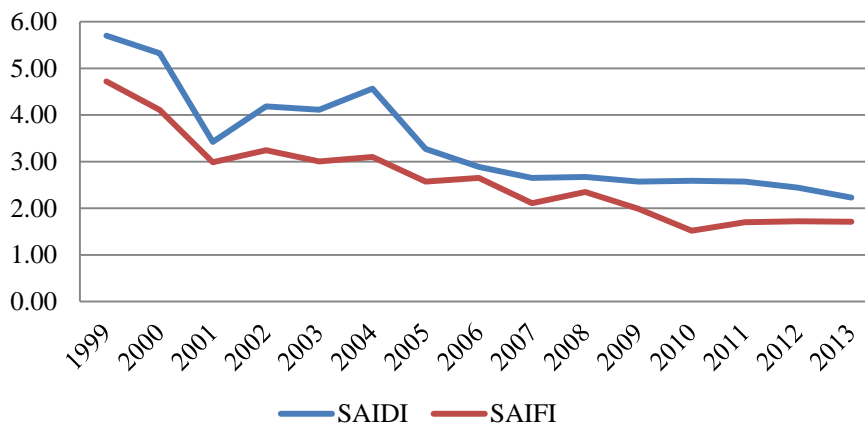
The Distribution *Reconstruction* project involves the replacement of deteriorated or damaged distribution structures and electrical equipment. The project is comprised of small unplanned projects and is estimated using the historical average of the most recent 5-year period.

Distribution capital expenditure related to system load growth primarily reflects growth in customer electricity requirements. The majority of this growth continues to be located in the St. John’s metropolitan area. This requires the transfer of customer load or the upgrade of feeders to increase capacity. Expenditure for feeder modifications and additions due to system load growth from 2015 through 2019 is expected increase over the next 5 years.<sup>19</sup>

The Company ranks its distribution feeders based on reliability performance and completes in-field assessments of those with the poorest performance statistics. Capital upgrades are performed on the worst performing feeders under a project titled *Distribution Reliability Initiative*.

Chart 7 shows SAIDI, or system average interruption duration index, and SAIFI, or system average interruption frequency index, for the years 1999 through 2013. Chart 7 has been adjusted to remove the effects of severe weather and system events.<sup>20</sup>

**Chart 7**  
**SAIDI and SAIFI**  
**1999 - 2013**



<sup>19</sup> Capital expenditures for the Feeder Additions for Load Growth project for the 5-year period 2010 to 2014 were approximately \$6.6 million

<sup>20</sup> Adjustments exclude the 2007 and 2010 Bonavista ice storms, Hurricane Igor in 2010, the December 2011 high wind event, Tropical Storm Leslie in September 2012, the January 11<sup>th</sup> 2013 system disturbance and the Central Newfoundland winter storm in November 2013. These exclusions are consistent with the Canadian Electricity Association approved definitions. If these severe weather events were included, 2007 SAIDI and SAIFI would be 5.94 and 2.46, respectively, 2010 SAIDI and SAIFI would be 13.82 and 2.69 respectively, 2011 SAIDI and SAIFI would be 4.03 and 1.95, respectively, 2012 SAIDI and SAIFI would be 5.85 and 2.12 respectively and 2013 SAIDI and SAIFI would be 3.04 and 1.82 respectively .

## 2015 Capital Plan

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Newfoundland Power considers current levels of service reliability on a system wide basis to be satisfactory. This primarily reflects the current condition of Newfoundland Power's distribution system assets. As a result, capital expenditures in the *Distribution Reliability Initiative* project were reduced in recent years.<sup>21</sup>

Commencing in 2014, Newfoundland Power has incorporated additional reliability indices, CIKM and CHIKM into its reliability analysis.<sup>22</sup> This has resulted in 2 distribution feeders being identified for work in 2015. These distribution feeders, KBR-10 and MOL-09 are located in the east and west ends of the City of St. John's respectively.<sup>23</sup> Details on the project expenditure can be found in the report *4.1 Distribution Reliability Initiative* filed with the 2015 Capital Budget Application.

