Requirement:

Cost of Service Study.

Submission:

Please refer to Attachment 1.

## SR-01

## Cost of Service Study

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## 1. Cost of Service Study Methodology

### 1.1 Overview

From a cost-of-service methodology perspective, NSPI's customers fall into two broad categories, Below-the-line (BTL) and Above-the-line (ATL). The Cost of service methodology subject to discussion in this section is concerned with the cost allocation to ATL classes only. Before costs are allocated to ATL classes, the total cost responsibility of this group must be determined by subtracting costs associated with serving BTL classes from the total revenue requirement of the company.

The overall objective of a cost of service study is to determine the costs associated with serving each customer class, and to identify any inter-class inequities that may be present with regard to over or under contribution to total allocated costs. This determination is based on a comparison of revenue/cost (R/C) ratios.

The first step in preparing a Cost of Service Study (COSS), once the test period is established, is to collect the detailed financial and operating information pertaining to that period. The data accumulated includes estimates for: plant-in-service, construction work in progress (CWIP), reserve for depreciation, working capital allowances, deferred charges, deferred credits, contract receivables, revenues, operating expenses, energy sales and demand statistics and customer counts.

The Cost of Service Study allocates the costs (therefore the revenue requirement) of providing electric service by the Company. This includes the appropriate assignment of operating and maintenance expenses, grants in lieu of taxes, depreciation and the responsibility for interest and corporate taxes incurred on those elements of the electric utility plant in service that are necessary in whole, or in part, to provide electric service to the various classifications of utility customers, as well as an approved return on investment.

Where possible, costs are assigned directly to classes of service based upon information acquired from the financial books and records of the Company or through additional analyses or studies.

Costs not directly assigned are analyzed by functional responsibility in groupings of accounts, such as production, transmission, distribution and retail. These groupings are then allocated to the various classes of service on the basis of the respective demands, energy use, number of customers, and/or revenue associated with the functional responsibility appropriate for each class of service. In general, the demand component of cost comprises those items that are incurred in order to produce and deliver electric energy to customers as called for by them. Sufficient infrastructure must be installed to supply peak demand as required, while maintaining a required reserve margin.

Plant investment increases as units and facilities grow to meet demand. Consequently, these costs are allocated based on contributions to system coincident demand. Distribution facilities are allocated based on non-coincident demand to recognize that this infrastructure must be sized to provide that capacity. Class non-coincident demands are the demands that are imposed on the distribution system and, in general, are substantially larger than coincident demands. Consequently, the cost of service elements that increase with plant size and capacity are classified as demand costs.

Energy related costs are those items that vary with the annual volume of energy supplied to the various classes of service provided by the Company. The prime example of energy costs that vary with the volume of electricity generated and supplied is fuel costs. These costs increase as the quantity of fuel required to produce energy from generating units is increased.

The customer related costs are those items that vary with the number of customers served, and revenue related costs are those items that vary with the dollars of revenue received. An example of customer costs is customer service field expenses, including meter reading and electric wiring inspection expenses.

Costs associated with services related to miscellaneous revenues are not identified separately, rather these items are deducted from the overall cost assignment process.

## Functionalization

The first step in the cost analysis is the functionalization of plant and expenses into the functional groups of production, transmission, distribution and retail. From the financial books and records of the Company, net plant investment is readily identifiable for production, transmission, and distribution functions. Likewise, expenses for operation and maintenance for production, transmission, distribution and retail are also readily identifiable. However, there are several components of plant, depreciation and expenses that are not available or identified on a production, transmission, or distribution basis. These items are functionalized prior to classification and allocation.

## Classification

Following the functionalization step, production, transmission, distribution and retail plant and operating expenses are classified. Classification is the process by which plant and operating costs are determined to be demand, energy, or customer related.

## Allocation Factors

The third step in conducting the cost study consists of the determination of those demand, energy or customer allocation factors that are necessary to allocate plant or operating expenses to the various classes of service.

## Allocation

The fourth and final step is the allocation procedure. This step involves applying the allocation factors, determined in step 3, to the classified plant and operating expenses from step 2 , to determine the overall cost assigned to each class of service based upon the total plant and expenses for the test period.

Exhibit 1 summarizes the results of the Cost of Service Study under present and proposed rates for the test period. The full analysis is provided in the various other Exhibits.

- Exhibits 2 and 3 detail the rate base analyses,
- Exhibits 4 to 6 show the analyses of operating costs and depreciation expense.
- Exhibit 7 contains the revenue analysis
- Exhibit 8 details the development of allocation factors.
- Exhibit 9 shows the analysis of sales and demand data.
- Exhibit 10 details the demand, energy and customer costs along with the revenue by class and the resulting Revenue/Cost Ratios for the test period under proposed rates.
- Exhibit 10A details the demand, energy and customer costs along with the revenue by class and the resulting Revenue/Cost Ratios under current rates for the test period.


### 1.2 Methodology

The method of cost assignment utilized is the Load Factor/3 Coincident Peak (LF/3 CP) method, as approved by the UARB in its September 29, 1995 Order NSPI-864.

This method considers both the demand and energy requirements of the various customer classes in allocating generation and transmission responsibility. It respects both the maximum demands the class places on the system, as well as the extent to which the class uses the facilities on an ongoing basis.

A percentage of costs, equal to the system peak load factor percentage is considered energy related and allocated on the kWh at generation. The remaining costs are considered demand-related and are allocated based on the sum of three coincident peak demands at generation for December, January and February (the peak winter period). Environmental and fuel conversion assets in the rate base are extracted up front and classified $100 \%$ as energy-related.

### 1.2.1 Rate Base

## Exhibits 2, 2A and 2B

Exhibit 2 contains the net plant investment in the various asset categories, with allowance for working capital and allowance for materials and supplies.

In keeping with the Board's decision from the 2005 Rate Application, dated March 31, 2005, changes were made in this exhibit and subsequent rate base exhibits ( $2 \mathrm{~A}, 2 \mathrm{~B}$ and 3 ) to include construction work in progress (CWIP), deferred charges, deferred credits and contract receivables.

The net plant investment, allowance for working capital, allowance for materials and supplies, deferred charges, deferred credits and contract receivables that are directly assigned are identified as the "Direct Capital" column in exhibit 2. Direct capital is subtracted from the total company rate base to arrive at the amounts to be allocated among COSS-based rate classes. Starting with the 2012 test year, the rate base associated with the forthcoming LED streetlight investment is proposed to be treated as direct capital. This is consistent with the proposed ratemaking treatment of the LED services as a BTL category to be priced using an incremental cost approach.

## Exhibits 3, 3A, 3B, 3C, 3D, 3E, 3F, 3G

Exhibit 3 details the allocation of rate base to the various customer classes.

The first allocation factors to be developed are those related to demand, energy sales and the number of customers. Exhibit 9A shows the projected energy sales for the test period and the quantity generated and purchased before line losses. Given these figures by class and the forecasted coincident peak demands by sector, load factors are applied to arrive at each class's demand contribution. Exhibit 9B makes use of the class non-coincident demands and the load levels of those customers known to take power at the various voltage levels, in order to arrive at the individual class responsibilities for non-coincident
demand at the secondary and primary levels with losses included. These two exhibits provide the data necessary to calculate the demand and energy allocation factors in Exhibit 8. The calculation of these factors is simply the class amount divided by the total. The remaining allocation factors are developed throughout as needed.

With the demand, energy and customer factors developed, the allocation phase proceeds. Steam, Hydro and LM6000 assets are allocated on the load factor and 3CP demand contribution, other gas turbine assets are allocated based on the 3 CP demand only and wind assets are assigned $30 \%$ to 3CP demand and the remaining plant to energy. Transmission plant is initially segregated between $>69 \mathrm{kV}$ and $<138 \mathrm{kV}$ voltage using a $76.6 \% / 23.4 \%$ ratio. Both portions of these assets are classified on load factor and allocated on 3CP demand contribution to customer classes based on their required service voltage.

Distribution plant is more complex in its cost causalities than are the other functions. Substations are allocated in accordance with Exhibit 3B. The amounts invested in facilities that are dedicated to a single customer's use were identified and directly allocated to the customer's respective class. The remaining substation investment is allocated on the basis of primary demand levels. The totals for each class are carried forward as class allocations of substation investment, as shown in Exhibit 3.

Pole and wire investment also requires a more detailed analysis since the total is made up of both demand and customer components. Exhibit 3C details the first step of the analysis. Based on construction and engineering estimates, $30 \%$ of the poles were estimated to be primary while the remainder was split $50 \%$ primary and $50 \%$ secondary. The total was divided accordingly and then split between customer and demand responsibilities based on $50 \%$ demand and $50 \%$ customer. The total pole investment, broken down into primary demand and customer and secondary demand and customer, is allocated on Exhibit 3D, by the appropriate allocation factors.

The analysis and allocation of wire investment is similar to that of poles and is detailed in Exhibits 3E and 3F.

Underground facilities were allocated on the basis of the totals of pole and wire investment. Line transformers that are used in the secondary system were allocated on secondary class non-coincident demands. Services were distributed on a weighted customer basis.

Meter costs are allocated on Exhibit 3G. The average unit cost of installing a meter for each class was determined. These costs when multiplied by the number of customers in each class provide the cost causation relationships required for developing the allocation.

The "Land" and "Other" assets, listed in Exhibit 3A, were allocated on the basis of total substation, pole and wire investments. The "non LED Street Lighting" investment was assigned directly to the unmetered customers.

The "General Property Plant" investment listed in Exhibit 3, was allocated on the basis of all other plant investment. Finally, allowance for working capital, allowance for materials and supplies, deferred charges, deferred credits and contract receivables were allocated in accordance with their cost causalities as defined by the allocation factors used.

To provide more transparency in the allocation of streetlight fixture-related costs, the distribution-related rate base information in exhibit 3 has been separated between the streetlight-related versus non-streetlight related categories.

At this point, all Rate Base items have been assigned to the various classes recognizing the cost causation and cost utilization relationships as defined above.

### 1.2.2 Operating Expense

The analysis of operating costs begins in Exhibit 4 with functionalization. In this step total operating costs are grouped according to production, transmission, distribution, retail and direct assignment. The "Direct Expenses" column contains those costs that are
not to be assigned to ATL customer classes as they represent costs incurred by BTL customers. Starting with the 2012 test year, the "Direct Expense" column also reflects the capital-related costs associated with the BTL category of LED streetlight fixtures. The "Corporate Groups" operating expenses have been assigned to each function based on their overall responsibility to each primary business operation within the Company. "Cost of Goods Sold" (Net of Retail Sales), "Grants in Lieu of Taxes", "Depreciation" (by function), "Interest" (net of AFUDC), "Preferred Dividends" and "Corporate Taxes" are assigned to each function based on various rate base functionalizations. As approved by the Board in the 2009 General Rate Application, Demand Side Management expenses incurred in 2008 and 2009 are included in the COSS. These amortized costs are allocated in the same way as fixed generation costs and are expected to be fully recovered by $2015^{1}$.

In Exhibit 5, the functionalized expenses from Exhibit 4 are listed and sub-grouped, where necessary, in order to classify them as demand, energy and customer. To provide more clarity in the treatment of streetlight fixture-related costs they have been separated from all the other distribution-related costs to form a separate sub-group of the "Distribution Function".

Exhibit 6 summarizes the next stage of the study, which is the allocation of operating costs. First, those costs which are classified as "Demand" (generation, transmission and distribution) are allocated on the basis of the 3CP demand allocators. Consistent with the treatment of the streetlight fixture-related costs in exhibit 5, these costs are shown separately in exhibit 6.

Exhibit 6A contains the analysis of total distribution operating expenses broken down by demand-, customer-, and retail-related categories. The basic allocation premise used is that costs should be allocated in the same manner as their rate base counterparts. Substation costs are allocated according to substation investment.

[^0]Overhead and underground expenses were assigned in relation to the pole and wire and underground investments. Line transformers are secondary demand related. Service expenses were allocated to secondary customers. Metering expenses were allocated according to the meter investment per class. Communications is related to primary demand and street lighting was assigned directly to the unmetered class. Exhibit 6B details the analysis of customer service field expenses, for the distribution function, by class.

The second step requires the allocation of energy related costs such as fuel, purchased power, and operating and maintenance. These were allocated on the basis of energy generated and purchased.

Third, the customer related expenses are allocated. Again, the distribution costs are determined from Exhibit 6A. In Exhibit 6, the "Call Centre" was assigned using total weighted customers. "Customer Service - H/O" and "Billing Services" were assigned using average customers, adjusted for seasonality. "Quality Assurance and Communication", "Electrical Wiring Inspection" (head office) and "Payment Services" costs were assigned using average customers. "Marketing and Sales" and "Meter Data Services" costs were allocated on the basis of defined responsibility commitments to each customer class. Exhibit 6C details the allocation of credit services expenses. First, the "Bad Debt Expense" is split between domestic and all other classes based on gross writeoff experience. The other portion of bad debt expense is assigned to each class based on secondary customer revenue. The other operating portion is distributed on the basis of average number of customers.

Depreciation is allocated by function as shown on Exhibit 6D. Consistent with the treatment of streetlight fixture related costs in exhibits 5 and 6 , they are shown as separate sub-components under the Distribution Function category. With the streetlight fixture depreciation cost information being directly available from the company's accounting information system for some time now, NSPI proposes to use this information directly for the direct cost assignment purposes in COSS going forward. NSPI deems this approach to be more accurate and transparent than the current method predicated on
rate base allocators.

In Exhibit 6, grants in lieu of taxes are allocated on the basis of total production, transmission, distribution and retail net plant. Interest (net of AFUDC) preferred dividends and corporate taxes expense are allocated on the basis of total rate base assignment from Exhibit 3. The total costs for each class are then determined and adjusted by non-rate revenue and the return (profit/loss) to arrive at the net cost to each customer class. The resultant total then becomes the input to rate design.

Exhibit 7 serves the purpose of verifying the accuracy of the cost allocation analysis. The ATL revenues are shown against revenues of other categories, determined outside of the COSS, and retained earnings from the financial tables. Consistent with the treatment of the BTL categories, the LED fixture-related revenue component is placed under "Direct Revenue".

Using the total allocated costs for each class, a comparison is made with the revenues for each class to determine the percentage revenue to cost relationships. The results are shown on Exhibit 10, under proposed rates for the test year. Exhibit 10A has been provided to show the equivalent information under present rates.
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## EXHIBIT 1

NOVA SCOTIA POWER INC.
SUMMARY OF REVENUE TO EXPENSE RECOVERY RATIOS

|  | 2011 |  |
| :--- | :---: | ---: |
| CUSTOMER CLASS | PRESENT | PROPOSED |
| ( 1) DOMESTIC |  |  |
| ( 2) SMALL GENERAL | 98.91 | 99.15 |
| ( 3) GENERAL | 102.32 | 105.00 |
| ( 4) LARGE GENERAL | 107.17 | 105.00 |
| ( 5) SMALL INDUSTRIAL | 98.69 | 100.61 |
| ( 6) MEDIUM INDUSTRIAL | 102.00 | 100.64 |
| ( 7) LARGE INDUSTRIAL | 100.79 | 97.23 |
| ( 8) ELI 2P-RTP | 97.54 | 97.53 |
| ( 9) MUNICIPAL | 90.99 | 95.00 |
| (10) UNMETERED | 99.84 | 97.87 |
| (11) TOTAL | 100.00 | 100.00 |

NOVA SCOTIA POWER INC
FUNCTIONALIZATION OF AVERAGE RATE BASE
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

| (1) | (2) | (3) | (4) | (5) | (6) <br> TOTAL <br> COMPANY | GENERATION | TRANSMISSION |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| COIRECT |  |  |  |  |  |  |  |

PRODUCTION PLANT

| ( 1) STEAM | \$1,471,480 | \$1,471,480 | \$0 | \$0 | \$0 | \$0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ( 2) HYDRO | 336,959 | 318,828 | 0 | 0 | 0 | 18,131 |
| ( 3) WIND | 249,265 | 249,265 | 0 | 0 | 0 | 0 |
| ( 4) LM6000 | 62,909 | 62,909 | 0 | 0 | 0 | 0 |
| ( 5) GAS TURBINE - OTHER | 11,102 | 11,102 | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| ( 6) TOTAL PROD. PLANT | 2,131,715 | 2,113,584 | 0 | 0 | 0 | 18,131 |
| ( 7) Transmission < 138kV | 90,235 | 0 | 90,235 | 0 | 0 | 0 |
| ( 8) Transmission $>69 \mathrm{kV}$ | 295,386 | $\underline{0}$ | 295,386 | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| ( 9) TRANSMISSION PLANT | 385,621 | 0 | 385,621 | 0 | 0 | 0 |

DISTRIBUTION PLANT

| (10) LAND | 4,579 | 0 | 0 | 4,579 | 0 | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (11) EASEMENTS \& SURVEY | 14,479 | 0 | 0 | 14,479 | 0 | 0 |
| (12) OTHER | 1,818 | 0 | 0 | 1,818 | 0 | 0 |
| (13) SUBSTATIONS | 26,756 | 0 | 0 | 26,756 | 0 | 0 |
| (14) POLES \& FIXTURES | 158,187 | 0 | 0 | 158,187 | 0 | 0 |
| (15) O.H. LINES | 106,788 | 0 | 0 | 106,788 | 0 | 0 |
| (16) U.G. LINES | 33,114 | 0 | 0 | 33,114 | 0 | 0 |
| (17) LINE TRANSFORMERS | 141,297 | 0 | 0 | 141,297 | 0 | 0 |
| (18) SERVICES | 57,592 | 0 | 0 | 57,592 | 0 | 0 |
| (19) METERS | 23,330 | 0 | 0 | 23,330 | 0 | 0 |
| (20) STREET LIGHTING | 30,821 | $\underline{0}$ | $\underline{0}$ | 21,981 | $\underline{0}$ | 8,840 |
| (21) TOTAL DIST. PLANT | 598,761 | 0 | 0 | 589,921 | 0 | 8,840 |
| (22) SUB-TOTAL | 3,116,097 | 2,113,584 | 385,621 | 589,921 | 0 | 26,971 |
| (23) GEN. PROPERTY PLANT | 236,684 | 161,939 | 29,546 | 45,199 | 0 | 0 |
| (24) TOT. PLT.IN SERVICE | 3,352,781 | 2,275,523 | 415,167 | 635,120 | $\underline{0}$ | 26,971 |
| Working Capital \& Deferred |  |  |  |  |  |  |
| Charges/Credits |  |  |  |  |  |  |
| (25) CASH - FUEL | 0 | 0 | 0 | 0 | 0 | 0 |
| (26) CASH - OTHER | 59,050 | 27,308 | 6,255 | 25,283 | 0 | 204 |
| (27) MAT. \& SUP. - FUEL | 95,300 | 95,300 | 0 | 0 | 0 | 0 |
| (28) MAT. \& SUP. - OTHER | 27,250 | 18,644 | 3,402 | 5,204 | 0 | 0 |
| (29) DEF. CHG. - Financing | 87,950 | 60,176 | 10,979 | 16,796 | 0 | 0 |
| (30) DEF. CHG. - Tax | 40,600 | 27,779 | 5,068 | 7,753 | 0 | 0 |
| (31) DEF. CHG. - Pension | 58,150 | 26,985 | 6,181 | 24,984 | 0 | 0 |
| (32) DEF. CHG. - Steam Assets | 0 | 0 | 0 | 0 | 0 | 0 |
| (33) DEF. CHG. - Fuel Deferral | 48,050 | 48,050 | 0 | 0 | 0 | 0 |
| (34) DEF. CHG. - Other | 6,650 | 4,550 | 830 | 1,270 | 0 | 0 |
| (35) DEF. CR. - ARO Steam | $(91,688)$ | $(91,688)$ | 0 | 0 | 0 | 0 |
| (36) DEF. CR. - ARO Hydro | $(17,124)$ | $(17,124)$ | 0 | 0 | 0 | 0 |
| (37) DEF. CR. - ARO Wind | $(16,950)$ | $(16,950)$ | 0 | 0 | 0 | 0 |
| (38) DEF. CR. - ARO CT | $(7,270)$ | $(7,270)$ | 0 | 0 | 0 | 0 |
| (39) DEF. CR. - ARO Trans | $(16,180)$ | 0 | $(16,180)$ | 0 | 0 | 0 |
| (40) DEF. CR. - Other | $(2,150)$ | $(2,150)$ | 0 | 0 | 0 | 0 |
| (41) CONTRACT RECEIVABLE | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| (42) TOT.WORKING CAPITAL | 271,638 | 173,610 | 16,535 | 81,289 | 0 | 204 |

(43) TOTAL AVE. RATE BASE $\underline{\$ 3,624,419 \quad \underline{\$ 2,449,133 ~} \underline{\$ 2716,409} \quad \underline{~ \$ 27,175}}$

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NOVA SCOTIA POWER INC.