Newfoundland Power has equipment located in electrical vaults in the St. John's downtown area that were constructed as part of the Water Street underground electrical distribution system in the late 1960's. These vaults are typically located in the basement of buildings and contain high voltage electrical equipment that converts primary voltages from the existing underground distribution system to secondary voltages. The majority of the vaults in the St. John's downtown area contain exposed high voltage electrical conductor and equipment. In 2015, the Company will refurbish and modernize 3 of the 19 vaults in the St. John's downtown area.<sup>24</sup> Details on the refurbishment and modernization of the vaults are found in report *4.3 Vault Refurbishment and Modernization* filed with the 2015 Capital Budget Application.

The Company continues to assess whether the replacement rate of older Distribution assets is sufficient to ensure both (i) continued safe and reliable service and (ii) long-term stability and predictability in capital expenditures.

The system events of January 2-8, 2014 revealed capacity and control limitations on the Company's distribution systems.<sup>25</sup> To address some of these limitations the Company filed a 2014 supplemental capital application to install 14 downline automated distribution feeder sectionalizing reclosers on heavily loaded distribution feeders on the Northeast Avalon Peninsula. Nine distribution feeders and 5 single-phase taps have been identified for the installation of remotely controlled reclosers to improve flexibility in the operation of Newfoundland Power's distribution feeders.<sup>26</sup> The 2015 Capital Plan has included a distribution

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<sup>21</sup> Over the period from 1999 to 2011, expenditures for the Distribution Reliability Initiative project totalled approximately \$17.5 million. In the 3 years since, the Company has not had a Distribution Reliability Initiative capital project.

<sup>22</sup> In 2012 the Canadian Electricity Association began capturing and reporting on 2 additional indices; customer hours of interruption per kilometer "CHIKM" and customers interrupted per kilometer "CIKM".

<sup>23</sup> It is anticipated that by using indices that consider customer interruptions and circuit length that the worst performing feeders will be found in urban settings where the Company has issues with older poles and associated infrastructure.

<sup>24</sup> In 2014 work is underway to refurbish and modernize 3 of the 19 vaults in the St. John's downtown area as approved in Order No. P.U. 27 (2013).

<sup>25</sup> Cold load pickup was experienced following the sometimes lengthy successive customer outages during the period. These conditions tended to extend customer outages beyond what they would have been, absent the overloads.

<sup>26</sup> These 14 remotely controlled reclosers are in addition to 26 other reclosers that were previously identified in the 2014 Capital Budget. The 2014 capital budget supplement was approved by the Board in Order No. P.U. 14 (2014).

project titled *Distribution Feeder Automation* that increases the automation of the Company's distribution feeders.

### *3.2.6 General Property*

The General Property asset class includes capital expenditures for:

- the addition or replacement of tools and equipment utilized by line and engineering staff;
- the replacement or addition of office furniture and equipment;
- additions to real property necessary to maintain buildings and facilities;
- the refurbishment of Company buildings; and
- backup electricity generation at Company buildings.

General Property capital expenditures are expected to average \$2.4 million annually from 2015 through 2019 which is an increase from an average of \$1.9 million for the period from 2010 through 2014. The increase is attributable to inflation and renovations to Company buildings across the province including Duffy Place, which serves the Northeast Avalon area, over the period.

### *3.2.7 Transportation*

The Transportation asset class includes the heavy truck fleet, passenger and off-road vehicles. The replacement of these vehicles can be influenced by a number of factors including kilometres traveled, vehicle condition, operating experience and maintenance expenditures.

Transportation capital expenditures from 2015 through 2019 are expected to increase to an average of approximately \$3.2 million annually, compared to an average of \$2.6 million annually from 2010 through 2014. The Company operates 72 heavy fleet vehicles which have an anticipated service life of 10 years. On average, it would be expected that approximately 7 heavy fleet vehicles and 40 passenger vehicles would be replaced annually. The increase in transportation capital expenditures from 2015 through 2019 is principally reflective of inflation and the number of heavy fleet and passenger vehicles expected to meet the replacement parameters over the period. Also, commencing in 2016 and continuing through 2019, the Company plans to increase the heavy fleet from 72 units to 79 units to accommodate the increase in the number of journey person powerline technicians resulting from the advancement of apprentices. This will reduce the number of 3 person crews and increase the number of 2 person crews, which, in turn, will improve efficiency.

### *3.2.8 Telecommunications*

Capital expenditure in the Telecommunications asset class includes the replacement or upgrading of various communications systems. These systems contribute to customer service, safety, and power system reliability by supporting communications between the Company's fleet of vehicles, substations, plants and offices.

Telecommunications capital expenditures are expected to decrease to an average of approximately \$261,000 annually from 2015 through 2019 compared to the annual average of \$304,000 from 2010 through 2014. The difference is attributable to the reduced cost associated



with replacing new mobile equipment in the early years of operation for the new VHF mobile radio system.<sup>27</sup>

### *3.2.9 Information Systems*

The Information Systems asset class capital expenditure includes:

- the replacement of shared server and network infrastructure, personal computers, printers and associated assets;
- upgrades to current software tools, processes, and applications as well as the acquisition of new software licenses; and
- the development of new applications or enhancements to existing applications to support changing business requirements and take advantage of software product improvements.

Information Systems capital expenditures from 2015 through 2019 are expected to increase to an average of approximately \$5.9 million annually, compared to an average of \$3.9 million annually from 2010 through 2014. The increase is largely driven by the SCADA system replacement and operational technology upgrades for the Company's Geographic Information System ("GIS") and Outage Management System.<sup>28</sup>

In 2013, the Company undertook comprehensive assessments of both the Customer Service System ("CSS") and SCADA system as a result of the technical obsolescence of the Hewlett Packard AlphaServer hardware and associated operating systems. The AlphaServer hardware became available in 1992 and was last manufactured in 2008. Hewlett Packard has continued to service the AlphaServer hardware and associated operating systems through 2012. The assessments concluded that the SCADA system replacement should proceed in 2015 and the CSS system replacement could be deferred.<sup>29</sup>

### *3.2.10 Unforeseen Allowance*

The Unforeseen Allowance covers any unforeseen capital expenditures that have not been budgeted elsewhere. The purpose of the account is to permit the Company to act expeditiously to deal with exigent circumstances in advance of seeking approval of the Board.

The Unforeseen Allowance constitutes \$750,000 in each year's capital budget from 2015 through 2019.

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<sup>27</sup> The 2013 capital budget included the replacement of the Company's VHF mobile radio system with a system shared with other users including Newfoundland & Labrador Hydro.

<sup>28</sup> A detailed report on the SCADA system replacement is included with the Application as **6.4 SCADA System Replacement**. A report on the improvements being made with the GIS system is included with the Application as **6.5 Geographic System Replacement**.

<sup>29</sup> The justification for the SCADA system replacement can be found in the report **6.4 SCADA System Replacement**. The justification for the deferral of the CSS replacement can be found in the report **6.2 System Upgrades**.

## ***2015 Capital Plan***

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### ***3.2.11 General Expenses Capitalized***

General Expenses Capitalized is the allocation of a portion of administrative costs to capital. In accordance with Order No. P.U. 3 (1995-96), the Company uses the incremental cost method of accounting for the purpose of capitalization of general expenses.

General Expenses Capitalized of \$4.1 million is reflected in each year's capital budget from 2015 through 2019.

### ***3.3 5-Year Plan: Risks***

While the Company accepts the Board's view of the desirable effects of year to year capital expenditure stability, the nature of the utility's obligation to serve will not, in some circumstances, necessarily facilitate such stability. The Company has identified some risks to such stability in the period 2015 through 2019.