## CLASSIFICATION OF AVERAGE RATE BASE

FOR THE YEAR ENDING DECEMBER 31, 2012 (IN THOUSANDS OF DOLLARS)

| (1) | (2) | (3) | (4) |
| :---: | :---: | :---: | :---: |
|  | INITIAL CLASSIFICATION |  |  |
|  | DEMAND | ENERGY | CUSTOMER |
| TOTAL | RELATED | RELATED | RELATED |
| COMPANY | PLANT | PLANT | PLANT |

## GENERATION FUNCTION

| ( 1) STEAM PLANT | $\$ 1,471,480$ | $\$ 1,228,735$ | $\$ 242,745$ | $\$ 0$ |
| :--- | ---: | ---: | ---: | ---: |
| ( 2) HYDRO PLANT | 318,828 | 312,833 | 5,995 | 0 |
| ( 3) WIND PLANT | 249,265 | 133,647 | 115,618 | 0 |
| ( 4) LM6000 PLANT | 62,909 | 62,909 | 0 | 0 |
| ( 5) GAS TURBINE PLANT - OTHER | $\underline{11,102}$ | $\underline{11,102}$ | $\underline{0}$ | $\underline{0}$ |
| ( 6) TOTAL GENERATION PLANT | $2,113,584$ | $1,749,226$ | 364,358 | 0 |
| ( 7) GENERAL PROPERTY PLANT |  |  |  |  |
| ( 8) TOTAL PLANT IN SERVICE | $\underline{161,939}$ | $\underline{134,023}$ | $\underline{27,917}$ | $\underline{0}$ |

Working Capital \& Deferred
Charges/Credits:

| ( 9) CASH - FUEL | 0 | 0 | 0 | 0 |
| :---: | :---: | :---: | :---: | :---: |
| (10) CASH - OTHER | 27,308 | 7,406 | 19,902 | 0 |
| (11) MAT. \& SUPPLIES - FUEL | 95,300 | 0 | 95,300 | 0 |
| (12) MAT. \& SUPPLIES - OTHER | 18,644 | 15,430 | 3,214 | 0 |
| (13) DEF. CHG. - Financing | 60,176 | 49,802 | 10,374 | 0 |
| (14) DEF. CHG. - Tax | 27,779 | 22,990 | 4,789 | 0 |
| (15) DEF. CHG. - Pension | 26,985 | 7,318 | 19,667 | 0 |
| (16) DEF. CHG. - Steam Assets | 0 | 0 | 0 | 0 |
| (17) DEF. CHG. - Fuel Deferral | 48,050 | 0 | 48,050 | 0 |
| (18) DEF. CHG. - Other | 4,550 | 3,766 | 784 | 0 |
| (19) DEF. CR. - ARO Steam | $(91,688)$ | $(76,563)$ | $(15,125)$ | 0 |
| (20) DEF. CR. - ARO Hydro | $(17,124)$ | $(16,802)$ | (322) | 0 |
| (21) DEF. CR. - ARO CT | $(7,270)$ | $(7,270)$ | 0 | 0 |
| (22) DEF. CR. - Other | $(2,150)$ | $(1,795)$ | (355) | 0 |
| (23) CONTRACT RECEIVABLE | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| (24) SUB-TOTAL | 190,560 | 4,282 | 186,278 | 0 |
| (25) TOTAL GENERATION FUNCTION | 2,466,083 | 1,887,531 | 578,552 | 0 |

## TRANSMISSION FUNCTION

| (26) TRANSMISSION PLANT < 138kV | 90,235 | 90,235 | 0 | 0 |
| :---: | :---: | :---: | :---: | :---: |
| (27) GENERAL PROPERTY PLANT | 6,914 | 6,914 | $\underline{0}$ | $\underline{0}$ |
| (28) TOTAL PLANT IN SERVICE | 97,149 | 97,149 | 0 | 0 |
| Working Capital \& Deferred |  |  |  |  |
| Charges/Credits: |  |  |  |  |
| (29) CASH - FUEL | 0 | 0 | 0 | 0 |
| (30) CASH - OTHER | 1,498 | 576 | 922 | 0 |
| (31) MAT. \& SUPPLIES - FUEL | 0 | 0 | 0 | 0 |
| (32) MAT. \& SUPPLIES - OTHER | 796 | 796 | 0 | 0 |
| (33) DEF. CHG. - Financing | 2,569 | 2,569 | 0 | 0 |
| (34) DEF. CHG. - Tax | 1,186 | 1,186 | 0 | 0 |
| (35) DEF. CHG. - Pension | 1,480 | 569 | 911 | 0 |
| (36) DEF. CHG. - Other | 194 | 194 | 0 | 0 |
| (37) DEF. CHG. - ARO Trans. | $(3,786)$ | $(3,786)$ | $\underline{0}$ | $\underline{0}$ |
| (38) SUB-TOTAL | 3,937 | 2,104 | 1,833 | 0 |
| (39) TOTAL TRANS. < 138kV | 101,086 | 99,253 | 1,833 | 0 |

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NOVA SCOTIA POWER INC.

## CLASSIFICATION OF AVERAGE RATE BASE

FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

|  | (1) | (2) (3) INITIAL CLASSIFICATION |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
|  |  | DEMAND | ENERGY | CUSTOMER |
|  | TOTAL | RELATED | RELATED | RELATED |
|  | COMPANY | PLANT | PLANT | PLANT |
| (1) TRANSMISSION PLANT $>69 \mathrm{kV}$ | 295,386 | 295,386 | 0 | 0 |
| ( 2) GENERAL PROPERTY PLANT | 22,632 | 22,632 | $\underline{0}$ | $\underline{0}$ |
| ( 3) TOTAL PLANT IN SERVICE | 318,018 | 318,018 | 0 | 0 |
| Working Capital \& Deferred |  |  |  |  |
| Charges/Credits: |  |  |  |  |
| ( 4) CASH - FUEL | 0 | 0 | 0 | 0 |
| ( 5) CASH - OTHER | 4,757 | 1,829 | 2,929 | 0 |
| ( 6) MAT. \& SUPPLIES - FUEL | 0 | 0 | 0 | 0 |
| ( 7) MAT. \& SUPPLIES - OTHER | 2,606 | 2,606 | 0 | 0 |
| ( 8) DEF. CHG. - Financing | 8,410 | 8,410 | 0 | 0 |
| (9) DEF. CHG. - Tax | 3,882 | 3,882 | 0 | 0 |
| (10) DEF. CHG. - Pension | 4,701 | 1,807 | 2,894 | 0 |
| (11) DEF. CHG. - Other | 636 | 636 | 0 | 0 |
| (12) DEF. CHG. - ARO Trans | $(12,394)$ | $(12,394)$ | $\underline{1}$ | $\underline{0}$ |
| (13) SUB-TOTAL | 12,598 | 6,776 | 5,823 | 0 |
| (14) TOTAL TRANS. $>69 \mathrm{kV}$ | 330,616 | 324,793 | 5,823 | 0 |
| (15) TOTAL TRANSMISSION FUNCTION | \$431,702 | \$424,046 | \$7,656 | \$0 |
| DISTRIBUTION FUNCTION |  |  |  |  |
| DISTRIBUTION PLANT: |  |  |  |  |
| (16) LAND | 4,579 | 3,121 | 0 | 1,458 |
| (17) EASEMENTS \& SURVEY | 14,479 | 9,867 | 0 | 4,612 |
| (18) OTHER | 1,818 | 1,239 | 0 | 579 |
| (19) SUBSTATIONS | 26,756 | 26,756 | 0 | 0 |
| (20) POLES \& FIXTURES | 158,187 | 102,822 | 0 | 55,365 |
| (21) O.H. LINES | 106,788 | 69,412 | 0 | 37,376 |
| (22) U.G. LINES | 33,114 | 21,524 | 0 | 11,590 |
| (23) LINE TRANSFORMERS | 141,297 | 141,297 | 0 | 0 |
| (24) SERVICES | 57,592 | 0 | 0 | 57,592 |
| (25) METERS | 23,330 | 0 | 0 | 23,330 |
| (26) STREET LIGHTING | 21,981 | 21,981 | $\underline{0}$ | $\underline{0}$ |
| (27) TOTAL DISTRIBUTION PLANT | 589,921 | 398,019 | 0 | 191,902 |
| (28) GENERAL PROPERTY PLANT | 45,199 | 30,496 | $\underline{0}$ | 14,703 |
| (29) TOTAL PLANT IN SERVICE | 635,120 | 428,514 | 0 | 206,605 |
| Working Capital \& Deferred |  |  |  |  |
| Charges/Credits: |  |  |  |  |
| (30) CASH - FUEL | 0 | 0 | 0 | 0 |
| (31) CASH - OTHER | 25,283 | 11,171 | 0 | 14,112 |
| (32) MAT. \& SUPPLIES - FUEL | 0 | 0 | 0 | 0 |
| (33) MAT. \& SUPPLIES - OTHER | 5,204 | 3,511 | 0 | 1,693 |
| (34) DEF. CHG. - Financing | 16,796 | 11,332 | 0 | 5,464 |
| (35) DEF. CHG. - Tax | 7,753 | 5,231 | 0 | 2,522 |
| (36) DEF. CHG. - Pension | 24,984 | 11,039 | 0 | 13,945 |
| (37) DEF. CHG. - Other | 1,270 | 857 | $\underline{0}$ | 413 |
| (38) SUB-TOTAL | 81,289 | 43,140 | 0 | 38,149 |
| (39) TOTAL DISTRIBUTION FUNCTION | 716,409 | 471,654 | 0 | 244,754 |

NOVA SCOTIA POWER INC.
CLASSIFICATION OF RATE BASE
FOR THE YEAR ENDING DECEMBER 31, 2012 (IN THOUSANDS OF DOLLARS)

| (1) | (2) | (3) |  |
| :---: | :---: | :---: | :---: |
|  | INITIAL CLASSIFICATION |  |  |
|  | DEMAND | ENERGY | CUSTOMER |
| TOTAL | RELATED | RELATED | RELATED |
| COMPANY | PLANT | PLANT | PLANT |

## RETAIL FUNCTION

DISTRIBUTION PLANT:

| ( 1) SERVICES | 0 | 0 | 0 | 0 |
| :---: | :---: | :---: | :---: | :---: |
| ( 2) METERS | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| ( 3) TOTAL RETAIL PLANT | 0 | 0 | 0 | 0 |
| ( 4) GENERAL PROPERTY PLANT | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| ( 5) TOTAL PLANT IN SERVICE | 0 | 0 | 0 | 0 |
| Working Capital \& Deferred |  |  |  |  |
| Charges/Credits: |  |  |  |  |
| ( 6) CASH - FUEL | 0 | 0 | 0 | 0 |
| ( 7) CASH - OTHER | 0 | 0 | 0 | 0 |
| ( 8) MAT. \& SUPPLIES - FUEL | 0 | 0 | 0 | 0 |
| ( 9) MAT. \& SUPPLIES - OTHER | 0 | 0 | 0 | 0 |
| (10) DEF. CHG. - Financing | 0 | 0 | 0 | 0 |
| (11) DEF. CHG. - Tax | 0 | 0 | 0 | 0 |
| (12) DEF. CHG. - Pension | 0 | 0 | 0 | 0 |
| (13) DEF. CHG. - Other | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| (14) SUB-TOTAL | 0 | 0 | 0 | 0 |
| (15) TOTAL RETAIL FUNCTION | 0 | 0 | 0 | 0 |





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$\underset{(1,164,114)}{(82,845)} \quad \underset{1,164,114}{82,845}$

| (4) | (5) |  |
| :---: | :---: | :---: |
| FURTHER CLASSIFICATION |  |  |
| DEMAND | ENERYY | CUSTOMER |
| PLANT | PLANT | PLANT |



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$$
\begin{array}{r}
0 \\
0 \\
0 \\
0,538 \\
30,785 \\
14,211 \\
0 \\
0 \\
0 \\
2,328 \\
(47,132) \\
(10,343) \\
0 \\
(1,105) \\
(1,719) \\
\hline 162,305
\end{array}
$$



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 $\begin{array}{rr}\$ 1,228,735 & \$ 242,745 \\ 312,833 & 5,995 \\ 133,647 & 115,618 \\ 62,909 & 0 \\ \underline{11,102} & \underline{0} \\ 1,749,226 & 364,358 \\ 134,023 & \underline{27,917} \\ 1,883,249 & 392,275\end{array}$
(1)
$\qquad$

 $\$ 1,228,73$
312,83
133,64
62,90
11,10
$1,749,22$
$1,843,023$
1,283
 $\begin{array}{lll}\text { 1,887,531 } & \text { 578,552 }\end{array}$ ( 1) STEAM PLANT
( 2) HYDRO PLANT
(3) WIND PLANT
(4) LM6000 PLANT
(5) GAS TURBINE PLANT - OTHER
(6) TOTAL GENERATION PLANT
( 7) GENERAL PROPERTY PLANT
(8) TOTAL PLANT IN SERVICE Working Capital \& Deferred
Charges/Credits: Charges/Credits:
(9) CASH - FUEL
(10) CASH - OTHER
(10) CASH - OTHER
(11) MAT. \& SUPPLIE (11) MAT. \& SUPPLIES - FUEL
(12) MAT. \& SUPPLIES - OTHER
(13) DEF. CHG. - Financing (14) DEF. CHG. - Tax
(15) DEF. CHG. - Pension (16) DEF. CHG. - Steam Assets
(17) DEF. CHG. - Fuel Deferral (17) DEF. CHG. - Fuel Deferral
(18) DEF. CHG. - Other (19) DEF. CR. - ARO Steam (20) DEF. CR. - ARO Hydro
(21) DEF. CR. - ARO CT
(22) DEF. CR. - Other (22) DEF. CR. - Other
(23) CONTRACT RECEIVABLE
(24) SUB-TOTAL (24) SUB-TOTAL
(25) TOTAL GENE

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$\wedge \forall 8 \varepsilon \tau>\times S N \forall \searrow \perp 7 \forall \perp O \perp(6 \varepsilon)$






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295,386
$\underline{22,632}$
318,018


$$
\begin{aligned}
& \text { ( 1) TRANSMISSION PLANT > 69kV } \\
& \text { ( 2) GENERAL PROPERTY PLANT } \\
& \text { ( 3) TOTAL PLANT IN SERVICE }
\end{aligned}
$$



(6) MAT. \& SUPPLIES - FUEL
(7) MAT. \& SUPPLIES - OTHER
( 7) MAT. \& SUPPLIES - OTH
( 8) DEF. CHG. - Financing
(9) DEF. CHG. - Tax
(10) DEF. CHG - Pension
(10) DEF. CHG. - Pension
(11) DEF. CHG. - Other
(12) DEF. CR. - ARO Trans
(13) SUB-TOTAL
(14) TOTAL TRANS. > 69kV
(15) TOTAL TRANSMISSION FUNCTION

ENERGY CLANT
PLANT











| \$472,326 | \$248,497 | \$11,011 | \$97,210 | \$11,497 | \$7,602 | \$14,826 | \$22,890 | \$44,766 | \$8,876 | \$5,150 | D-3A |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 120,253 | 63,267 | 2,803 | 24,749 | 2,927 | 1,936 | 3,775 | 5,828 | 11,397 | 2,260 | 1,311 | D-3A |
| 40,094 | 21,094 | 935 | 8,252 | 976 | 645 | 1,259 | 1,943 | 3,800 | 753 | 437 | D-3A |
| 24,182 | 12,723 | 564 | 4,977 | 589 | 389 | 759 | 1,172 | 2,292 | 454 | 264 | D-3A |
| 11,102 | 5,841 | 259 | 2,285 | 270 | 179 | 348 | 538 | 1,052 | $\underline{209}$ | 121 | D-3A |
| 667,957 | 351,421 | 15,571 | 137,473 | 16,260 | 10,751 | 20,967 | 32,371 | 63,307 | 12,553 | 7,283 |  |
| 51,178 | 26,925 | 1,193 | 10,533 | 1,246 | 824 | 1,606 | 2,480 | 4,851 | 962 | 558 | P-7 |
| 719,135 | 378,347 | 16,764 | 148,006 | 17,505 | 11,575 | 22,574 | 34,851 | 68,158 | 13,514 | 7,841 |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | , | 0 | 0 | 0 | D-3A |
| 7,406 | 3,896 | 173 | 1,524 | 180 | 119 | 232 | 359 | 702 | 139 | 81 | O-1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | D-3A |
| 5,892 | 3,100 | 137 | 1,213 | 143 | 95 | 185 | 286 | 558 | 111 | 64 | P-7 |
| 19,017 | 10,005 | 443 | 3,914 | 463 | 306 | 597 | 922 | 1,802 | 357 | 207 | P-7 |
| 8,779 | 4,619 | 205 | 1,807 | 214 | 141 | 276 | 425 | 832 | 165 | 96 | P-7 |
| 7,318 | 3,850 | 171 | 1,506 | 178 | 118 | 230 | 355 | 694 | 138 | 80 | O-1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | D-3A |
| 0 |  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | D-3A |
| 1,438 | 757 | 34 | 296 | 35 | 23 | 45 | 70 | 136 | 27 | 16 | P-7 |
| $(29,431)$ | $(15,484)$ | (686) | $(6,057)$ | (716) | (474) | (924) | $(1,426)$ | $(2,789)$ | (553) | (321) | D-3A |
| $(6,459)$ | $(3,398)$ | (151) | $(1,329)$ | (157) | (104) | (203) | (313) | (612) | (121) | (70) | D-3A |
| $(7,270)$ | $(3,825)$ | (169) | $(1,496)$ | (177) | (117) | (228) | (352) | (689) | (137) | (79) | D-3A |
| (690) | (363) | (16) | (142) | (17) | (11) | (22) | (33) | (65) | (13) | (8) | D-3A |
| 0 | $\bigcirc$ | $\underline{0}$ | $\underline{0}$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | 0 | D-3A |
| 6,001 | 3,157 | 140 | 1,235 | 146 | 97 | 188 | 291 | 569 | 113 | 65 |  |
| 725,136 | 381,504 | 16,904 | 149,241 | 17,651 | 11,672 | 22,762 | 35,142 | 68.727 | 13,627 | 7,906 |  |

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$$

(39) TOTAL TRANS. < 138kV
( 3) WIND PLANT
( 4) LM6000 PLANT
(5) GAS TURBINE PLANT - OTHER
(6) TOTAL GENERATION PLANT ( 7) GEN. PROPERTY PLANT ( 7) GEN. PROPERTY PLANT
( TOTAL PLANT IN SERVICE Working Capital \& Deferred Working Capital \& Deferred
Charges/Credits:
(9) CASH - FUEL
(10) CASH - OTHER (10) CASH - OTHER
(11) MAT. \& SUPPLIES - FUEL (12) MAT. \& SUPPLIES - OTHER
(13) DEF. CHG. - Financing (13) DEF. CHG. - Financing
(14) DEF. CHG. - Tax (15) DEF. CHG. - Pension (16) DEF. CHG. - Steam Assets
(17) DEF. CHG. - Fuel Deferral (18) DEF. CHG. - Other (19) DEF. CR. - ARO Steam
(20) DEF. CR. - ARO Hydro (22) DEF. CR. - Other
(23) CONTRACT RECEIVABLE (24) SUB-TOTAL (25) TOTAL GEN. FUNCTION
TRANSMISSION FUNCTION

$$
\frac{\text { TRANSMISSION FUNCTION }}{(26) \text { TRANSMISSION PLANT }}<138 \mathrm{kV}
$$

$$
\begin{aligned}
& \text { (26) GEN. PROPERTY PLANT } \\
& \text { (28) TOTAL PLANT IN SERVICE }
\end{aligned}
$$ Charges/Credits:

$$
\begin{aligned}
& \text { Working Capital \& Deferred } \\
& \text { Charges/Credits: }
\end{aligned}
$$