Newfoundland Power has an obligation to serve customers in its service territory. Should customer and load growth vary from forecast, so will the capital expenditures that are sensitive to growth. For example, there are a number of power transformers in the Company's 5-year forecast. Should customer and load growth vary from forecast, the capital expenditure for the required transformers (each in the order of \$2-\$3 million) may also vary from the current 5-year forecast.

The age of the Company's power transformers presents another potential risk to the stability of the capital forecast. In-service failures of power transformers, like the losses of the Kenmount, Horsechops, Pierre's Brook and Salt Pond power transformers, will necessitate capital expenditures.<sup>30</sup>

Newfoundland Power's gas turbines range in age from 39 years to 45 years. These gas turbines had a significant increase in usage during the December 2013 and January 2014 system supply shortage and blackout event. Condition assessments were completed following the 2013/2014 winter season identifying necessary refurbishment work to be completed prior to the 2014/2015 winter season. A broader review of the Company's gas turbines is underway in light of potential increased use. The timing, scope and cost estimates for major gas turbine equipment overhauls or complete system replacements will not be known until the broader review is completed. It is anticipated that the review will be completed in the 3<sup>rd</sup> quarter of 2014 and necessary capital expenditures will be identified in future capital plans.

Population growth on the Northeast Avalon Peninsula and new home construction continues to be strong. However, the current forecast for new customer connections indicates a decline in new customer connections in the Company's service territory. The extent of change in new customer connections required over the course of this 5-year capital plan can have a material impact on capital expenditures.

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<sup>30</sup> Replacement of the Horsechops power transformer was approved as part of the 2009 Capital Budget Application in Board Order No. P.U. 27 (2008). Replacement of the Pierre's Brook power transformer was approved in Board Order No. P.U. 3 (2008). Replacement of the Salt Pond power transformer was approved in Board Order No. P.U. 15 (2002-2003). Kenmount power transformer failed in-service in March 2009 and its refurbishment was approved in Board Order No. P.U. 29 (2009).

## *2015 Capital Plan*

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The Muskrat Falls development will have an impact upon Newfoundland Power's capital expenditures. The Company will be involved in supplying construction power to sites within its service territory and potential rerouting of existing transmission and distribution lines to accommodate the Nalcor DC transmission line. There may be other impacts associated with integrating the new DC infeed with the existing power system. This capital plan has not envisioned material capital expenditures resulting from the Muskrat Falls development.

The Company has taken steps to reduce the uncertainty regarding replacement of its CSS, which has been in service since 1991.<sup>31</sup> These steps have included upgrades of hardware and software components and removal of technology components that posed the highest risk. The current versions of hardware, software and database should be supported throughout this capital plan period. Any changes to the availability of support to existing technology platforms could materially impact the capital plan.

Capital expenditures can be impacted by major storms or weather events. In 1984 and 1994, the Company was impacted by sleet storms that resulted in widespread damage and service interruption to customers. On March 5<sup>th</sup> and 6<sup>th</sup>, 2010 an ice storm in eastern Newfoundland caused widespread power outages on the Bonavista and Avalon Peninsulas. In September 2010, Hurricane Igor caused extensive damage to the Company's generation and distribution assets. In 2012, Tropical Storm Leslie caused damage to the distribution system. The occurrence and costs of severe storms are not predictable.

The Board's investigation into supply issues and power outages on the Island Interconnected System may result in Newfoundland Power undertaking capital expenditures to address gaps as identified by the Board or its consultant.<sup>32</sup>

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<sup>31</sup> The CSS originally cost in excess of \$10 million.

<sup>32</sup> The 2015 Capital Plan has included projects to increase automation of transmission lines and distribution feeders.

**Appendix A  
2015-2019 Capital Plan**

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

<u>Asset Class</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Generation	\$4,914	\$19,243	\$10,976	\$6,604	\$7,670
Substations	\$22,478	\$17,199	\$16,540	\$15,426	\$17,755
Transmission	\$5,731	\$6,061	\$8,042	\$8,380	\$6,601
Distribution	\$42,473	\$46,385	\$46,877	\$47,702	\$47,008
General Property	\$3,224	\$2,167	\$1,867	\$2,154	\$2,411
Transportation	\$2,917	\$2,955	\$3,194	\$3,355	\$3,511
Telecommunications	\$123	\$323	\$340	\$386	\$133
Information Systems	\$7,501	\$7,572	\$5,065	\$4,395	\$4,745
Unforeseen Allowance	750	750	750	750	750
General Expenses Capitalized	4,100	4,100	4,100	4,100	4,100
<b>Total</b>	<b>\$94,211</b>	<b>\$106,755</b>	<b>\$97,751</b>	<b>\$93,252</b>	<b>\$94,684</b>

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**GENERATION**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Facility Rehabilitation – Hydro	\$1,586	\$1,470	\$1,490	\$1,512	\$1,533
Facility Rehabilitation - Thermal	\$216	\$370	\$524	\$228	\$232
Hydro Plant Production Increase	\$0	\$0	\$0	\$1,727	\$820
Public Safety Around Dams	\$429	\$880	\$662	\$0	\$0
Pierre’s Brook Penstock	\$750	\$15,013	\$0	\$0	\$0
Tors Cove Plant Refurbishment	\$1,777	\$10	\$800	\$2,615	\$0
Seal Cove Plant Refurbishment	\$156	\$0	\$0	\$0	\$0
Rattling Brook Plant Refurbishment	\$0	\$0	\$0	\$345	\$350
Cape Broyle Plant Refurbishment	\$0	\$0	\$0	\$177	\$0
Horsechops Plant Refurbishment	\$0	\$0	\$0	\$0	\$675
Lookout Brook Plant Refurbishment	\$0	\$0	\$0	\$0	\$610
Morris Plant Refurbishment	\$0	\$0	\$0	\$0	\$510
Petty Harbour Plant Refurbishment	\$0	\$0	\$0	\$0	\$2,940
Purchase Portable Generation	\$0	\$1,500	\$7,500	\$0	\$0
<b>Total - Generation</b>	<b>\$4,914</b>	<b>\$19,243</b>	<b>\$10,976</b>	<b>\$6,604</b>	<b>\$7,670</b>

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**SUBSTATIONS**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Substations Refurbishment & Modernization	\$9,961	\$4,927	\$6,339	\$7,256	\$11,296
Replacements Due to In-Service Failure	\$3,110	\$3,182	\$3,256	\$3,331	\$3,404
Additions Due to Load Growth	\$9,407	\$9,090	\$5,754	\$3,621	\$1,809
PCB Bushing Phase-Out	\$0	\$0	\$1,191	\$1,218	\$1,246
<b>Total - Substations</b>	<b>\$22,478</b>	<b>\$17,199</b>	<b>\$16,540</b>	<b>\$15,426</b>	<b>\$17,755</b>

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**TRANSMISSION**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Rebuild Transmission Lines	\$3,830	\$4,161	\$6,092	\$4,880	\$4,801
Transmission Line Reconstruction	\$1,901	\$1,900	\$1,900	\$1,900	\$1,800
Transmission Line Additions	\$0	\$0	\$50	\$1,600	\$0
<b>Total – Transmission</b>	<b>\$5,731</b>	<b>\$6,061</b>	<b>\$8,042</b>	<b>\$8,380</b>	<b>\$6,601</b>