(29) CASH - FUEL
(30) CASH - OTHER (31) MAT. \& SUPPLIES - FUEL (33) DEF. CHG. - Financing (34) DEF. CHG. - Tax
(35) DEF. CHG. - Pension (36) DEF. CHG. - Other
(37) DEF. CR. - ARO Trans. (36) DEF. CHG. - Other
(37) DEF. CR. - ARO Trans
(38) SUB-TOTAL
 ALLOCATION OF AVERAGE RATE BASE
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

|  | (1) TOTAL COMPANY | (2) ${ }_{\text {(2) }}$ DOMESTIC | (3) <br> SMALL GENERAL | (4) | (5) GENERAL LARGE | (6) <br> SMALL INDUSTRIAL | (7) <br> MEDIUM INDUSTRIAL | (8) <br> LARGE INDUSTRIAL | (9) ELI 2 P-RTP | (10) | (11) | $\begin{gathered} \text { (12) } \\ \text { ALLOCATION } \\ \text { FACTOR } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ( 1) TRANSMISSION PLANT > 69kV | 113,546 | 59,738 | 2,647 | 23,369 | 2,764 | 1,828 | 3,564 | 5,503 | 10,762 | 2,134 | 1,238 | D-3A |
| ( 2) GENERAL PROPERTY PLANT | 8,700 | 4,577 | 203 | 1,790 | 212 | 140 | $\underline{273}$ | 422 | 825 | 163 | 95 | P-8B |
| ( 3) TOTAL PLANT IN SERVICE | 122,246 | 64,315 | 2,850 | 25,160 | 2,976 | 1,968 | 3,837 | 5,924 | 11,586 | 2,297 | 1,333 |  |
| Working Capital \& Deferred |  |  |  |  |  |  |  |  |  |  |  |  |
| Charges/Credits: |  |  |  |  |  |  |  |  |  |  |  |  |
| ( 4) CASH - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | D-3A |
| ( 5) CASH - OTHER | 1,829 | 962 | 43 | 376 | 45 | 29 | 57 | 89 | 173 | 34 | 20 | O-2B |
| (6) MAT \& \& SUPPLIES - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | D-3A |
| ( 7) MAT. \& SUPPLIES - OTHER | 1,002 | 527 | 23 | 206 | 24 | 16 | 31 | 49 | 95 | 19 | 11 | P-8B |
| ( 8) DEF. CHG. - Financing | 3,233 | 1,701 | 75 | 665 | 79 | 52 | 101 | 157 | 306 | 61 | 35 | P-8B |
| (9) DEF. CHG. - Tax | 1,492 | 785 | 35 | 307 | 36 | 24 | 47 | 72 | 141 | 28 | 16 | P-8B |
| (10) DEF. CHG. - Pension | 1,807 | 951 | 42 | 372 | 44 | 29 | 57 | 88 | 171 | 34 | 20 | O-2B |
| (11) DEF. CHG. - Other | 244 | 129 | 6 | 50 | 6 | 4 | 8 | 12 | 23 | 5 | 3 | P-8B |
| (12) DEF. CR. - ARO Trans | $(4,764)$ | $(2,507)$ | (111) | (981) | (116) | (77) | (150) | (231) | (452) | (90) | (52) | D-3A |
| (13) SUB-TOTAL | 4,843 | 2,548 | 113 | 997 | 118 | 78 | 152 | 235 | 459 | 91 | 53 |  |
| (14) TOTAL TRANS. $>69 \mathrm{kV}$ | 127,089 | 66,863 | 2,963 | 26,156 | 3,094 | 2,046 | 3,989 | 6,159 | 12,045 | 2,388 | 1,386 |  |
| (14) TOTAL TRANS. FUNCTION | 165,946 | 89,447 | 3,963 | 34,991 | 4,139 | 2,737 | 5,337 | 8,239 | 12,045 | 3,195 | 1,854 |  |


| DISTRIBUTION FUNCTION |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (15) DISTRIBUTION PLANT - Non Stree | 375,487 | 237,879 | 10,086 | 98,665 | 5,752 | 9,950 | 7,302 | 402 | 45 | 30 | 5,376 | EXH. 3A |
| (16) DISTRIBUTION PLANT - Streetlight | 21,981 | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | 0 | $\underline{0}$ | 0 | $\underline{0}$ | 21,981 | EXH. 3A |
|  | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | - |  |
| (17) SUB-TOTAL | 397,468 | 237,879 | 10,086 | 98,665 | 5,752 | 9,950 | 7,302 | 402 | 45 | 30 | 27,357 |  |
| (18) GEN. PROPERTY PLANT | 30,496 | 19,320 | 819 | 8,013 | 467 | 808 | 593 | 33 | 4 | $\underline{2}$ | 437 | P-9 |
|  | 427,963 | 257,199 | 10,905 | 106,678 | 6,219 | 10,758 | 7,895 | 435 | 49 | 32 | 27,794 |  |
| Working Capital \& Deferred |  |  |  |  |  |  |  |  |  |  |  |  |
| Charges/Credits: |  |  |  |  |  |  |  |  |  |  |  |  |
| (19) CASH - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-9 |
| (20) CASH - OTHER | 11,171 | 5,922 | 251 | 2,493 | 237 | 255 | 297 | 8 | 1 | 1 | 1,706 | O-3 |
| (21) MAT. \& SUPPLIES - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-9 |
| (22) MAT. \& SUPPLIES - OTHER | 3,511 | 2,224 | 94 | 923 | 54 | 93 | 68 | 4 | 0 | 0 | 50 | P-9 |
| (23) DEF. CHG. - Financing | 11,332 | 7,179 | 304 | 2,978 | 174 | 300 | 220 | 12 | 1 | 1 | 162 | P-9 |
| (24) DEF. CHG. - Tax | 5,231 | 3,314 | 141 | 1,375 | 80 | 139 | 102 | 6 | 1 | 0 | 75 | P-9 |
| (25) DEF. CHG. - Pension | 11,039 | 5,852 | 248 | 2,464 | 234 | 252 | 294 | 8 | 1 | 1 | 1,686 | O-3 |
| (26) DEF. CHG. - Other | 857 | 543 | $\underline{23}$ | $\underline{225}$ | 13 | $\underline{23}$ | 17 | 1 | $\underline{0}$ | $\underline{0}$ | 12 | P-9 |
| (27) SUB-TOTAL | 43,140 | 25,033 | 1,061 | 10,457 | 791 | 1,061 | 998 | 38 | 4 | 3 | 3,692 |  |
| (28) TOTAL DIST. FUNCTION | 471,103 | 282,232 | 11,967 | 117,135 | 7,010 | 11,819 | 8,893 | 473 | 53 | 35 | 31,486 |  |
| (29) TOTAL DEMAND | \$1,362,186 | \$753,183 | \$32,834 | \$301,366 | \$28,800 | \$26,228 | \$36,992 | \$43,855 | \$80,825 | \$16,857 | \$41,246 |  |

            ALLOCATION
    




$\$ 10.522$

I
NOVA SCOTIA POWER INC.
ALLOCATION OF AVERAGE RATE BASE
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)
$\begin{array}{cc}\text { (4) } & \begin{array}{c}\text { (5) } \\ \text { GENERAL } \\ \text { LARGE }\end{array} \\ \text { GENERAL }\end{array}$
$\begin{array}{cc}\text { (4) } & \begin{array}{c}\text { (5) } \\ \text { GENERAL } \\ \text { LARGE }\end{array} \\ \text { GENERAL }\end{array}$
$\begin{array}{cc}\text { SM) } & \text { (7) } \\ \text { SMALL } \\ \text { INDUSTRIAL } \\ \text { MEDIUM } \\ \text { INDUSTRIAL }\end{array}$
(8)
INDUSTRIAL
LARGE
ELI 2P-RTP
$\begin{array}{cc}\text { SM) } & (7) \\ \text { SMALL } \\ \text { INDUSTRIAL } \\ \text { MEDIUM } \\ \text { INDUSTRIAL }\end{array}$
(3)
SMALL
GENERAL
ล
DOMESTIC
$\$ 395,376$
78,578
8,771
15,325
$\underline{0}$
572,050
43,830
615,879
$\$ 19,754$
3,926
4,136
766
$\mathbf{0}$
28,581
$\mathbf{2 , 1 9 0}$
30,771

$\$ 222,104$
44,142
46,497
8,609
321,352
$\mathbf{0} 2$
34,621
34,973



INDUSTRIAL
LARGE


$\begin{array}{rr}\$ 22,844 & \$ 44,592 \\ 4,540 & 8,862 \\ 4,782 & 9,335 \\ 885 & 1,728 \\ 0 & \underline{0} \\ 33,051 & 64,519 \\ \underline{0}, 532 & 4,943 \\ 35,583 & 69,462\end{array}$

$\begin{array}{lllll}39,803 & 77,699 & 139,882 & 265,054 & 29,648\end{array}$

INDUSTRIAL

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$\stackrel{\stackrel{y}{2}}{i}$
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$\$ 999,154$
198,575
209,171
38,727
$1,445,62 \frac{0}{7}$
110,762
$1,556,389$

(1)
TOTAL
COMPANY
general
Working Capital \& Deferred
Charges/Credits:
ENERGY CLASSIFICATION
GENERATION FUNCTION
GENERATION (1) STEAM PLANT
(3) WIND PLANT
4) LM6000 PLANT
5) GAS TURBINE PLANT - OTHER
(6) TOTAL GENERATION PLANT
( 7) GENERAL PROPERTY PLANT
( 8) TOTAL PLANT IN SERVICE
Working Capital \& Deferred
Charges/Credits:
(9) CASH - FUEL
(10) CASH - OTHER
(10) CASH - OTHER
(11) MAT. \& SUPPLIES - FUEL
(11) MAT. \& SUPPLIES - FUEL
(12) MAT. \& SUPPLIES - OTHER （13）DEF．CHG．－Financing
（14）DEF．CHG．－Tax （15）DEF．CHG．－Pension （16）DEF．CHG．－Steam Assets
（17）DEF．CHG．－Fuel Deferral （18）DEF．CHG．－Other （19）DEF．CR．－ARO Steam
（20）DEF．CR．－ARO Hydro （21）DEF．CR．－ARO CT （22）CONTRACT RECEIVABLE
（24）SUB－TOTAL
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1,740,947 688,911
(24) TOTAL GEN. FUNCTION $\quad 1,740,947$
（24）TOTAL GEN．FUNCTION $\frac{\text { TRANSMISSION FUNCTION }}{\text {（26）TRANSMISSION PLANT }}<138 \mathrm{kV}$ （27）GENERAL PROPERTY PLANT
（28）TOTAL PLANT IN SERVICE Working Capital \＆Deferred
Charges／Credits：
（29）CASH－FUEL
（30）CASH－OTHER
（31）MAT．\＆SUPPLIES－FUEL
（32）MAT．\＆SUPPLIES－OTHER
（33）DEF．CHG．－Financing
（34）DEF．CHG．－Tax
（35）DEF．CHG．－Pension
（36）DEF．CHG．－Other
（37）DEF．CR．－ARO Trans．
（38）SUB－TOTAL

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$\stackrel{\sim}{N}$



| $\underset{\sim}{\sim}$ | $\underset{\sim}{\text { ®\|\| }}$ |  |
| :---: | :---: | :---: |
| $\begin{aligned} & \stackrel{N}{N} \\ & \stackrel{1}{N} \\ & \stackrel{y}{n} \end{aligned}$ | $\begin{aligned} & \stackrel{0}{0} \\ & \stackrel{n}{\circ} \\ & \underset{N}{N} \end{aligned}$ |  |




|  | (1) TOTAL COMPANY | (2) ${ }_{\text {(2) }}$ DOMESTIC | (3) <br> SMALL GENERAL | (4) | (5) GENERAL LARGE | (6) <br> SMALL INDUSTRIAL | (7) <br> MEDIUM INDUSTRIAL | (8) INDUSTRIAL LARGE | (9) | (10) | (11) | $\begin{aligned} & \text { (12) } \\ & \text { ALLOCATION } \\ & \text { FACTOR } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ( 1) TRANSMISSION PLANT > 69kV | 181,839 | 71,956 | 3,595 | 40,421 | 6,288 | 4,157 | 8,116 | 14,610 | 27,685 | 3,097 | 1,915 | E-1A |
| ( 2) GENERAL PROPERTY PLANT | 13,932 | 5,513 | 275 | 3,097 | 482 | 319 | 622 | 1,119 | 2,121 | 237 | 147 | P-11B |
| ( 3) TOTAL PLANT IN SERVICE | 195,772 | 77,469 | 3,871 | 43,519 | 6,769 | 4,476 | 8,737 | 15,730 | 29,806 | 3,334 | 2,062 |  |
| Working Capital \& Deferred |  |  |  |  |  |  |  |  |  |  |  |  |
| Charges/Credits: |  |  |  |  |  |  |  |  |  |  |  |  |
| ( 4) CASH - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | E-1A |
| ( 5) CASH - OTHER | 2,929 | 1,159 | 58 | 651 | 101 | 67 | 131 | 235 | 446 | 50 | 31 | O-5B |
| (6) MAT \& \& SUPPLIES - FUEL | 0 | 0 | 0 | , | 0 | 0 | 0 | 0 | 0 | 0 | 0 | E-1A |
| ( 7) MAT. \& SUPPLIES - OTHER | 1,604 | 635 | 32 | 357 | 55 | 37 | 72 | 129 | 244 | 27 | 17 | P-11B |
| ( 8) DEF. CHG. - Financing | 5,177 | 2,049 | 102 | 1,151 | 179 | 118 | 231 | 416 | 788 | 88 | 55 | P-11B |
| (9) DEF. CHG. - Tax | 2,390 | 946 | 47 | 531 | 83 | 55 | 107 | 192 | 364 | 41 | 25 | P-11B |
| (10) DEF. CHG. - Pension | 2,894 | 1,145 | 57 | 643 | 100 | 66 | 129 | 233 | 441 | 49 | 30 | O-5B |
| (11) DEF. CHG. - Other | 391 | 155 | 8 | 87 | 14 | 9 | 17 | 31 | 60 | 7 | 4 | P-11B |
| (12) DEF. CR. - ARO Trans | (7,630) | $(3,019)$ | (151) | $(1,696)$ | (264) | (174) | (341) | (613) | $(1,162)$ | (130) | (80) | E-1A |
| (13) SUB-TOTAL | 7,756 | 3,069 | 153 | 1,724 | 268 | 177 | 346 | 623 | 1,181 | 132 | 82 |  |
| (14) TOTAL TRANS. $>69 \mathrm{kV}$ | 203,527 | 80,538 | 4,024 | 45,243 | 7,038 | 4,653 | 9,083 | 16,353 | 30,986 | 3,466 | 2,143 |  |
| (15) TOTAL TRANS. FUNCTION | 265,756 | 109,585 | 5,475 | 61,560 | 9,576 | 6,331 | 12,359 | 22,251 | 30,986 | 4,716 | 2,916 |  |
| (16) TOTAL ENERGY | \$2,006,703 | \$798,495 | \$39,895 | \$448,559 | \$69,774 | \$46,134 | \$90,058 | \$162,132 | \$296,041 | \$34,364 | \$21,250 |  |

CUST. CLASSIFICATION
EXHIBIT 3
PAGE 5 OF 5 NOVA SCOTIA POWER INC.
ALLOCATION OF AVERAGE RATE BASE
FOR THE YEAR ENDING DECEMBER 31,2012
(IN THOUSANDS OF DOLLARS)


| DISTRIBUTION FUNCTION |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ( 1) DISTRIBUTION PLANT | \$191,899 | \$168,130 | \$8,816 | \$10,436 | \$17 | \$2,139 | \$185 | \$62 | \$3 | \$6 | \$2,105 | EXH. 3A |
| ( 2) GEN. PROPERTY PLANT | 14,703 | 12,882 | 675 | 800 | 1 | 164 | 14 | 5 | 0 | 0 | 161 | P-12 |
| ( 3) TOTAL PLANT IN SERVICE | 206,603 | 181,012 | 9,491 | 11,236 | 18 | 2,303 | 199 | 67 | 3 | 6 | 2,266 |  |
| WORKING CAPITAL: |  |  |  |  |  |  |  |  |  |  |  |  |
| ( 4) CASH - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-12 |
| ( 5) CASH - OTHER | 14,112 | 12,747 | 668 | 358 | 1 | 72 | 7 | 2 | 0 | 0 | 257 | O-6 |
| ( 6) MAT. \& SUPPLIES - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-12 |
| ( 7) MAT. \& SUPPLIES - OTHER | 1,693 | 1,483 | 78 | 92 | 0 | 19 | 2 | 1 | 0 | 0 | 19 | P-12 |
| ( 8) DEF. CHG. - Financing | 5,464 | 4,787 | 251 | 297 | 0 | 61 | 5 | 2 | 0 | 0 | 60 | P-12 |
| (9) DEF. CHG. - Tax | 2,522 | 2,210 | 116 | 137 | 0 | 28 | 2 | 1 | 0 | 0 | 28 | P-12 |
| (10) DEF. CHG. - Pension | 13,945 | 12,596 | 660 | 354 | 1 | 72 | 7 | 2 | 0 | 0 | 254 | O-6 |
| (11) DEF. CHG. - Other | 413 | 362 | $\underline{19}$ | $\underline{22}$ | 0 | 5 | 0 | 0 | $\underline{0}$ | 0 | 5 | P-12 |
| (12) SUB-TOTAL | 38,149 | 34,185 | 1,792 | 1,260 | 2 | 256 | 23 | 7 | 0 | 1 | 621 |  |
| (13) TOTAL DIST. FUNCTION | 244,751 | 215,197 | 11,283 | 12,496 | 20 | 2,560 | 222 | 74 | 4 | 7 | 2,887 |  |
| RETAIL FUNCTION |  |  |  |  |  |  |  |  |  |  |  |  |
| (14) DISTRIBUTION PLANT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | EXH. 3A |
| (15) GEN. PROPERTY PLANT | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | 0 | $\underline{0}$ | 0 | $\underline{0}$ | P-13 |
| (16) TOTAL PLANT IN SERVICE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| WORKING CAPITAL: |  |  |  |  |  |  |  |  |  |  |  |  |
| (17) CASH - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-13 |
| (18) CASH - OTHER | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | O-7 |
| (19) MAT. \& SUPPLIES - FUEL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-13 |
| (20) MAT. \& SUPPLIES - OTHER | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-13 |
| (21) DEF. CHG. - Financing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-13 |
| (22) DEF. CHG. - Tax | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | P-13 |
| (23) DEF. CHG. - Pension | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | O-7 |
| (24) DEF. CHG. - Other | $\underline{0}$ | $\underline{0}$ | 0 | 0 | 0 | $\underline{0}$ | 0 | 0 | $\underline{0}$ | 0 | $\underline{0}$ | P-13 |
| (25) SUB-TOTAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| (26) TOTAL RETAIL FUNCTION | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| (27) TOTAL CUSTOMER | 244,751 | 215,197 | 11,283 | 12,496 | 20 | 2,560 | 222 | 74 | 4 | 7 | 2,887 |  |
| (28) TOTAL AVE. RATE BASE | \$3,613,640 | \$1,766,876 | \$84,013 | \$762,421 | \$98,594 | \$74,922 | \$127,272 | \$206,061 | \$376,869 | \$51,228 | \$65,383 |  |



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## DEMAND


（13）LAND
（14）EASEMENTS \＆SURVEY （15）OTHER
（16）SUBSTATIONS （17）POLES \＆FIXTURES
（18）O．H．LINES
（19）U．G．LINES （18）O．H．LINES
（19）U．LINES （20）LINE TRANSFORMERS
（21）SERVICES （21）SERVICES
（22）METERS
（23）STREET LIG （24）TOTAL CUSTOMER RETAIL

（25）SERVICES
（26）METERS
（27）TOTAL RETAIL
SUMMARY

## （28）LAND （29）EASEMENTS \＆SURVEY （30）OTHER （31）SUBSTATIONS （32）POLES \＆FIXTURES （32）POLES \＆FIXTURES （33）O．H．LINES （34）U．G．LINES （35）LINE TRANSFORMERS  （38）STREET LIGHTING

NOVA SCOTIA POWER INC.
ANALYSIS OF AVERAGE DISTRIBUTION SUBSTATION RATE BASE
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

|  | (1) TOTAL PLANT | (2) DIST. BULK PWR. | (3) <br> DIST. DED. <br> BULK PWR. | (4) DIST. GENERAL | (5) DIST. DED. GENERAL |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ( 1) TOT. DIST. SUBSTATIONS | \$26,205 | \$21,392 | \$506 | \$4,215 | \$92 |

ALLOCATION

| ( 2) DOMESTIC | 15,467 | 12,921 | 0 | 2,546 | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ( 3) SMALL GENERAL | 656 | 548 | 0 | 108 | 0 |
| ( 4) GENERAL | 6,624 | 5,510 | 29 | 1,086 | 0 |
| ( 5) GENERAL LARGE | 827 | 691 | 0 | 136 | 0 |
| ( 6) SMALL INDUSTRIAL | 681 | 569 | 0 | 112 | 0 |
| ( 7) MEDIUM INDUSTRIAL | 1,155 | 861 | 119 | 170 | 5 |
| ( 8) LARGE INDUSTRIAL | 375 | 0 | 288 | 0 | 87 |
| ( 9) ELI 2P-RTP | 42 | 0 | 42 | 0 | 0 |
| (10) MUNICIPAL | 28 | 0 | 28 | 0 | 0 |
| (11) UNMETERED | 350 | $\underline{292}$ | $\underline{0}$ | 58 | $\underline{0}$ |
| (12) TOTAL | \$26,205 | \$21,392 | \$506 | \$4,215 | \$92 |

NOVA SCOTIA POWER INC.