**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**DISTRIBUTION**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Extensions	\$12,314	\$12,592	\$12,429	\$12,368	\$12,664
Meters	\$3,146	\$2,759	\$2,581	\$2,632	\$2,184
Services	\$4,101	\$4,198	\$4,182	\$4,193	\$4,297
Street Lighting	\$2,469	\$2,523	\$2,517	\$2,528	\$2,583
Transformers	\$6,778	\$7,311	\$7,462	\$7,617	\$7,758
Reconstruction	\$3,964	\$4,069	\$4,177	\$4,288	\$4,399
Rebuild Distribution Lines	\$3,302	\$3,384	\$3,468	\$3,554	\$3,638
Relocations For Third Parties	\$2,504	\$2,566	\$2,630	\$2,696	\$2,761
Distribution Reliability Initiative	\$863	\$820	\$840	\$860	\$880
Distribution Feeder Automation	160	250	330	205	330
Feeder Additions for Load Growth	\$1,684	\$3,527	\$3,774	\$3,172	\$1,652
Trunk Feeders	\$991	\$2,185	\$2,282	\$3,380	\$3,649
Allowance for Funds Used During Construction	\$197	\$201	\$205	\$209	\$213
<b>Total – Distribution</b>	<b>\$42,473</b>	<b>\$46,385</b>	<b>\$46,877</b>	<b>\$47,702</b>	<b>\$47,008</b>

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**GENERAL PROPERTY**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Tools and Equipment	\$467	\$477	\$485	\$494	\$504
Additions to Real Property	\$385	\$391	\$397	\$402	\$307
Renovations Company Buildings	\$2,068	\$1,124	\$985	\$1,258	\$1,600
Standby Generators	\$304	\$175	\$0	\$0	\$0
<b>Total - General Property</b>	<b>\$3,224</b>	<b>\$2,167</b>	<b>\$1,867</b>	<b>\$2,154</b>	<b>\$2,411</b>

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**TRANSPORTATION**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Purchase Vehicles and Aerial Devices	\$2,917	\$2,955	\$3,194	\$3,355	\$3,511
<b>Total - Transportation</b>	<b>\$2,917</b>	<b>\$2,955</b>	<b>\$3,194</b>	<b>\$3,355</b>	<b>\$3,511</b>

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**TELECOMMUNICATIONS**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Replace/Upgrade Communications Equipment	\$123	\$126	\$128	\$131	\$133
Fibre Optic Cable	0	197	212	255	0
<b>Total - Telecommunications</b>	<b>\$123</b>	<b>\$323</b>	<b>\$340</b>	<b>\$386</b>	<b>\$133</b>

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**INFORMATION SYSTEMS**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Application Enhancements	\$1,325	\$1,250	\$1,450	\$1,500	\$1,600
System Upgrades	\$1,125	\$1,695	\$1,495	\$1,495	\$1,595
Personal Computer Infrastructure	\$487	\$500	\$500	\$500	\$500
Shared Server Infrastructure	\$970	\$650	\$600	\$650	\$750
Network Infrastructure	\$328	\$175	\$300	\$250	\$300
SCADA System Replacement	\$2,833	\$2,842	\$0	\$0	\$0
Operations Technology Improvement	\$433	\$460	\$720	\$0	\$0
<b>Total – Information Systems</b>	<b>\$7,501</b>	<b>\$7,572</b>	<b>\$5,065</b>	<b>\$4,395</b>	<b>\$4,745</b>

**Newfoundland Power Inc.  
2015-2019 Capital Plan  
(000s)**

**UNFORESEEN ALLOWANCE**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
Allowance for Unforeseen Items	\$750	\$750	\$750	\$750	\$750
<b>Total - Unforeseen Allowance</b>	<b>\$750</b>	<b>\$750</b>	<b>\$750</b>	<b>\$750</b>	<b>\$750</b>

**Newfoundland Power Inc.  
 2015-2019 Capital Plan  
 (000s)**

**GENERAL EXPENSES CAPITALIZED**

<b><u>Project</u></b>	<b><u>2015</u></b>	<b><u>2016</u></b>	<b><u>2017</u></b>	<b><u>2018</u></b>	<b><u>2019</u></b>
General Expenses Capitalized	\$4,100	\$4,100	\$4,100	\$4,100	\$4,100
<b>Total - General Expenses Capitalized</b>	<b>\$4,100</b>	<b>\$4,100</b>	<b>\$4,100</b>	<b>\$4,100</b>	<b>\$4,100</b>