## ANALYSIS OF AVERAGE POLE INVESTMENT

FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

| $(1)$ | $(2)$ | $(3)$ | $(4)$ | $(5)$ |
| :--- | :---: | :---: | :---: | :---: |
| TOTAL | PRIMARY | PRIMARY | SECONDARY | SECONDARY |
| PLANT | DEMAND | CUSTOMER | DEMAND | CUSTOMER |

( 1) TOTAL NET POLE COST
( 2) PRIMARY ONLY (30\%)
( 3) 50\% JOINT - PRI. (1)
( 4) 50\% JOINT - SEC. (1)
(5) TOTAL \} (1)
CUSTOMER COST - 50\% \}
\$158,187

47,456
55,365
55,365
$\$ 158,187$
$\$ 75,139$
\$27,683
\$27,683
$\$ 27,683$

NOVA SCOTIA POWER INC.
ALLOCATION OF AVERAGE POLE INVESTMENT
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

| (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: |
| TOTAL | PRIMARY | PRIMARY | SECONDARY | SECONDARY |
| PLANT | DEMAND | CUSTOMER | DEMAND | CUSTOMER |


| ( 1) DOMESTIC | \$113,845 | \$45,385 | \$25,057 | \$18,334 | \$25,069 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ( 2) SMALL GENERAL | 5,330 | 1,924 | 1,314 | 777 | 1,314 |
| ( 3) GENERAL | 28,071 | 19,353 | 647 | 7,424 | 647 |
| ( 4) GENERAL LARGE | 2,428 | 2,427 | 1 | 0 | 0 |
| ( 5) SMALL INDUSTRIAL | 2,985 | 1,998 | 126 | 734 | 126 |
| ( 6) MEDIUM INDUSTRIAL | 3,036 | 3,025 | 11 | 0 | 0 |
| ( 7) LARGE INDUSTRIAL | 2 | 0 | 2 | 0 | 0 |
| ( 8) ELI 2P-RTP | 0 | 0 | 0 | 0 | 0 |
| ( 9) MUNICIPAL | 0 | 0 | 0 | 0 | 0 |
| (10) UNMETERED | $\underline{2,490}$ | 1,026 | 525 | 414 | 525 |
| (11) TOTAL | \$158,187 | \$75,139 | \$27,683 | \$27,683 | \$27,683 |
| ALLOCATION FACTOR |  | D-2 | C-5 | D-1 | C-4 |

NOVA SCOTIA POWER INC.

## ANALYSIS OF AVERAGE WIRE INVESTMENT

FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

| $(1)$ | $(2)$ | $(3)$ | $(4)$ | $(5)$ |
| :---: | :---: | :---: | :---: | :---: |
| TOTAL | PRIMARY | PRIMARY | SECONDARY | SECONDARY |
| PLANT | DEMAND | CUSTOMER | DEMAND | CUSTOMER |

( 1) TOTAL NET WIRE COST
( 2) PRIMARY ONLY (30\%)
( 3) 50\% JOINT - PRI. (1)
( 4) $50 \%$ JOINT - SEC. (1)
(5) TOTAL

DEMAND COST - 50\% \} \} (1)
CUSTOMER COST - 50\% \}
\$106,788

32,036

37,376

37,376
\$106,788
\$32,036

18,688
$\underline{0}$
\$50,724
\$18,688
\$18,688
\$18,688

NOVA SCOTIA POWER INC.

## ANALYSIS OF AVERAGE METER INVESTMENT

 FOR THE YEAR ENDING DECEMBER 31, 2012| $(1)$ | $(2)$ | $(3)$ | $(4)$ | (5) |
| :---: | :---: | :---: | :---: | :---: |
| TOTAL | UNIT METER | TOTAL |  | METER COST |
| CUSTOMERS | COST | COST | PERCENT | $(\$ 000)$ |


| ( 1) DOMESTIC | 449,674 | \$34.00 | \$15,288,916 | 85.42 | \$19,928 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ( 2) SMALL GENERAL | 23,578 | 34.00 | 801,652 | 4.48 | 1,045 |
| ( 3) GENERAL | 11,611 | 111.00 | 1,288,821 | 7.20 | 1,680 |
| ( 4) GENERAL LARGE | 18 | 657.00 | 11,826 | 0.07 | 15 |
| ( 5) SMALL INDUSTRIAL | 2,268 | 145.00 | 328,860 | 1.84 | 429 |
| ( 6) MEDIUM INDUSTRIAL | 192 | 657.00 | 126,144 | 0.70 | 164 |
| ( 7) LARGE INDUSTRIAL | 34 | 1,338.00 | 45,492 | 0.25 | 59 |
| ( 8) ELI 2P-RTP | 2 | 1,338.00 | 2,676 | 0.01 | 3 |
| ( 9) MUNICIPAL | 8 | 520.00 | 4,160 | 0.02 | 5 |
| (10) UNMETERED | 9,419 | N/A | $\underline{0}$ | $\underline{0.00}$ | $\underline{0}$ |
| (11) TOTAL | 496,804 |  | \$17,898,547 | 100.00 | \$23,328 |

NOVA SCOTIA POWER INC.
ALLOCATION OF AVERAGE WIRE INVESTMENT
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

| (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: |
| TOTAL | PRIMARY | PRIMARY | SECONDARY | SECONDARY |
| PLANT | DEMAND | CUSTOMER | DEMAND | CUSTOMER |


| ( 1) DOMESTIC | \$76,854 | \$30,638 | \$16,915 | \$12,377 | \$16,924 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| ( 2) SMALL GENERAL | 3,598 | 1,299 | 887 | 525 | 887 |
| ( 3) GENERAL | 18,950 | 13,065 | 437 | 5,011 | 437 |
| ( 4) GENERAL LARGE | 1,639 | 1,639 | 1 | 0 | 0 |
| ( 5) SMALL INDUSTRIAL | 2,015 | 1,349 | 85 | 495 | 85 |
| ( 6) MEDIUM INDUSTRIAL | 2,049 | 2,042 | 7 | 0 | 0 |
| ( 7) LARGE INDUSTRIAL | 1 | 0 | 1 | 0 | 0 |
| ( 8) ELI 2P-RTP | 0 | 0 | 0 | 0 | 0 |
| ( 9) MUNICIPAL | 0 | 0 | 0 | 0 | 0 |
| (10) UNMETERED | 1,681 | $\underline{692}$ | 354 | $\underline{280}$ | 354 |
| (11) TOTAL | \$106,788 | \$50,724 | \$18,688 | \$18,688 | \$18,688 |
| ALLOCATION FACTOR |  | D-2 | C-5 | D-1 | C-4 |

NOVA SCOTIA POWER INC.

## FUNCTIONALIZATION OF OPERATING EXPENSES <br> FOR THE YEAR ENDING DECEMBER 31, 2012 <br> (IN THOUSANDS OF DOLLARS)

| (1) | (2) | $(3)$ | $(4)$ | $(\mathbf{3})$ | $(6)$ <br> TOTAL |
| :---: | :---: | :---: | :---: | :---: | :---: |
| PROD. | TRANS. | DIST. | RETAIL | DIRECT |  |
| EXPENSES | EXPENSES | EXPENSES | EXPENSES | EXPENSES | EXPENSES |

POWER PRODUCTION

| ( 1) FUEL | \$475,459 | \$458,893 | \$0 | \$0 | \$0 | \$16,566 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PURCHASED POWER: |  |  |  |  |  |  |
| ( 2) REGULAR | 52,232 | 52,232 | 0 | 0 | 0 | 0 |
| ( 3) WIND | 46,190 | 46,190 | 0 | 0 | 0 | 0 |
| ( 4) THERMAL - OPERATING \& MAINT. | 82,693 | 82,007 | 0 | 0 | 0 | 686 |
| ( 5) HYDRO - OPERATING \& MAINT. | 5,215 | 3,729 | 0 | 0 | 0 | 1,486 |
| ( 6) WIND - OPERATING \& MAINT. | 5,244 | 5,244 | 0 | 0 | 0 | 0 |
| ( 7) LM6000-OPERATING \& MAINT. | 397 | 397 | 0 | 0 | 0 | 0 |
| ( 8) COMBUSTION TURBINE - OPER. \& MAINT. | 921 | 921 | 0 | 0 | 0 | 0 |
| ( 9) ENERGY, FUELS \& RISK MGMT. | 3,825 | 3,825 | 0 | 0 | 0 | 0 |
| (10) GENERATION DEVELOPMENT | 0 | 0 | 0 | 0 | 0 | 0 |
| (11) TOTAL PRODUCTION OPER. \& MAINT. | 98,296 | 96,124 | 0 | 0 | 0 | 2,172 |
| CUSTOMER OPERATIONS: |  |  |  |  |  |  |
| (12) TRANSMISSION \& DISTRIBUTION | 51,377 | 0 | 16,133 | 34,869 | 0 | 375 |
| CUST. SERV. / MARKETING \& SALES: |  |  |  |  |  |  |
| (13) Qty. Ass., Comm., Call Ctr. \& Rev. Ops. | 32,459 | 0 | 0 | 374 | 32,085 | 0 |

OTHER OPERATING
CORPORATE GROUPS:

| (14) EXECUTIVE MANAGEMENT | 1,254 | 451 | 138 | 326 | 339 | 0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (15) CORP. SECRETARY \& LEGAL SERVICES | 8,485 | 3,055 | 933 | 2,206 | 2,291 | 0 |
| (16) EXTERNAL RELATIONS \& ENVIRONMENT | 2,211 | 796 | 243 | 575 | 597 | 0 |
| (17) REGULATORY AFFAIRS | 5,859 | 2,109 | 645 | 1,523 | 1,582 | 0 |
| (18) FINANCE GROUP | 5,959 | 2,145 | 656 | 1,549 | 1,609 | 0 |
| (19) ENTERPRISE SERVICES | 19,475 | 5,063 | 5,258 | 7,011 | 2,142 | 0 |
| (20) HUMAN RESOURCES | 5,216 | 1,408 | 1,878 | 574 | 1,356 | 0 |
| (21) TECHNICAL \& CONSTRUCTION SERVICES | 13,524 | 0 | 0 | 13,524 | 0 | 0 |
| (22) SUSTAINABILITY | 1,974 | 1,974 | 0 | 0 | 0 | 0 |
| (23) SUB-TOTAL | 63,958 | 17,003 | 9,751 | 27,289 | 9,916 | 0 |
| (24) OTHER EXPENSES | 2,378 | 856 | 262 | 618 | 642 | 0 |
| (25) DIRECT ADMIN. \& GEN. EXPENSE | 0 | (485) | (148) | (350) | (364) | 1,347 |
| (26) TOTAL OM\&G EXPENSES | 248,468 | 113,497 | 25,997 | 62,799 | 42,279 | 3,894 |
| (27) COGS (NET OF SALES) | (620) | 0 | 0 | 0 | (620) | 0 |
| (28) DSM AMORTIZATION | 0 | 0 | 0 | 0 | , | 0 |
| (29) GRANTS IN LIEU OF TAXES | 36,400 | 24,905 | 4,544 | 6,951 | 0 | 0 |
| DEPRECIATION: |  |  |  |  |  |  |
| (30) STEAM | 58,243 | 58,243 | 0 | 0 | 0 | 0 |
| (31) HYDRO | 9,539 | 8,823 | 0 | 0 | 0 | 716 |
| (32) WIND | 8,223 | 8,223 | 0 | 0 | 0 | 0 |
| (33) LM6000 | 2,001 | 2,001 | 0 | 0 | 0 | 0 |
| (34) OTHER GAS TURBINE | 1,197 | 1,197 | 0 | 0 | 0 | 0 |
| (35) TRANSMISSION < 138kV | 4,428 | 0 | 4,428 | 0 | 0 | 0 |
| (36) TRANSMISSION > 69kV | 14,497 | 0 | 14,497 | 0 | 0 | 0 |
| (37) DISTRIBUTION - Non Streetlight Related | 44,551 | 0 | 0 | 44,551 | 0 | 0 |
| (38) DISTRIBUTION - Streetlight Related | 2,872 | 0 | 0 | 2,189 | 0 | 683 |
| (39) GENERAL PROPERTY | 32,443 | 22,198 | 4,050 | 6,196 | 0 | 0 |
| (40) INTEREST NET | 121,500 | 81,622 | 14,288 | 23,712 | 0 | 1,878 |
| (41) PREFERRED DIVIDENDS | 8,000 | 5,446 | 953 | 1,582 | 0 | 19 |
| (42) CORPORATE TAXES | 40,700 | 27,821 | 4,870 | 8,082 | 0 | (73) |
| (43) TOTAL EXPENSES | \$1,206,323 | \$911,291 | \$73,628 | \$156,062 | \$41,659 | \$23,683 |
| (44) NON-OPERATING REVENUE: |  |  |  |  |  |  |
| (45) EXPORT SALES | (961) | (961) | 0 | 0 | 0 | 0 |
| (46) LATE PAYMENT CHARGE | $(4,933)$ | 0 | 0 | 0 | $(4,933)$ | 0 |
| (47) MISC. ELECTRIC | $(1,758)$ | 0 | 0 | 0 | $(1,758)$ | 0 |
| (48) OTHER REVENUE | $(7,098)$ | $(5,469)$ | (442) | (937) | (250) | 0 |
| (49) NET INCOME | 130,457 | 85,542 | 15,078 | 25,022 | 0 | 4,814 |
| (50) TOTAL NET EXPENSES | \$1,322,031 | \$990,403 | \$88,264 | \$180,148 | \$34,719 | \$28,497 |

NOVA SCOTIA POWER INC.

## FUNCTIONALIZATION OF OPERATING EXPENSES

FOR THE YEAR ENDING DECEMBER 31, 2012 (IN THOUSANDS OF DOLLARS)
( ThOUSANDS OF

(3) TOTAL

## POWER PRODUCTION

(4) THERMAL OPERATING \& MAINT.
(5) HYDRO OPERATING \& MAINT.
(6) WIND - OPERATING \& MAINT.
(6) LM6000 OPERATING \& MAINT.
(7) COMBUSTION TURBINE - OPER. \& MAINT.
( 8) FUEL PROCUREMENT
(9) GENERATION DEVELOPMENT
TOTAL
TOTAL POWER PRODUCTION
SUSTAINABILITY

CORPORATE GROUPS
EXECUTIVE MANAGEMENT
CORP. SECRETARY
LEGAL SERVICES
EXTERNAL RELATIONS

| \$475,459 | \$458,893 | \$0 | \$0 | \$0 | \$16,566 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 52,232 | 52,232 | 0 | 0 | 0 | 0 |
| 46,190 | 46,190 | 0 | 0 | 0 | 0 |
| 573,882 | 557,315 | 0 | 0 | 0 | 16,566 |
| 82,693 | 82,007 | 0 | 0 | 0 | 686 |
| 5,215 | 3,729 | 0 | 0 | 0 | 1,486 |
| 5,244 | 5,244 | 0 | 0 | 0 | 0 |
| 397 | 397 | 0 | 0 | 0 | 0 |
| 921 | 921 | 0 | 0 | 0 | 0 |
| 3,825 | 3,825 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 98,296 | 96,124 | 0 | 0 | 0 | 2,172 |
| 1,974 | 1,974 | 0 | 0 | 0 | 0 |
| 1,254 | 451 | 138 | 326 | 339 | 0 |
| 7,414 | 2,669 | 816 | 1,928 | 2,002 | 0 |
| 1,071 | 386 | 118 | 278 | 289 | 0 |
| 2,211 | 796 | 243 | 575 | 597 | 0 |
| $\underline{0}$ | 0 | 0 | $\underline{0}$ | 0 | $\underline{0}$ |
| 11,950 | 4,302 | 1,315 | 3,107 | 3,227 | 0 |

CUSTOMER OPERATIONS
TRANSMISSION \& DISTRIBUTION:
TRANSMISSION:
$<138 \mathrm{kV}$
$>69 \mathrm{kV}$

| 3,863 | 0 | 3,863 | 0 | 0 | 0 |
| ---: | ---: | ---: | ---: | ---: | ---: |
| 12,645 | 0 | 12,270 | 0 | 0 | 375 |
|  |  |  |  |  |  |
| 1,307 | 0 | 0 | 1,307 | 0 | 0 |
| 24,067 | 0 | 0 | 24,067 | 0 | 0 |
| 1,116 | 0 | 0 | 1,116 | 0 | 0 |
| 870 | 0 | 0 | 870 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 |
| 3,841 | 0 | 0 | 3,841 | 0 | 0 |
| 3,668 | 0 | 0 | 3,668 | 0 | 0 |
| 34,869 | 0 | 0 | 34,869 | 0 | 0 |
|  |  |  |  |  |  |
| 51,377 | 0 | 16,133 | 34,869 | 0 | 375 |
| 13,524 | 0 |  | 13,524 | 0 | 0 |

CUST. SERV. I MARKETING \& SALES
ADMINISTRATION:
CUSTOMER SERVICE - ADMIN.
ENERGY EFFICIENCY
CUST. COMM. \& QTY ASSURANCE
CUSTOMER SOLUTIONS
CALL CENTRE:
(a) CALL CENTRE - CSR's
(b) CALL CENTRE OPERATIONS
(c) CALL CENTRE - HALIFAX
(d) CALL NETWORK (COLLECTIONS)
(e) ELECTRICAL WIRING INSPECTION
REVENUE OPERATIONS:
(a) BILLING SERVICES
(b) METER DATA SERVICES
(c) METER SERVICES - METER SHOP
(d) METER SERVICES - FIELD
(e) ELECTRICAL WIRING INSPECTION - FIELD
(f) PAYMENT SERVICES
(g) CREDIT SERVICES
(h) BAD DEBT EXPENSE
(i) MARKETING \& SALES
(j) ELECTRICAL WIRING INSPECTION - H/O

$\underset{\sim}{\omega} 0000000 \stackrel{\omega}{\perp} 00000000000$

| 1,259 | 0 |
| ---: | ---: |
| 420 | 0 |
| 1,468 | 0 |
| 477 | 0 |
| 5,948 | 0 |
| 0 | 0 |
| 0 | 0 |
| 596 | 0 |
| 3,953 | 0 |
|  |  |
| 3,541 | 0 |
| 610 | 0 |
| 0 | 0 |
| 5,965 | 0 |
| 2,376 | 0 |
| 475 | 0 |
| 0 | 0 |
| 3,504 | 0 |
| 1,275 | 0 |
| 219 | 0 |
| 32,085 | 0 |

NOVA SCOTIA POWER INC.
FUNCTIONALIZATION OF OPERATING EXPENSES FOR THE YEAR ENDING DECEMBER 31, 2012 (IN THOUSANDS OF DOLLARS)

| REGULATORY AFFAIRS | \$5,859 | \$2,109 | \$645 | \$1,523 | \$1,582 | \$0 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| FINANCE GROUP |  |  |  |  |  |  |
| INTERNAL AUDIT | 1,451 | 522 | 160 | 377 | 392 | 0 |
| INVESTOR RELATIONS | 275 | 99 | 30 | 72 | 74 | 0 |
| DIRECTOR FINANCE | 508 | 183 | 56 | 132 | 137 | 0 |
| TREASURER | 1,010 | 364 | 111 | 263 | 273 | 0 |
| CORPORATE TAX | 463 | 167 | 51 | 120 | 125 | 0 |
| GM FINANCE | 0 | 0 | 0 | 0 | 0 | 0 |
| CORPORATE CONTROLLER | 2,252 | 811 | 248 | 586 | 608 | 0 |
| CORP. PERFORMANCE \& BACK OFFICE | 0 | 0 | 0 | 0 | 0 | 0 |
| total finance | 5,959 | 2,145 | 656 | 1,549 | 1,609 | 0 |
| ENTERPRISE SERVICES |  |  |  |  |  |  |
| PROCUREMENT \& FACILITIES | 8,965 | 2,331 | 2,420 | 3,227 | 986 | 0 |
| INFORMATION TECHNOLOGY | 10,510 | 2,733 | 2,838 | 3,784 | 1,156 | 0 |
| TOTAL ENTERPRISE SERVICES | 19,475 | 5,063 | 5,258 | 7,011 | 2,142 | 0 |
| HUMAN RESOURCES |  |  |  |  |  |  |
| --HUMAN RESOURCES | 5,216 | 1,408 | 1,878 | 574 | 1,356 | 0 |
| OTHER EXPENSES | 2,378 | 856 | 262 | 618 | 642 | 0 |
| DIRECT ADM. \& GEN. EXPENSE | 0 | (485) | (148) | (350) | (364) | 1,347 |
| TOTAL DIVISIONAL EXPENSES | 248,468 | 113,497 | 25,997 | 62,799 | 42,279 | 3,894 |
| COGS (NET OF RETAIL SALES) | (620) | 0 | 0 | 0 | (620) | 0 |
| DSM EXPENSES | 0 | 0 | 0 | 0 | 0 | 0 |
| OTHER EXPENSES | 0 | 0 | 0 | 0 | 0 | 0 |
| CAPITAL RELATED EXPENSES |  |  |  |  |  |  |
| GRANTS IN LIEU OF TAXES | 36,400 | 24,905 | 4,544 | 6,951 | 0 | 0 |
| DEPRECIATION: |  |  |  |  |  |  |
| STEAM | 58,243 | 58,243 | 0 | 0 | 0 | 0 |
| HYDRO | 9,539 | 8,823 | 0 | 0 | 0 | 716 |
| WIND | 8,223 | 8,223 | 0 | 0 | 0 | 0 |
| LM6000 | 2,001 | 2,001 | 0 | 0 | 0 | 0 |
| GAS TURBINE - OTHER | 1,197 | 1,197 | 0 | 0 | 0 | 0 |
| TRANSMISSION < 138kV | 4,428 | 0 | 4,428 | 0 | 0 | 0 |
| TRANSMISSION > 69kV | 14,497 | 0 | 14,497 | 0 | 0 | 0 |
| DISTRIBUTION - Non Streetlight Related | 44,551 | 0 | 0 | 44,551 | 0 | 0 |
| DISTRIBUTION - Streetlight Related | 2,872 | 0 | 0 | 2,189 | 0 | 683 |
| GENERAL PROPERTY | 32,443 | 22,198 | 4,050 | 6,196 | 0 | 0 |
| GLACE BAY WRITE-OFF | 0 | 0 | 0 | 0 | 0 | 0 |
| INTEREST NET | 121,500 | 81,622 | 14,288 | 23,712 | 0 | 1,878 |
| PREFERRED DIVIDENDS | 8,000 | 5,446 | 953 | 1,582 | 0 | 19 |
| CORPORATE TAXES | 40,700 | 27,821 | 4,870 | 8,082 | 0 | (73) |
| TOTAL OPERATING EXPENSES | 1,206,323 | 911,291 | 73,628 | 156,062 | 41,659 | 23,683 |
| NON-OPERATING REVENUE: |  |  |  |  |  |  |
| GREEN POWER SURCHARGE | 0 | 0 | 0 | 0 | 0 | 0 |
| EXPORT SALES | (961) | (961) | 0 | 0 | 0 | 0 |
| LATE PAYMENT CHARGE | $(4,933)$ | 0 | 0 | 0 | $(4,933)$ | 0 |
| MISC. ELECTRIC | $(1,758)$ | 0 | 0 | 0 | $(1,758)$ | 0 |
| OTHER REVENUE | $(7,098)$ | $(5,469)$ | (442) | (937) | (250) | 0 |
| PROFIT/LOSS | 130,457 | 85,542 | 15,078 | 25,022 | $\underline{0}$ | 4,814 |
| TOTAL NET EXPENSES | \$1,322,031 | \$990,403 | \$88,264 | \$180,148 | \$34,719 | \$28,497 |

EXHIBIT 5
Page 1 of 3

## CLASSIFICATION OF OPERATING EXPENSES

FOR THE YEAR ENDING DECEMBER 31, 2012 (IN THOUSANDS OF DOLLARS)
(1)
TOTAL
COMPANY
(2)
DEMAND
EXPENSES

| (3) | (4) |
| :---: | :---: |
| ENERGY | CUSTOMER |
| EXPENSES | EXPENSES |

GENERATION FUNCTION

| ( 1) FUEL | $\$ 458,893$ | $\$ 0$ | $\$ 458,893$ | $\$ 0$ |
| :--- | ---: | ---: | ---: | ---: |
| ( 2) PURCHASED PWR REG - FIXED | 23,505 | 7,428 | 16,076 | 0 |
| ( 3) PURCHASED PWR REG - VAR. | 28,728 | 0 | 28,728 | 0 |
| ( 4) PURCHASED PWR WIND - FIXED | 13,857 | 4,157 | 9,700 | 0 |
| ( 5) PURCHASED PWR WIND - VAR. | 32,333 | 0 | 32,333 | 0 |
| ( 6) OPER. \& MAINT. - STEAM | 100,842 | 26,770 | 74,072 | 0 |
| ( 7) OPER. \& MAINT. - HYDRO | 11,034 | 2,929 | 8,105 | 0 |
| ( 8) OPER. \& MAINT. - LM6000 | 489 | 130 | 359 | 0 |
| (9) OPER. \& MAINT. - OTHER CT's | 1,133 | 951 | 181 | 0 |
| (10) DSM AMORTIZATION | 0 | 0 | 0 | 0 |
| (11) GRANTS IN LIEU OF TAXES | 24,905 | 7,871 | 17,034 | 0 |
| DEPRECIATION: |  |  |  | 0 |
| (12) STEAM | 58,243 | 18,695 | 39,548 | 0 |
| (13) HYDRO | 8,823 | 3,328 | 5,495 | 0 |
| (14) WIND | 8,223 | 1,323 | 6,900 | 0 |
| (15) LM6000 | 2,001 | 769 | 1,232 | 0 |
| (16) GAS TURBINE - OTHER | 1,197 | 1,197 | 0 | 0 |
| (17) GENERAL PROPERTY | 22,198 | 7,015 | 15,182 | 0 |
| (18) INTEREST NET OF AFUDC | 81,622 | 24,000 | 57,622 | 0 |
| (19) PREFERRED DIVIDENDS | 5,446 | 1,601 | 3,844 | 0 |
| (20) CORPORATE TAXES | 27,821 | 8,181 | 19,640 | 0 |
| NON-OPERATING REVENUE: |  |  |  | 0 |
| (21) EXPORT SALES | $(961)$ | 0 | $(961)$ | 0 |
| (22) OTHER REVENUE | $(5,469)$ | $(698)$ | $(4,771)$ | 0 |
| (23) RETURN (PROFIT/LOSS) | 85,542 | 25,153 | 60,389 | 0 |
| (24) TOTAL GENERATION |  |  |  | 0 |
|  | 990,403 | 140,800 | 849,602 | 0 |
| TRANSMISSION FUNCTION | 990,403 |  |  | 0 |

Transmission < 138kV:

| (25) O\&M < 138kV | 6,225 | 2,393 | 3,832 | 0 |
| :--- | :---: | ---: | ---: | ---: |
| (26) GRANTS IN LIEU OF TAXES | 1,064 | 409 | 655 | 0 |
| DEPRECIATION: | 4,428 | 1,702 | 2,726 | 0 |
| (27) TRANSMISSION | 948 | 364 | 583 | 0 |
| (28) GENERAL PROPERTY | 3,346 | 1,286 | 2,060 | 0 |
| (29) INTEREST NET OF AFUDC | 223 | 86 | 137 | 0 |
| (30) PREFERRED DIVIDENDS | 1,140 | 438 | 702 | 0 |
| (31) CORPORATE TAXES |  |  |  | 0 |
| NON-OPERATING REVENUE: | 3,531 | 1,357 | $(64)$ | 0 |
| (32) OTHER REVENUE | 2,173 | 0 |  |  |
| (33) RETURN (PROFIT/LOSS) | $\mathbf{2 0 , 8 0 1}$ | $\mathbf{7 , 9 9 6}$ | $\mathbf{1 2 , 8 0 5}$ | $\mathbf{0}$ |
| (34) TOTAL < 138kV |  |  |  | 0 |

EXHIBIT 5
Page 2 of 3
NOVA SCOTIA POWER INC.
CLASSIFICATION OF OPERATING EXPENSES
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

| (1) | (2) | (3) | (4) |
| :---: | :---: | :---: | :---: |
| TOTAL | DEMAND | ENERGY | CUSTOMER |
| COMPANY | EXPENSES | EXPENSES | EXPENSES |

Transmission $>69 \mathrm{kV}$ :

| ( 1) O\&M > 69kV | 19,773 | 7,601 | 12,172 | 0 |
| :--- | ---: | ---: | ---: | ---: |
| ( 2) GRANTS IN LIEU OF TAXES | 3,480 | 1,338 | 2,142 | 0 |
| DEPRECIATION: |  |  |  |  |
| ( 3) TRANSMISSION | 14,497 | 5,573 | 8,924 | 0 |
| ( 4) GENERAL PROPERTY | 3,102 | 1,192 | 1,910 | 0 |
| ( 5) INTEREST NET OF AFUDC | 10,943 | 4,206 | 6,736 | 0 |
| ( 6) PREFERRED DIVIDENDS | 730 | 281 | 449 | 0 |
| ( 7) CORPORATE TAXES | 3,730 | 1,434 | 2,296 | 0 |
| NON-OPERATING REVENUE: | $(338)$ | $(130)$ | $(208)$ | 0 |
| ( 8) OTHER REVENUE | 11,548 | 4,439 | 7,109 | 0 |
| (9) RETURN (PROFIT/LOSS) | $\mathbf{6 7 , 4 6 3}$ | $\mathbf{2 5 , 9 3 3}$ | $\mathbf{4 1 , 5 3 0}$ | $\mathbf{0}$ |
| (10) TOTAL > 69kV |  |  |  | $\mathbf{0}$ |
|  | $\mathbf{\$ 8 8 , 2 6 4}$ | $\mathbf{\$ 3 3 , 9 2 9}$ | $\mathbf{\$ 5 4 , 3 3 6}$ | $\mathbf{\$ 0}$ |

NOVA SCOTIA POWER INC.

## CLASSIFICATION OF OPERATING EXPENSES

FOR THE YEAR ENDING DECEMBER 31, 2012 (IN THOUSANDS OF DOLLARS)

| (1) | (2) | (3) | (4) |
| :---: | :---: | :---: | :---: |
| TOTAL | DEMAND | ENERGY | CUSTOMER |
| COMPANY | EXPENSES | EXPENSES | EXPENSES |

DISTRIBUTION FUNCTION
BEFORE STREETLIGHTS

| ( 1) SUBSTATIONS | \$2,329 | \$2,329 | \$0 | \$0 |
| :---: | :---: | :---: | :---: | :---: |
| ( 2) OVERHEAD LINES | 42,885 | 27,875 | 0 | 15,010 |
| ( 3) UNDERGROUND LINES | 1,989 | 1,293 | 0 | 696 |
| ( 4) LINE TRANSFORMERS | 1,550 | 1,550 | 0 | 0 |
| ( 5) METERS | 667 | 0 | 0 | 667 |
| ( 6) COMMUNICATIONS | 6,845 | 6,845 | 0 | 0 |
| ( 7) GRANTS IN LIEU OF TAXES | 6,738 | 4,363 | 0 | 2,375 |
| DEPRECIATION: |  |  |  |  |
| ( 8) DISTRIBUTION | 44,551 | 30,058 | 0 | 14,492 |
| ( 9) GENERAL PROPERTY | 6,196 | 4,180 | 0 | 2,015 |
| (10) INTEREST NET OF AFUDC | 22,984 | 14,883 | 0 | 8,101 |
| (11) PREFERRED DIVIDENDS | 1,533 | 993 | 0 | 540 |
| (12) CORPORATE TAXES | 7,834 | 5,073 | 0 | 2,761 |
| (13) RETURN (PROFIT/LOSS) | 24,255 | 15,706 | 0 | 8,549 |
| STREETLIGHTS non-LED |  |  |  |  |
| (14) MAINTENACE | 6,536 | 6,536 | 0 | 0 |
| (15) GRANTS IN LIEU OF TAXES | 213 | 213 | 0 | 0 |
| (16) DEPRECIATION | 2,189 | 2,189 | 0 | 0 |
| (17) INTEREST NET OF AFUDC | 728 | 728 | 0 | 0 |
| (18) PREFERRED DIVIDENDS | 49 | 49 | 0 | 0 |
| (19) CORPORATE TAXES | 248 | 248 | 0 | 0 |
| (20) RETURN (PROFIT/LOSS) | 768 | 768 | 0 | 0 |
| Subtotal | 10,730 | 10,730 | 0 | 0 |
| (21) OTHER REVENUE | (937) | (657) | 0 | (280) |
| (22) TOTAL DISTRIBUTION | 180,148 | 125,222 | 0 | 54,926 |

RETAIL FUNCTION

| (23) QTY. ASSURANCE. \& COMM. | 4,917 | 0 | 0 | 4,917 |
| :---: | :---: | :---: | :---: | :---: |
| (24) CALL CENTRE | 14,241 | 0 | 0 | 14,241 |
| (25) BILLING SERVICES | 4,804 | 0 | 0 | 4,804 |
| (26) ELECT. WIRING INSPECT. - H/O | 297 | 0 | 0 | 297 |
| (27) METER DATA SERVICES | 827 | 0 | 0 | 827 |
| (28) METER READING - FIELD | 8,092 | 0 | 0 | 8,092 |
| (29) ELECT. WIRING INSPECT. - FIELD | 3,224 | 0 | 0 | 3,224 |
| (30) PAYMENT SERVICES | 644 | 0 | 0 | 644 |
| (31) CREDIT SERVICES | 0 | 0 | 0 | 0 |
| (32) BAD DEBT EXPENSE | 3,504 | 0 | 0 | 3,504 |
| (33) MARKETING \& SALES | 1,730 | 0 | 0 | 1,730 |
| (34) COGS (NET OF RETAIL SALES) | (620) | 0 | 0 | (620) |
| (35) GRANTS IN LIEU OF TAXES | 0 | 0 | 0 | 0 |
| (36) DEPRECIATION: |  |  |  |  |
| (37) DISTRIBUTION | 0 | 0 | 0 | 0 |
| (38) GENERAL PROPERTY | 0 | 0 | 0 | 0 |
| (39) INTEREST NET OF AFUDC | 0 | 0 | 0 | 0 |
| (40) PREFERRED DIVIDENDS | 0 | 0 | 0 | 0 |
| (41) CORPORATE TAXES | 0 | 0 | 0 | 0 |
| NON-OPERATING REVENUE: |  |  |  |  |
| (42) LATE PAYMENT CHARGE | $(4,933)$ | 0 | 0 | $(4,933)$ |
| (43) MISC. ELECTRIC | $(1,758)$ | 0 | 0 | $(1,758)$ |
| (44) OTHER REVENUE | (250) | 0 | 0 | (250) |
| (45) RETURN (PROFIT/LOSS) | 0 | 0 | 0 | 0 |
| (46) TOTAL RETAIL | 34,719 | 0 | 0 | 34,719 |
| (47) TOTAL NET EXPENSES | \$1,293,534 | \$299,951 | \$903,938 | \$89,645 |

ALLOCATION OF OPERATING EXPENSES
FOR THE YAR ENDING DECEMBER B1, 2012
(IN THOUSANDS OF DOLLARS)
（4）

（2）
DOMESTIC
（1）
TOTAL
COMPANY

$\begin{array}{cc}(10) & (11) \\ \text { UNICIPAL } & \text { UNMETERED }\end{array}$

ฮ
（L）（9）
$\begin{array}{ccc}\text { GENERAL } & \begin{array}{c}\text { SMALL } \\ \text { LARGE }\end{array} & \begin{array}{c}\text { MEDIUM } \\ \text { INDUSTRIAL }\end{array} \\ \text { INDUSTRIAL }\end{array}$






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## dEmAnd CLASSIFICATION

|  | (1) TOTAL COMPANY | (2) <br> DOMESTIC | (3) <br> SMALL GENERAL | (4) GENERAL | (5) GENERAL LARGE | (6) <br> SMALL INDUSTRIAL | (7) <br> MEDIUM INDUSTRIAL | (8) <br> LARGE INDUSTRIAL | (9) <br> ELI 2P-RTP | (9) MUNICIPAL | (10) UNMETERED | $\begin{gathered} \text { (11) } \\ \text { ALLOCATION } \\ \text { FACTOR } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Transmission $>69 \mathrm{kV}$ |  |  |  |  |  |  |  |  |  |  |  |  |
| ( 1) OPERATING \& MAINT. | 7,601 | 3,999 | 177 | 1,564 | 185 | 122 | 239 | 368 | 720 | 143 | 83 | D-3A |
| ( 2) GRANTS IN LIEU | 1,338 | 704 | 31 | 275 | 33 | 22 | 42 | 65 | 127 | 25 | 15 | P-8B |
| ( 3) DEPRECIATION | 6,765 | 3,559 | 158 | 1,392 | 165 | 109 | 212 | 328 | 641 | 127 | 74 | EXH 6D |
| ( 4) INTEREST NET OF AFUDC | 4,206 | 2,213 | 98 | 866 | 102 | 68 | 132 | 204 | 399 | 79 | 46 | P-15B |
| ( 5) PREFERRED DIVIDENDS | 281 | 148 | 7 | 58 | 7 | 5 | 9 | 14 | 27 | 5 | 3 | P-15B |
| ( 6) CORPORATE TAXES | 1,434 | 754 | 33 | 295 | 35 | 23 | 45 | 69 | 136 | 27 | 16 | P-15B |
| NON-OPERATING REVENUE: |  |  |  |  |  |  |  |  |  |  |  |  |
| ( 8) OTHER REVENUE | (130) | (68) | (3) | (27) | (3) | (2) | (4) | (6) | (12) | (2) | (1) | O-9B |
| ( 9) RETURN (PROFIT/LOSS) | 4,439 | $\underline{2,335}$ | 103 | $\underline{914}$ | 108 | 71 | 139 | $\underline{215}$ | 421 | 83 | 48 | P-15B |
| (10) TOTAL $>69 \mathrm{kV}$ | 25,933 | 13,644 | 605 | 5,337 | 631 | 417 | 814 | 1,257 | 2,458 | 487 | 283 |  |
| (11) TOTAL TRANSMISSION | 33,929 | 18,291 | 810 | 7,155 | 846 | 560 | 1,091 | 1,685 | 2,458 | 653 | 379 |  |
| DISTRIBUTION |  |  |  |  |  |  |  |  |  |  |  |  |
| Non SL |  |  |  |  |  |  |  |  |  |  |  |  |
| (12) OPERATING \& MAINT. | 39,892 | 24,611 | 1,044 | 10,363 | 983 | 1,059 | 1,236 | 33 | 4 | 2 | 556 | EXH 6A |
| (13) GRANTS IN LIEU | 4,363 | 2,764 | 117 | 1,146 | 67 | 116 | 85 | 5 | 1 | 0 | 62 | P-9 |
| (14) DEPRECIATION | 34,238 | 21,691 | 920 | 8,997 | 524 | 907 | 666 | 37 | 4 | 3 | 490 | EXH 6D |
| (15) INTEREST NET OF AFUDC | 14,883 | 9,353 | 397 | 3,882 | 232 | 392 | 295 | 16 | 2 | 1 | 315 | P-16 |
| (16) PREFERRED DIVIDENDS | 993 | 624 | 26 | 259 | 15 | 26 | 20 | 1 | 0 | 0 | 21 | P-16 |
| (17) CORPORATE TAXES | 5,073 | 3,188 | 135 | 1,323 | 79 | 134 | 100 | 5 | 1 | 0 | 107 | P-16 |
| NON-OPERATING REVENUE: |  |  |  |  |  |  |  |  |  |  |  |  |
| (18) OTHER REVENUE | (657) | (373) | (16) | (156) | (11) | (16) | (14) | (1) | (0) | (0) | (69) | O-10 |
| (19) RETURN (PROFIT/LOSS) | 15,706 | 9,870 | 418 | 4,096 | 245 | 413 | 311 | 17 | , | 1 | 332 | P-16 |
| SL |  |  |  |  |  |  |  |  |  |  |  |  |
| non-LED |  |  |  |  |  |  |  |  |  |  |  |  |
| (20) OPERATING \& MAINT. | 6,536 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,536 | EXH 6A |
| (21) GRANTS IN LIEU OF TAXES | 213 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 213 | P-9A |
| (22) Depreciation | 2,189 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,189 | EXH 6D |
| (23) INTEREST NET OF AFUDC | 728 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 728 | P-16B |
| (23) PREFERRED DIVIDENDS | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | P-16B |
| (25) CORPORATE TAXES | 248 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 248 | P-16B |
| (26) OTHER REVENUE |  |  |  |  |  |  |  |  |  |  |  |  |
| (27) RETURN (PROFIT/LOSS) | 768 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 768 | P-16B |
| Subtotal | 10,730 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,730 |  |
| (28) TOTAL DISTRIBUTION | 125,222 | 71,727 | 3,041 | 29,910 | 2,135 | 3,030 | 2,698 | 113 | 13 | 8 | 12,546 |  |
| (29) TOTAL DEMAND | \$299,951 | \$176,046 | \$7,664 | \$70,719 | \$6,962 | \$6,222 | \$8,922 | \$4,429 | \$545 | \$3,735 | \$14,708 |  |



|  | 2z6＇8 |  | 800＇6ZT | 270 ＇89 | 8t8＇LE | ع68＇6โ | โ\＆\＆＇62 | \＆ャ8＇88T | 0z8＇9т | T¢6＇98\％ | 209＇6¢8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| LT－d | 9¢9 | $\overline{820}{ }^{\text {＇}}$ | ［6T＇6 | て¢8＇t | ¢69＇z | $\overline{\text { İ8＇T }}$ | $880^{\circ} \mathrm{Z}$ | Фても＇をโ | D6T＇T | L68＇£乙 | 688＇09 |
| tr－o | （os） | （ t ） | （bてL） | （288） | （zさz） | （60t） | （99t） | （090＇$\tau$ ） | （t6） | （268＇$)^{\text {）}}$ | （ $\tau$ LL＇t） |
| $\angle \mathrm{HXB}$ | （0т） | （9T） | （9ヶT） | （LL） | （ $¢$ ） | （zz） | （ $\varepsilon$ ） | （tız） | （6T） | （088） | （996） |
| LT－d | $\angle 02$ | เะ | 066＇z | 8LS＇t | L28 | 6 t | 629 | 998＇$\downarrow$ | $88 \varepsilon$ | ZLL＇L | 0ヶ9＇6t |
| LT－d | $0{ }_{0}$ | s9 | 589 | $60 \varepsilon$ | ZLT | 88 | غє์ | ¢98 | 92 | Izs＇t | tt8＇$\varepsilon$ |
| LT－d | 209 | 186 | عLL＇8 | 0¢9＇ヵ | 2LS＇z | くモ＇т | 266＇$\tau$ | 608＇てT | 68 T ＇ | to8＇zz | てz9＇くs |
| व9 нхヨ | 022 | เ9T＇土 | LOt＇OT | 26t＇s | Tso＇$\varepsilon$ | ع99＇T | ャ98＇乙 | s6t＇st | ธ¢ย＇ธ | oso＇lz | 898 ＇89 |
| ot－d | $62 \tau$ | 062 | ع6s＇z | 698 ＇г | 092 | 688 | 689 | L8L＇$\varepsilon$ | ＜$¢$ | tャL＇9 | ャ®0＇LT |
| $\forall \tau-\exists$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\forall \tau-\exists$ | 2 | $\varepsilon$ | 82 | st | 8 |  | 9 | 0 | † | z2 | т8t |
| $\forall \tau-\exists$ | $\checkmark$ | 9 | ss | 62 | $9 \tau$ | 8 | てt | 08 |  | でT | 698 |
| $\forall \tau-\exists$ | 98 | $8 \varepsilon \tau$ | ャะて＇т | ts9 | 298 | $98 \tau$ | 082 | 208 ＇ | $09 \tau$ | Loて＇$\varepsilon$ | ¢0t＇8 |
| $\forall \tau-\exists$ | 082 | โ92＇ธ | Lてて＇tt | 2s6＇s | 908＇$\varepsilon$ | เ69＇т | t9s＇z | 99ヵ＇9t | ャ9t＇ธ | ธน¢＇6乙 | てLO＇tL |
| $\forall \tau-\exists$ | 0 ¢ | tss |  | 869＇z | \＆切t | $6 \varepsilon 2$ | 8 t ＇T | ＜8t＇L | 689 | ャ6L＇zt | عєє＇z६ |
| $\forall \tau-\exists$ | 20т | ¢9โ |  | 6 6L | ع¢t | ¿ఒ乙 | ¢ $\varepsilon \varepsilon$ | 9St＇z | 26T | 888 ＇$\varepsilon$ | 00＜＇6 |
| $\forall \tau-\exists$ | عо६ | 68 t | ャடと＇ャ | 808＇z | 282＇โ | L99 | $\varepsilon 66$ | $988 \cdot 9$ | 899 | 898＇tโ | 82L＇8z |
| $\forall \tau-\exists$ | $69 \tau$ | $\downarrow\llcorner$ ¢ | 8 加 2 | 262＇t | LTL | 898 | 9 gs | ¢LG＇$\varepsilon$ | 8 ¢ $\varepsilon$ | 298＇9 | 9＜0＇9¢ |
| เэョษด | L08＇t\＄ | Lz8＇L\＄ | LTS＇69\＄ | 859＇98\＄ | 088＇02\＄ | 095＇0T\＄ | โz8＇st\＄ | т66＇тот\＄ | 960＇6\＄ | 8ヶ\＆＇z8T\＄ |  |
| צO1כサ | वэษョเэพกก | TVdioinnw | dıy－dz $17 \pm$ | tulatsnani | 7tidisnani | tulatsnani | эจษヤา | 7ษฯヨกヨจ | тษฯヨกヨอ | गısョwod | iN甘dWOJ |
| NoILヲフOT7 <br> （zT） | $\text { ( } \tau \tau)$ | （от） | （6） | ョจะชา <br> （8） | $\underset{(L)}{\text { wกigew }}$ | 77＊Ws <br> （9） | าษฯヨาヨอ <br> （s） | （t） | า ษWs <br> （ ） | （z） | $7 \forall \perp 1$ $\text { ( } \tau$ |

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N
$\infty$
$\infty$

|  | 8Ts＇6s | $\overline{\text { stb＇sts }}$ | 9ृદ＇çts | $\overline{865 ' 2 L S}$ | StE＇0ts | 889＇029 | 68Z＇TEs | $\overline{\text { zet＇tozs }}$ | $\overline{686} \mathrm{CTS}$ | $\overline{\text { 298＇698s }}$ | $\overline{886}$＇ 066 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 969 | t96 | ยzદ＇9 | Tss＇$\downarrow$ | $82 \mathrm{~S}^{\prime} \mathrm{Z}$ | S6z＇T | 856 ＇ | 06s＇2T | 02T＇T | ェ⿰七ゅでて | $9 \varepsilon \varepsilon^{\prime} \downarrow \mathrm{ts}$ | NOISSIWSNYZ1 7 IOL（88） |
|  | L $¢$ | LOL | ยとદ＇9 | ＜ع＇$\varepsilon$ | ャ¢8＇โ | $00_{6}$ | $9 \varepsilon \downarrow^{\prime} \tau$ | гยて＇6 | นะ8 | ャ\＆t＇9t | oعs＇tr | $\wedge 469$＜ $7 \forall 101(\angle \varepsilon)$ |
| 98t－d <br> gてt－о | $\begin{gathered} \overline{\mathrm{G}} \\ (\mathrm{z}) \end{gathered}$ | $\begin{aligned} & \overline{\tau Z \tau} \\ & (t) \end{aligned}$ | $\begin{aligned} & 280^{\prime \prime \tau} \\ & (z \varepsilon) \end{aligned}$ | $\begin{gathered} \overline{\tau L S} \\ (\angle \tau) \end{gathered}$ | $\underset{(6)}{\stackrel{L \tau}{ }}$ | $\begin{aligned} & \overline{\varepsilon g T \tau} \\ & (\mathrm{~s}) \end{aligned}$ | $\overline{9+Z}$ | $\begin{aligned} & \overline{08 S^{\prime} \tau} \\ & \text { (9t) } \end{aligned}$ | $\begin{gathered} \overline{\tau \nabla \tau} \\ (\mathrm{t}) \end{gathered}$ | $\begin{aligned} & \overline{\varepsilon \tau 8 \varepsilon^{\prime} Z} \\ & (28) \end{aligned}$ | $\begin{aligned} & \overline{60 T ' L} \\ & (802) \end{aligned}$ | （SSOT／IIヨOyd）Nyกเヨy（9غ） ヨПNヨ＾ヨy yヨh <br>  |
| 98t－d | 七て | 68 |  | ¢8t | zот | zs | 62 | ots | st | 606 | 962 ＇乙 |  |
| 985－d | s | 8 | 89 | $9 \varepsilon$ | 02 | от | $9{ }^{9}$ | $00 \tau$ | 6 | $82 \tau$ | 6 tr |  |
| 98t－d | t2 | stt | 920 ＇t | tos | тов | tSt | عє乙 | 26t＇T | $\varepsilon \varepsilon \tau$ | $999 \%$ | 9عL＇9 |  |
| О9 HXヨ | ¢tI | ¢8T | $6 \mathrm{t9}$＇T | $0<8$ | ¢8 | 8 tz | ¢ $\llcorner\varepsilon$ | 80 ＇2 | ๖tて | L8て＇ゅ | เ¢8＇0т | NOILVIOヨyḋa（08） |
| gtt－d | $\varepsilon ะ$ | $9 \varepsilon$ | 9 9¢ | ZLT | 96 | $6{ }^{6}$ | $\dagger$ ¢ | 9 2 t | てt | 878 | でざて |  |
| $\forall \tau-\exists$ | $8 ટ \tau$ | $\stackrel{\text { LOZ }}{ }$ | £¢8＇โ | 826 | ¢ ¢¢ | $8 L 2$ | セで | 90く＇z | ¢ヵて | $\angle$ ¢8＇ஏ | てLT＇z |  |
|  | 6 ¢T | Lš | 0 | ャてZ＇т | ャ＜9 | ¢ヶ¢ | ZZ9 | 898＇$\varepsilon$ | 662 | $\angle<6 ' s$ | sos＇ż |  |
| ＊8t－d | $\overline{L 2}$ | 矿 | $\overline{0}$ | 902 | $\overline{\text { DTI }}$ | $\overline{69}$ | $\overline{68}$ | $\overline{0<9}$ | ¢¢ | ¢T0＇ | $\overline{\varepsilon L T ' z}$ |  |
| $\forall \tau \tau-0$ | （ $\tau$ | （ $)^{\text {a }}$ | 0 | （9） | （ $\varepsilon$ ） | （z） | （ $\varepsilon$ ） | （LT） | （ $\tau$ | （08） | （t9） | ヨกNヨニヨy yヨHคO（gz） <br>  |
| $\forall 8 \mathrm{~T}-\mathrm{d}$ | 6 | $\square \tau$ | 0 | $\angle 9$ | $\llcorner\varepsilon$ | $6 \tau$ | 62 | ¢8t | $9 \tau$ | 8 8 | 202 |  |
| $\forall 8 t-d$ | 2 | $\varepsilon$ | 0 | $\varepsilon \tau$ | $\llcorner$ | $\checkmark$ | 9 | $9 \varepsilon$ | $\varepsilon$ | ャ9 | L® |  |
| ＊8t－d | 92 | Tt | 0 | ¢6ヶ | $80 \pm$ | 9 g | ¢8 | 0ts | 8 | T96 | 090＇z | LヨN 1 Sヨy ilil（tz） |
| О9 H×ヨ | ¢ | 99 | 0 | ャธ¢ | $\dagger \angle \tau$ | 68 | ¢\＆์ | 898 | L | ¢tg＇t | $60 \varepsilon$＇$\varepsilon$ | NOILVIOヨyḋa（oz） |
| $\forall \tau T-d$ | 8 | $\varepsilon \tau$ | 0 | $z 9$ | 七¢ | 8 L | $\angle 2$ | ZLT | st | 908 | ¢99 | ก3ı7 NI SLNYy（6T） |
| gт－ョ | $8{ }^{\text {b }}$ | L | 0 | ع9¢ | 202 | عот | 9 St | 500＇T | 68 | $68 L^{\prime}$ T | 乙¢8＇દ |  |

CUST. CLASSIFICATION
NOVA SCOTIA POWER INC.
ALLOCATION OF OPERATING EXPENSES
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)
(4)

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(1)
TOTAL
compANY

|  | (1) TOTAL COMPANY | (2) <br> DOMESTIC | (3) SMALL GENERAL | (4) GENERAL | $\begin{gathered} \text { (5) } \\ \text { GENERAL } \end{gathered}$ LARGE | (6) SMALL INDUSTRIAL | (7) MEDIUM INDUSTRIAL | (8) LARGE INDUSTRIAL | (9) ELI 2P-RTP | (10) MUNICIPAL | (11) <br> UNMETERED | $\begin{aligned} & \text { (12) } \\ & \text { ALLOCATION } \\ & \text { FACTOR } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CUST. CLASSIFICATION |  |  |  |  |  |  |  |  |  |  |  |  |
| DISTRIBUTION |  |  |  |  |  |  |  |  |  |  |  |  |
| ( 1) OPERATING \& MAINT. | \$16,372 | \$14,789 | \$775 | \$415 | \$1 | \$84 | \$8 | \$2 | \$0 | \$0 | \$298 | EXH 6A |
| ( 2) GRANTS IN LIEU | 2,375 | 2,081 | 109 | 129 | 0 | 26 | 2 | 1 | 0 | 0 | 26 | P-12 |
| ( 3) DEPRECIATION | 16,508 | 14,463 | 758 | 898 | 1 | 184 | 16 | 5 | 0 | 0 | 181 | EXH 6D |
| (4) INTEREST NET OF AFUdC | 8,101 | 7,123 | 373 | 414 | 1 | 85 | 7 | 2 | 0 | 0 | 96 | P-19 |
| ( 5) PREFERRED DIVIDENDS | 540 | 475 | 25 | 28 | 0 | 6 | 0 | 0 | 0 | 0 | 6 | P-19 |
| ( 6) CORPORATE TAXES | 2,761 | 2,428 | 127 | 141 | 0 | 29 | 3 | 1 | 0 | 0 | 33 | P-19 |
| NON-OPERATING REVENUE: |  |  |  |  |  |  |  |  |  |  |  |  |
| ( 8) OTHER REVENUE | (280) | (248) | (13) | (12) | (0) | (2) | (0) | (0) | (0) | (0) | (4) | O-13 |
| ( 9) RETURN (PROFIT/LOSS) | 8.549 | 7,516 | 394 | 436 | 1 | 89 | 8 | $\underline{3}$ | $\bigcirc$ | 0 | 101 | P-19 |
| (10) TOTAL DISTRIBUTION | 54,926 | 48,627 | 2,550 | 2,449 | 4 | 501 | 44 | 14 | 1 | 1 | 736 |  |
| RETAIL |  |  |  |  |  |  |  |  |  |  |  |  |
| (11) METER READING \& ELECTRIC INSPEC* | 11,316 | 9,482 | 502 | 926 | 26 | 181 | 71 | 50 | 3 | 12 | 63 | EXH 6A |
| (12) CUST. SERV. - H/O | 4,917 | 4,437 | 240 | 118 | 0 | 23 | 2 | 0 | 0 | 0 | 96 | C-7 |
| (13) CALL CENTRE | 14,241 | 11,407 | 598 | 1,473 | 46 | 288 | 122 | 86 | 5 | 20 | 196 | C-3 |
| (14) BILLING SERVICES | 4,804 | 4,335 | 235 | 116 | 0 | 23 | 2 | 0 | 0 | 0 | 94 | C-3 |
| (15) ELECT. WIRING INSP. - H/O | 297 | 268 | 14 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | C-7 |
| (16) METER DATA SERVICES | 827 | 37 | 36 | 86 | 112 | 86 | 86 | 161 | 36 | 86 | 0 | --16 |
| (17) PAYMENT SERVICES | 644 | 581 | 31 | 16 | 0 | 3 | 0 | 0 | 0 | 0 | 13 | C-7 |
| (18) CREDIT SERVICES | 3,504 | 2,944 | 50 | 466 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | EXH 6C |
| (19) MARKETING \& SALES | 1,730 | 656 | 52 | 121 | 26 | 95 | 187 | 284 | 284 | 26 | 0 | O-15 |
| (20) COGS (NET OF SALES) | (620) | (560) | (30) | (15) | (0) | (3) | (0) | (0) | (0) | (0) | (12) | C-7 |
| (22) GRANTS IN LIEU | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | , | 0 | ) | N/A |
| (23) DEPRECIATION | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A |
| (24) INTEREST NET OF AFUDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A |
| (25) PREFERRED DIVIDENDS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A |
| (26) CORPORATE TAXES | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | N/A |
| NON-OPERATING REVENUE: |  |  |  |  |  |  |  |  |  |  |  |  |
| (28) LATE PAYMENT CHARGE | $(4,933)$ | $(3,825)$ | (117) | (852) | 0 | (66) | (57) | 0 | 0 | 0 | (16) | EXH 7 |
| (29) MISC. ELECTRIC | $(1,758)$ | $(1,631)$ | (99) | (11) | 0 | 0 | 0 | 0 | 0 | 0 | (15) | EXH 7 |
| (30) OTHER REVENUE | (250) | (199) | (10) | (20) | (2) | (5) | (3) | (4) | (4) | (1) | (3) | O-14 |
| (31) RETURN (PROFIT/LOSS) | - | $\bigcirc$ | - | - | ) | - | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | - | - | N/A |
| (32) TOTAL RETAIL | 34,719 | 27,931 | 1,503 | 2,430 | 209 | 671 | 410 | 577 | 425 | 143 | 420 |  |
| (33) TOTAL CUSTOMER | 89,645 | 76,558 | 4,052 | 4,878 | $\underline{213}$ | 1,172 | 453 | 592 | 425 | 144 | 1,157 |  |
| (34) TOTAL NET EXPENSES | \$1,293,534 | \$611,966 | \$29,655 | \$277,030 | \$38,463 | \$28,082 | \$49,721 | \$77,613 | \$136,297 | \$19,324 | \$25,382 |  |

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\left.\begin{array}{ccc}
0 & \circ & \circ \\
\hline & \circ \\
& & \\
0 & -1 & -1
\end{array} \right\rvert\,
$$

| DEMAND |
| :--- |
| （ 1）SUBSTATIONS |
| （ 2）OVERHEAD LINES |
| （ 3）UNDERGROUND LINES |
| （ 4）LINE TRANSFORMERS |
| （5）METERS |
| （ 6）COMMUNICATIONS |
| （7）STREET LIGHTING |
| （ 8）CUSTOMER SERVICE |
| （9）TOTAL DEMAND | CUSTOMER

（10）SUBSTATIONS
（10）SUBSTATIONS
（11）OVERHEAD LINES
68S＇$\varepsilon$ ！
0
$\begin{array}{lll}\downarrow 8 & \tau & \text { ST巿 } \\ \overline{0} & \overline{0} & \overline{0} \\ 0 & 0 & 0 \\ 0 & 0 & 0 \\ \tau \tau & 0 & 8 \downarrow \\ 0 & 0 & 0 \\ \varepsilon & 0 & 9 \tau \\ 69 & 0 & \tau \varsigma \varepsilon \\ 0 & 0 & 0\end{array}$
$\begin{array}{lllll}16,372 & 14,789 & 775 & 415 & 1\end{array}$
16，372 14，789 775

## 冨

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0
$$

$\begin{array}{rr}0 & 0 \\ 69 & 3 \\ 3 & 0 \\ 0 & 0 \\ 12 & 5 \\ 0 & 0 \\ 0 & 0 \\ 0 & \underline{0} \\ 84 & 8\end{array}$



NOVA SCOTIA POWER INC．
ALLOCATION OF DISTRIBUTION OPERATING EXPENSES FOR THE YEAR ENDING DECEMBER 31， 2012
（IN THOUSANDS OF DOLLARS）

NOVA SCOTIA POWER INC.
ALLOCATION OF CUSTOMER SERVICE FIELD EXPENSES
FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

|  | (1) <br> TOTAL COMPANY | $\begin{gathered} \text { (2) } \\ \text { METER } \\ \text { READING } \end{gathered}$ | (4) WIRING INSPECTION |
| :---: | :---: | :---: | :---: |
| ( 1) DOMESTIC | \$9,482 | \$6,572 | \$2,909 |
| ( 2) SMALL GENERAL | 502 | 345 | 158 |
| ( 3) GENERAL | 926 | 849 | 78 |
| ( 4) GENERAL LARGE | 26 | 26 | 0 |
| ( 5) SMALL INDUSTRIAL | 181 | 166 | 15 |
| ( 6) MEDIUM INDUSTRIAL | 71 | 70 | 1 |
| ( 7) LARGE INDUSTRIAL | 50 | 50 | 0 |
| ( 8) ELI 2P-RTP | 3 | 3 | 0 |
| ( 9) MUNICIPAL | 12 | 12 | 0 |
| (10) UNMETERED | 63 | $\underline{0}$ | 63 |
| (11) TOTAL | \$11,316 | \$8,092 | \$3,224 |
| ALLOCATION FACTOR |  | C-6 | C-7 |

NOVA SCOTIA POWER INC.

## ALLOCATION OF CREDIT SERVICES EXPENSES

FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)

| (1) | (2) | (3) | (4) | (5) |
| :---: | :---: | :---: | :---: | :---: |
| $------------------------~$ | CRAD | DEBT EXPENSE |  |  |
| DIRETT | TO BE ALLOC. | TOTAL | SERVICES | TOTAL |


| ( 1) DOMESTIC | $\$ 2,944$ | $\$ 0$ | $\$ 2,944$ | $\$ 0$ | $\$ 2,944$ |
| :--- | ---: | ---: | ---: | ---: | ---: |
| ( 2) SMALL GENERAL | 0 | 50 | 50 | 0 | 50 |
| ( 3) GENERAL | 0 | 466 | 466 | 0 | 466 |
| ( 4) GENERAL LARGE | 0 | 0 | 0 | 0 | 0 |
| ( 5) SMALL INDUSTRIAL | 0 | 45 | 45 | 0 | 45 |
| ( 6) MEDIUM INDUSTRIAL | 0 | 0 | 0 | 0 | 0 |
| ( 7) LARGE INDUSTRIAL | 0 | 0 | 0 | 0 | 0 |
| ( 8) ELI 2P-RTP | 0 | 0 | 0 | 0 | 0 |
| ( 9) MUNICIPAL | 0 | 0 | 0 | 0 | 0 |
| (10) UNMETERED | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ | $\underline{0}$ |
| $\quad$ (11) TOTAL | $\underline{\$ 2,944}$ | $\underline{\$ 561}$ | $\underline{\$ 3,504}$ | $\underline{\$ 0}$ | $\underline{\$ 3,504}$ |

EXHIBIT 6D
Page 1 of 2

|  | S 18 | Stt＇t | Lso＇zt | L29＇9 | $60{ }^{\prime} \varepsilon$ | 006＇T | $\varepsilon \angle 88^{\prime}$ z | T 2 ¢＇8T | عt9＇т | 288＇z\％ | tos＇z8 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | S¢T | Tsz | 6 69 โ | ャ81＇ธ | 859 | Lع | ots | 9Lて＇ | T62 | 288＇s |  |  |
|  | ¢tI | 585 | $6 \mathrm{6g}$＇ | $0<8$ | เ8t | $8 \downarrow 2$ | S¢E | 80t＇ | ゅtて | ＜8て＇t | เ¢8＇0т | ＾Y699＜ $7 \forall 101$（08） |
| $\underset{\forall}{\text { git－d }}$ | $\overline{0}$ | $\bar{\varepsilon} \varepsilon$ | $\overline{\text { T¢z }}$ | ह¢T | 98 | Et | 99 | ¢ृも | $\overline{8 \varepsilon}$ | 992 | от＇t | 入ı4ヨdoyd 7＊yヨNヨo（6z） |
|  | $\square_{6}$ | 2st | 698 ＇工 | LTL | 868 | ¢02 | 608 | เ86＇ธ | $9<1$ | โ $\varepsilon^{\prime} \varepsilon$ | ゅて6＇8 | ＾469＜INV7d NOISSIWSNVZ ${ }^{\text {（8z）}}$ |
|  | It | 99 | 0 | $\downarrow$ เ¢ | ヤLT | 68 | ¢ $¢$ | 898 | $\underline{L L}$ | Sts＇t | $60 \varepsilon^{\prime} \varepsilon$ | $\wedge$＾8\＆＞ $7 \forall 10 \perp$（Lz） |
| $\underset{\text { gT－ق }}{\forall \tau T-\mathrm{d}}$ | L | $\bar{\tau}$ | $\overline{0}$ | ¢¢ | $\bar{\tau}$ | $\overline{9 \tau}$ | $\bar{\square}$ | ह¢T | $\overline{\text { ¢ }}$ | こLZ | ¢89 |  |
|  | $\downarrow \varepsilon$ | ss | 0 | 892 | 切厂 | ャL | ¢tI | STL | ャ9 | てLて＇T | 9zL＇て |  |
|  | 082 | ャ9T＇т | LOt＇0¢ | $26 \mathrm{~V}^{\prime} \mathrm{s}$ | Ts0＇$\varepsilon$ | ع9S＇t | ャ98＇z | ¢6t＇st | Tsع＇т | Oso＇Lz | 898 ＇89 |  |
| OT－d | 09T | б¢2 | $\overline{\tau \tau \varepsilon \tau}$ | оटz＇т | $\overline{829}$ | $\overline{L \square \varepsilon}$ | ¢ ¢¢ | दूह＇ | $\overline{008}$ | 800＇9 | $\overline{\text { z8T＇gt }}$ | 人І४ヨdoyd 7vyヨnヨo（ez） |
| $\forall \tau-\exists$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | ४ヨ |
| $\forall \tau-\exists$ | $\varepsilon \tau$ | ¢z | $88 \tau$ | 66 | ss | 82 | $\varepsilon \downarrow$ | カLZ | ャ2 | ＜8t | て¢て＇т | Nolıonaoyd 0009W7（ tz ） |
| $\forall \tau-\exists$ | $\varepsilon \iota$ | 8 ¢T | Tso＇t | tgs | $80 \varepsilon$ | 8¢t | 682 | เ¢S＇t | $98 \tau$ | ธยL＇乙 | 006＇9 | NOILOnooyd anim（oz） |
| $\forall \tau-\exists$ | 89 | ャ6 | $\llcorner 88$ | 2 t | Stz | 9 9t | $06 \tau$ | ટzて＇ธ | 60т | SLI＇z | ¢6t＇s | Nolıכnaoyd оya人h（6т） |
| $\forall \tau-\exists$ | 9Tt | $\varepsilon\llcorner 9$ | TzO＇9 | 8LT＇$\varepsilon$ | ¢92＇T | t06 | L98＇工 | T6L＇8 | 281 | 669＇st | $8 \mathrm{tS'6} \mathrm{\varepsilon}$ | NOOLOnaOyd WVヨls（8T） |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | $\overline{\text { น¢1＇} \varepsilon}$ | 082 | 60＇¢ | 270＇z | ¢96＇โ | عLS＇T | z¢s＇土 | 2ts＇LI | ¢88＇T | 6st＇¢ | 989＇LL |  |
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EXHIBIT 6 D
Page 2 of 2


NOVA SCOTIA POWER INC.

## REVENUE ANALYSIS

FOR THE YEAR ENDING DECEMBER 31, 2012
(IN THOUSANDS OF DOLLARS)
(1)

## REVENUE

ELECTRIC REVENUE
( 1) DOMESTIC
( 2) SMALL GENERAL
( 3) GENERAL
( 4) LARGE GENERAL
( 5) SMALL INDUSTRIAL
( 6) MEDIUM INDUSTRIAL
( 7) LARGE INDUSTRIAL
( 8) ELI 2P-RTP
(9) MUNICIPAL
(10) UNMETERED
(11) SUB-TOTAL
(12) EXPORT SALES

961
(13) TOTAL ELECTRIC REVENUE

## NON-RATE REVENUE

(14) LATE PAYMENT CHARGE 4,933
(15) MISC. CUST. REVENUE 1,758
(16) OTHER
(17) TOTAL 13,788

## DIRECT REVENUE

(18) BOWATER BASIC BLOCK 9,280
(19) BOWATER ADDITIONAL ENERGY 11,177
(20) GEN.REPL./LOAD FOLL 6,726
(21) REAL TIME PRICING
(22) LED
(23) TOTAL
(24) TRANSFER FROM (TO) RETAINED EARNINGS
(25) TOTAL REVENUE

7,098
$(130,457)$
1,294,495

0
1,314
28,497
(2) EXPORT
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\begin{gathered}
\text { (3) } \\
\text { LATE } \\
\text { PAYMENT } \\
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(4) MISC. CUSTOMER REVENUE

| $\$ 606,735$ | $\$ 380$ | $\$ 3,825$ | $\$ 1,631$ |
| ---: | ---: | ---: | ---: |
| 31,138 | 19 | 117 | 99 |
| 290,881 | 214 | 852 | 11 |
| 38,699 | 33 | 0 | 0 |
| 28,262 | 22 | 66 | 0 |
| 48,346 | 43 | 57 | 0 |
| 75,696 | 77 | 0 | 0 |
| 129,482 | 146 | 0 | 0 |
| 18,912 | 16 | 0 | 0 |
| $\underline{25,382}$ | $\underline{10}$ | $\underline{16}$ | $\underline{15}$ |
| $1,293,534$ | $\$ 961$ | $\$ 4,933$ | $\$ 1,758$ |

DEVELOPMENT OF ALLOCATION FACTORS
FOR THE YEAR ENDING DECEMBER 31, 2012

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NOVA SCOTIA POWER INC.
DEVELOPMENT OF ALLOCATION FACTORS
FOR THE YEAR ENDING DECEMBER 31, 2012

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SALES，GENERATION AND DEMAND FOR JANUARY 2011



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（11）SUB－TOTAL
（12）BOWATER MERSEY （13）GEN．REPL．／LOAD FOLL （14）REAL TIME PRICING
（15）EXPORT SALES
EXHIBIT 9A
 FOR FEBRUARY 2011

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NOVA SCOTIA POWER INC.
SALES, GENERATION AND DEMAND ANALYSIS






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SALES，GENERATION AND DEMAND ANALYSIS


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（11）SUB－TOTAL

EXHIBIT 9A FOR MARCH 2011
SALES，GENERATION AND DEMAND ANALYSIS FOR APRIL 2011

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$5.17 \%$
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SALES, GENERATION AND DEMAND ANALYSIS

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NOVA SCOTIA POWER INC．
SALES，GENERATION AND DEMAND
NERATION AND DEMAND ANALYSIS FOR JUNE 2011

$94.21 \%$
$65.37 \%$
$62.75 \%$
$73.93 \%$
$72.57 \%$
$84.04 \%$
$105.01 \%$
$100.00 \%$
$74.72 \%$
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EXHIBIT 9A


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NOVA SCOTIA POWER INC.
SALES, GENERATION AND DEMAND ANALYSIS
FOR JULY 2011






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(16) TOTAL


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SALES, GENERATION AND DEMAND ANALYSIS

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | ENERGY |  | CLASS NON- | SYSTEM | SYSTEM | DEMAND | SYSTEM | SYSTEM |
| MWH | LINE | ENERGY | COINCIDENT | COINCIDENT | COINCIDENT | LINE | COIN. PEAK | COINCIDENT |
| SALES | LOSSES | REQUIREMENT | DMD. (KW) | FACTOR | DMD. (KW) | LOSSES | DMD. (KW) | LID FACTOR |
| 266,811 | 8.81\% | 290,322 | 522,712 | 96.1\% | 502,474 | 9.95\% | 552,488 | 70.63\% |
| 16,247 | 9.57\% | 17,802 | 33,522 | 73.7\% | 24,689 | 9.60\% | 27,058 | 88.43\% |
| 203,474 | 6.49\% | 216,685 | 426,258 | 87.9\% | 374,528 | 7.00\% | 400,738 | 72.68\% |
| 36,370 | 7.24\% | 39,002 | 66,749 | 85.5\% | 57,036 | 7.32\% | 61,210 | 85.64\% |
| 22,409 | 6.37\% | 23,837 | 48,722 | 72.9\% | 35,501 | 6.37\% | 37,764 | 84.84\% |
| 43,826 | 6.20\% | 46,545 | 80,574 | 83.0\% | 66,866 | 6.22\% | 71,022 | 88.09\% |
| 87,481 | 5.24\% | 92,068 | 136,644 | 88.3\% | 120,714 | 5.18\% | 126,972 | 97.46\% |
| 153,672 | 2.04\% | 156,807 | 206,548 | 100.0\% | 206,548 | 2.04\% | 210,762 | 100.00\% |
| 14,520 | 5.27\% | 15,285 | 26,776 | 85.6\% | 22,916 | 5.35\% | 24,142 | 85.10\% |
| 9,624 | 9.92\% | 10,579 | 26,610 | 11.2\% | 2,974 | 5.46\% | 3,136 | 453.35\% |
| 854,434 |  | 908,931 | 1,575,114 | 89.8\% | 1,414,245 | 7.14\% | 1,515,292 | 80.62\% |
| 31,248 | 2.04\% | 31,885 | 42,000 | 100.0\% | 42,000 | 2.04\% | 42,857 | 100.00\% |
| 10,423 | 2.04\% | 10,635 | 33,647 | 78.7\% | 26,482 | 2.04\% | 27,022 | 52.90\% |
| 0 | N/A | 0 | 0 | N/A | 0 | N/A | 0 | N/A |
| $\underline{0}$ | N/A | $\underline{0}$ | $\underline{0}$ | N/A | $\underline{0}$ | N/A | $\underline{0}$ | N/A |
| 896,105 | 6.18\% | 951,452 | 1,650,761 | 89.8\% | 1,482,727 | 6.91\% | 1,585,171 | 80.67\% |



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SALES，GENERATION AND DEMAND
ERATION AND DEMAND ANALYSIS
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8）ELI 2P－RTP （9）MUNICIPAL वョษヨเヨWnก（0т）
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NOVA SCOTIA POWERINC．

SALES, GENERATION AND DEMAND ANALYSIS FOR OCTOBER 2011







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(11) SUB-TOTAL

EXHIBIT 9A
SALES, GENERATION AND DEMAND
NOVA SCOTIA POWER INC. FOR NOVEMBER 2011

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SALES，GENERATION AND DEMAND ANALYSIS


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EXHIBIT 9A
NOVA SCOTIA POWER INC． FOR DECEMBER 2011



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NOVA SCOTIA POWER INC.
DETAIL OF MONTHLY CLASS SYSTEM COINCIDENT KW DEMAND
FOR THE YEAR ENDING DECEMBER 31, 2012










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& \text { ( } 1 \text { ) DOMESTIC } \\
& \text { ( } 2 \text { ) SMALL GENERAL } \\
& \text { ( 3) GENERAL } \\
& \text { ( 4) LARGE GENERAL } \\
& \text { ( 5) SMALL INDUSTRIAL } \\
& \text { ( 6) MEDIUM INDUSTRIAL } \\
& \text { ( 7) LARGE INDUSTRIAL } \\
& \text { ( 8) ELI 2P-RTP } \\
& \text { ( 9) MUNICIPAL } \\
& \text { (10) UNMETERED } \\
& \text { (11) SUB-TOTAL } \\
& \text { (12) DIRECT EXP./ REV } \\
& \text { (13) RETURN ON DIRECT EXP. } \\
& \text { (14) TOTAL }
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& \text { FOR THE YEAR ENDING DECEMBER } 31,2012 \\
& \text { (IN THOUSANDS OF DOLLARS) }
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NOVA SCOTIA POWER INC.
REVENUE TO EXPENSE COMPARISON
FOR THE YEAR ENDING DECEMBER 31,2012
(IN THOUSANDS OF DOLLARS)

> (14) TOTAL

Requirement:

## Load Forecast Report.

## Submission:

Please refer to Attachment 1.


## 2011 Load Forecast

Prepared

## April 2011

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## Executive Summary

The Nova Scotia Power Inc. (NSPI) 2011 Load Forecast provides an outlook on the energy and peak demand requirements of in-province customers for 2011 to 2021. As well, it describes the considerations, assumptions and methodology used in the preparation of the forecast. The NSPI Forecast provides the basis for the financial planning and overall operating activities of the Company.

The forecast is based on analyses of sales history, weather, 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, 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 forecast presents NSPI's "expected" or "most likely" case and also provides less probable, but possible high and low scenarios for longer term planning purposes.

NSPI billed energy sales are initially modeled and forecast as three provincial customer sectors: residential, commercial and industrial. Input variables for each sector are updated and forecast sales are then calculated using the sector models. The sum of these in-province billed sales plus associated system transmission and distribution losses and changes to unbilled sales are then determined. This is referred to as the Net System Requirement (NSR).

The NSR grew at an average annual rate of 0.9 percent over the previous five years but dropped by 3.7 percent in 2009 due to the economic recession that affected sales, primarily in the industrial sector. Load growth rebounded by 2.5 percent in 2010 and is expected to grow similarly in 2011.

For 2021, NSR is forecast to be $11,173 \mathrm{GWh}$, an average annual load reduction of 1.3 percent over the ten year forecast period. The growth rates are generally lower than those observed in
the recent past, due to the anticipated effects of conservation and energy efficiency programs (demand side management or DSM) planned for the coming years. The underlying 10-year annual growth rate, without the DSM effects is 0.8 percent. The growth in annual net system requirement is shown in Figure 1.

Figure 1 Annual Net System Requirement


In addition to annual energy requirements, NSPI also forecasts the peak hourly demand for future years. The forecast methodology uses forecast energy requirements and expected load shapes (hourly consumption profiles) for the various customer classes. Load shapes are derived from historical analysis, adjusted for any expected changes (e.g. customer plans to add major equipment). Growth in annual net system peak is shown in Figure 2.

Over the longer term, Net System Peak is forecast to decrease from 2,114 MW in winter 2009/10, to $1,991 \mathrm{MW}$ in 2021. The average growth over the forecast period is an annual decline of 1.5 percent. The negative growth rate is due to the anticipated effects of DSM programs. Without the effects of DSM, the average growth rate is 1.0 percent.

Figure 2 Annual Net System Peak (Winter-ending)


The hourly peak demand in the year 2010 occurred in February and was 2,114 MW with temperatures of approximately $-13^{\circ} \mathrm{C}$ (Winter peaks are typically set when cold temperatures drive residential and commercial electric space heating load, on weekdays with temperatures in the range of $-15^{\circ} \mathrm{C}$ or colder). The forecast peak for 2012 is $2,301 \mathrm{MW}$, assuming typical winter temperatures.

## New load forecasting methodology under development at NSPI

A review of NSPI's load forecasting methodology in 2008 recognized that load forecasting could be enhanced with better integration of DSM savings by adopting an end-use model framework.

NSPI is currently reviewing methods of updating its load forecasting methodology to employ Statistically-Adjusted End-use (SAE) modeling. This structure allows the retention some of the economic inputs of the prior model, but also allows for more detailed modeling of end-use types and efficiency trends of those end-use appliances. It is expected that this will allow for improved analysis and integration of DSM effects in the load forecast.

## Introduction

NSPI annually develops a forecast of energy sales and peak demand requirements to assess the effects of customer, demographic and economic factors on the future provincial system load. It is a fundamental input to the overall planning, budgeting and operating activities of the Company. Produced in the winter of 2010-2011 and using information available at the time, this forecast covers the period of 2011-2021. Unless otherwise noted, average growth rates stated report the average annual rate calculated between 2011 and 2021.

## Forecast Models

Nova Scotia electric energy sales are modeled and forecast as three provincial customer sectors: residential, commercial and industrial. Energy forecasts for sector electricity sales are calculated using econometric models in conjunction with forecasts for the independent variables used in those models. Individual customer load forecast survey information is also used for large customers in the Commercial and Industrial sectors.

The sector econometric models are multiple linear regression equations that are designed to capture the relationships between electricity consumption and several independent variables. The models then use these relationships to predict future energy loads. An examination of these variables provides a meaningful explanation of the load growth in each sector. The individual econometric model details are shown in the Appendices of this report.

The variables used in the preparation of the forecast include population, residential customer growth, inflation, GDP, retail sales, oil and electricity prices, appliance saturation levels and average energy use, water and space heat saturation levels and heating degree-days. The primary source of economic and other provincial statistics used in the load forecast is the Conference Board of Canada's Economic Outlook, which is released quarterly. This forecast provides a provincial perspective and considers specific Nova Scotia projects and demographics.

## Discussion of Major Inputs

The Gross Domestic Product (GDP) for Nova Scotia was estimated at $\$ 27,536$ million (in constant 2002 dollars) in 2010, and is forecast to increase by 1.8 percent in 2011 and 1.9 percent in 2012.

The provincial Consumer Price index (CPI) for 2010 was 2.2 percent annual growth, a rebound from the negative 0.1 percent posted in 2009 due to the effects of the recession. It is forecast to grow at 2.2 percent for 2011 and 2.1 percent in 2012, and remain in the 2 percent range for the next several years as the Bank of Canada maintains watch on inflation targets.

Housing starts for NS were estimated at 3,438 units in 2009 (singles: 2,193), and were forecast by the Conference Board of Canada (CBoC) to increase to 4,382 for 2010 (singles: 2,834). For 2011, total housing starts are forecast at 3,472 , and 3,328 for the year 2012. The continued urbanization and aging population trend is expected to drive a shift to more multi-unit housing and condominiums.

Retail sales, with only 0.2 percent growth in 2009 , rebounded with 3.1 percent growth in 2010 . For 2011, real growth is expected to slip by 0.2 percent but grow by 1.2 percent in 2012 as consumer confidence improves.

Nova Scotia population in 2010 was estimated to be 942,217 with annual growth remaining relatively flat in the past five years. There is little indication that the prevailing trends will be altered soon. Further population growth in the forecast is marginal with the estimate for 2012 at 946,202 for an annual growth rate of 0.21 percent.

Figure 3 lists the annual growth rates of some of the major independent variables that affect the load forecast.

Figure 3 Forecast Variables

| Forecast Variables | $\mathbf{2 0 1 0}$ <br> Actual <br> Growth Rate | $\mathbf{2 0 1 1}$ <br> Forecast <br> Growth Rate | $\mathbf{2 0 1 2}$ <br> Forecast <br> Growth Rate |
| :--- | :---: | :---: | :---: |
| N.S. Population | $0.3 \%$ | $0.2 \%$ | $0.2 \%$ |
| N.S. Consumer Price Index | $2.2 \%$ | $2.2 \%$ | $2.1 \%$ |
| N.S. Personal Disposable Income | $1.9 \%$ | $0.4 \%$ | $1.8 \%$ |
| N.S. GDP | $3.0 \%$ | $1.8 \%$ | $1.9 \%$ |
| N.S. Retail Sales | $3.1 \%$ | $-0.2 \%$ | $1.2 \%$ |
| N.S. Consumer Goods Sales | $3.3 \%$ | $0.8 \%$ | $1.6 \%$ |
| Home heating oil price | $0.0 \%$ | $5.5 \%$ | $1.6 \%$ |

## Sector Model Inputs

One factor influencing the residential forecast involves market effects including the price of electricity versus other alternatives (e.g. fuel oil) and the effects of natural gas distribution. The stock of electric appliances is estimated through maturities and conversion rates to and from electric units as well as the electric heat penetration for new construction. Technology factors are considered through increases in efficiency and the introduction of new equipment.

The outlook for the retail price of furnace oil (\#2 light) is based on futures pricing and, for the long-term, escalated at rates consistent with other fuel price forecasts used by NSPI. The ratio of oil prices to electricity prices is used in calculating the saturation of residential water and space heating equipment. Furnace oil prices in NS are estimated to average $90 \notin$ per litre in 2011 and $92 \phi$ in 2012.

Assumptions regarding the effects of natural gas distribution in the province are based on the potential loss of electric space heating and water heating load, primarily in the residential sector. The gas impact on this forecast is projected to remain small however, due to a limited rollout in the growing residential areas of Nova Scotia and limited uptake observed to date in the residential sector.

Electricity sales in the commercial sector are influenced by the level of business activity and as a result, are closely related to the provincial GDP and consumer confidence. Electricity sales to
small and medium industrial customers are correlated to general economic growth in the province. However, energy use in the industrial sector is also influenced by large industries such as forestry and pulp \& paper. Since changing economic conditions, exchange rates and trade policies can create large fluctuations in sales as companies expand, contract or endure inventory shutdowns; the large industrial forecast relies heavily on input from customer surveys.

## Losses

System losses have averaged 6.7 percent of NSR over the past five years and are expected to remain in the 6.6 to 6.7 percent range over the 10 year forecast period.

## Energy Forecast Details

For forecasting, modeling and sales reporting, Nova Scotia electric load is divided into three sector requirements: residential, commercial and industrial. The relative sizes of sector sales are shown in Figure 4.

Figure 42010 NSPI Sector Sales


## Residential Sector Sales

In 2010, residential customers represented approximately 37 percent of total Nova Scotia energy sales. In addition to direct domestic customers of the Company, the sector also includes residential customers served by six municipal utilities. Seasonal residences comprised 6.5 percent of the residential base.

The residential sector offers an opportunity for more detailed modeling due to the relative similarity of customer end-uses, compared to the wide variations in end-use by commercial and industrial customers. The residential sector forecast is prepared using an econometric model that uses forecast retail sales, an overall end-use appliance index, a variable representing electric heating load, residential electricity cost per kWh and residential electric load from the previous year. A series of end-use models are used to calculate the appliance index and space heating variable forecasts.

A population forecast is used in conjunction with customer formation trends to produce a residential customer count forecast. Sector average electricity costs per kWh and forecast furnace oil prices are used in a market share model to estimate the annual electric space and water heat penetration rates. A composite variable (CHDD) is calculated for use in the residential model that takes into account the annual number of all-electric customers and the forecast heating degree-days.

Household appliance load is modeled using non-linear regression methods that forecast the annual saturation rates of major appliances. Efficiency improvements for new units are accounted for in the stock vintage models that calculate the overall system average use for each appliance type given the age and efficiency mix of the total stock. This appliance saturation and average use information is used to create a composite variable (AIDX), which is used in the residential sector econometric model.

The real cost of electricity is another factor that may affect residential electricity consumption. Consumers may respond to increases in energy prices by reducing consumption or delaying the acquisition of a major appliance, however the price elasticity of this sector appears to be small in the near-term. The econometric model uses the average sector customer price per kWh after tax measured in constant dollars (RREP).

Provincial economic trends are represented in the residential sector model through the forecast of Consumer Goods Spending (RCGOODS), as measured in current dollars. This variable is combined with the forecast of the NS consumer price index to recalculate it in constant dollars for long-term modeling purposes.

To capture the other sector growth trends, the residential electric load of the previous year is included in the model as a lagged dependent variable. It should be noted however, that the coefficients applied to this and the other variables are the result of estimates using data compiled over a 30 -year period, and are therefore reflective of longer term relationships and not just the prior year's results.

The residential econometric model is shown below. Complete residential sector model fit statistics and model specifications are provided in the Appendix of this report.

Residential Load $=302.4$ AIDX +0.2540 CHDD $-28.25 R R E P+0.1095 R C G O O D S+0.4458$ Residential load $_{-1}$

The forecast for new customers for 2011 is 3,676 diminishing to 2,734 by 2021. The number of additions has been decreasing steadily from more than 4,500 in 1997. Although the provincial population is expected to grow at a very low rate, Nova Scotians are becoming more urbanized and increasingly choosing to live in smaller households. This trend is indicated in Figure 5. The result is an increase in the overall number of households, which in turn boosts the total number of electric customers for a given population.

Figure 5 Persons per Residential Account


Within the residential sector forecast, large household appliances are modeled individually, considering age, efficiency trends, and acquisition rates. Since these improvements apply only to new appliances, the resulting effect on the overall system load is gradual as older appliances are retired and replaced with more efficient models.

The saturation of electric space heat has been in the mid to high 20 percent range in recent years and was estimated to be 29 percent in 2010. The saturation of electric water heating hovers around 59 percent and is forecast to grow slowly over the forecast period.

The forecast for weather effects uses 10-year average temperatures, measured in heating degreedays (HDD). Heating degree-days are a common measure of heating requirement, based on the degree departure between the daily mean temperature and a given standard temperature. The standard temperature of $18^{\circ} \mathrm{C}$ is used for these calculations and is assumed to be a comfortable room temperature below which space heating is generally required. The forecast uses the Environment Canada HDD data for Shearwater Airport for the years 2000-2009 which is 4,010 HDD.

Figure 6 shows the variation in the actual annual HDDs over the past ten years.

Figure 6 Annual NS Heating Degree-Days


4 The residential sector load has grown at an average annual rate of 0.5 percent over the past five years ( 0.8 percent when adjusted for the effects of weather). Annual residential loads are shown in Figure 7.

Figure 7 Annual Energy - Residential Sector


Growth in this sector is expected to be relatively low. The 2012 load forecast for this sector is 4,437 GWh representing a 1.3 percent annual increase over 2010 actual sales adjusted for weather effects. Without the effects of DSM, 2012 sales are forecast at 4,514 GWh or 2.1 percent annual increase on 2010.

Figure 8 Residential Sector Energy

| Year | Residential <br> Sector GWh | Growth Rate \% | Without future <br> DSM Residential <br> GWh | Growth Rate \% |
| :---: | :---: | :---: | :---: | :---: |
| 2001 | 3,741 | 1.9 | 3,741 | 1.9 |
| 2002 | 3,829 | 2.3 | 3,829 | 2.3 |
| 2003 | 4,011 | 4.7 | 4,011 | 4.7 |
| 2004 | 4,114 | 2.4 | 4,114 | 2.4 |
| 2005 | 4,114 | 0.0 | 4,114 | 0.0 |
| 2006 | 3,979 | -3.3 | 3,979 | -3.3 |
| 2007 | 4,218 | 6.0 | 4,218 | 6.0 |
| $2008^{1}$ | 4,232 | 0.3 | 4,232 | 0.3 |
| $2009^{2}$ | 4,318 | 2.0 | 4,318 | 2.0 |
| $2010^{3}$ | 4,216 | -2.4 | 4,216 | -2.4 |
| 2011 F | 4,444 | 5.4 | 4,475 | 6.1 |
| 2012 F | 4,437 | -0.2 | 4,514 | 0.9 |
| 2013 F | 4,399 | -0.9 | 4,542 | 0.6 |
| 2014 F | 4,381 | -0.4 | 4,586 | 1.0 |
| 2015 F | 4,372 | -0.2 | 4,634 | 1.1 |
| 2016 F | 4,361 | -0.2 | 4,682 | 1.0 |
| 2017 F | 4,343 | -0.4 | 4,722 | 0.9 |
| 2018 F | 4,312 | -0.7 | 4,750 | 0.6 |
| 2019 F | 4,293 | -0.5 | 4,789 | 0.8 |
| 2020 F | 4,269 | -0.6 | 4,824 | 0.7 |
| 2021 F | 4,243 | -0.6 | 4,857 | 0.7 |

Annual residential sector loads are shown in Figure 8. Over the 10 year forecast period, the residential load growth is expected decrease by 0.5 percent annually. Without the effects of DSM, residential sector loads would increase by 0.8 percent per year.

## Commercial Sector Sales

Energy sales to the commercial sector in 2010 represented 29 percent of Nova Scotia sales. This customer group includes restaurants, hotels, offices, recreational facilities, stores warehouses hospitals, schools and universities and street and traffic lights, as well as commercial customers served by municipal utilities. The level of business activity in the province is a major factor in determining the energy sales to this sector. The level of business activity is captured in GDP and as a result, a strong correlation exists between commercial energy requirements and real GDP.

[^1]Real personal disposable income (RPDI) is also correlated to activity in the commercial sector and is included in the model.

The commercial sector forecast is produced using an econometric model using real GDP, RPDI, residential electricity sales and the commercial electricity sales from the previous year. The equation is shown below. Complete details of the commercial sector model are presented in the Appendix of this report.

Commercial $=0.01906$ RQTOS +0.01362 RPDI +0.2685 Residential +0.4245 Commercial load $_{-1}$

Additionally, the largest commercial customers are surveyed to obtain their forecasts of any foreseen load changes. This information is used in a reconciliation of the sector load by rate class. Annual commercial sector loads are indicated in Figure 9.

Figure 9 Annual Energy - Commercial Sector


Growth in this sector has averaged 0.5 percent over the past 5 years (also 0.6 percent when adjusted for weather). Driven by trends in wholesale trade, consumer confidence, and growth in personal disposable income boosting retail trade activity, this sector is forecast to grow to 3,355

GWh by 2012. With the effects of DSM, the annual load rate is expected to decline an average 2.0 percent over the next 10 year period (or increase 1.0 percent without conservation effects). The annual commercial sector loads are shown in Figure 10.

Figure 10 Commercial Sector Energy

| Year | Commercial <br> With future <br> DSM GWh | Growth Rate <br> $\%$ | Commercial <br> Without future <br> DSM GWh | Growth Rate <br> $\%$ |
| :---: | :---: | :---: | :---: | :---: |
| 2001 | 2,959 | 4.6 | 2,959 | 4.6 |
| 2002 | 2,997 | 1.3 | 2,997 | 1.3 |
| 2003 | 3,091 | 3.1 | 3,091 | 3.1 |
| 2004 | 3,188 | 3.1 | 3,188 | 3.1 |
| 2005 | 3,223 | 1.1 | 3,223 | 1.1 |
| 2006 | 3,211 | -0.4 | 3,211 | -0.4 |
| 2007 | 3,343 | 4.1 | 3,343 | 4.1 |
| $2008^{4}$ | 3,327 | -0.5 | 3,327 | -0.5 |
| $2009^{5}$ | 3,320 | -0.2 | 3,320 | -0.2 |
| $2010^{6}$ | 3,305 | -0.5 | 3,305 | -0.5 |
| 2011 F | 3,401 | 2.9 | 3,467 | 4.9 |
| 2012 F | 3,355 | -1.3 | 3,527 | 1.7 |
| 2013 F | 3,309 | -1.4 | 3,574 | 1.3 |
| 2014 F | 3,240 | -2.1 | 3,617 | 1.2 |
| 2015 F | 3,173 | -2.0 | 3,658 | 1.1 |
| 2016 F | 3,101 | -2.3 | 3,693 | 0.9 |
| 2017 F | 3,031 | -2.2 | 3,725 | 0.9 |
| 2018 F | 2,965 | -2.2 | 3,753 | 0.8 |
| 2019 F | 2,903 | -2.1 | 3,783 | 0.8 |
| 2020 F | 2,839 | -2.2 | 3,809 | 0.7 |
| 2021 F | 2,774 | -2.3 | 3,832 | 0.6 |

## Industrial Sector Sales

In 2010, the industrial sector represented 34 percent of Nova Scotia total electricity sales. This group is comprised of customers who process raw materials or manufacture finished goods. It includes both primary resource industries such as mining and forestry as well as secondary industries such as manufacturing and food processing. While this sector is made up of over

[^2]2,000 customers, a few large customers represent most of the energy consumption. For instance, the five largest customers use two-thirds of the energy in this sector and one-quarter of inprovince energy sales. With relatively few customers representing a large proportion of the load in this sector, changes in production levels, equipment and technology changes, expansion or downsizing can have a significant impact on the load.

The demand for manufactured and processed goods is driven by exports as well as the health of the provincial economy. Annual industrial sector loads are shown in Figure 11. The 12 percent drop in 2009 sales was the result of the economic downturn which directly affected the markets for many industrial customers.

Figure 11 Annual Energy - Industrial Sector


The load for this sector is forecast using a combination of econometric modeling and large customer surveys. The Small Industrial customer class model uses NS Manufacturing GDP and Non-Residential Investment as economic inputs and the Medium Industrial customer class model uses NS Manufacturing GDP and Employment in Manufacturing as the economic drivers. Both models use the previous year's sales as a lagged dependent variable.

The Small Industrial econometric model equation is shown below. Complete fit statistics and model specifications are shown in the Appendix to this report.

## 13

$$
\text { SM_IND }=0.01885 \text { GDP_Man }+0.01278 \text { NonRes_Inv }+0.7220 \text { SM_IND }_{-1}
$$

The Medium Industrial econometric model equation is shown below.

$$
M E D \_I N D=0.06218 \text { GDP_Man + 1.168 Man_Emp + 0.5911 MED_IND-1 }
$$

Large customers forecasts are based on trends and customer input. Customers are surveyed regularly in order to gather their forecast monthly electricity requirements over the next three year period, given planned production levels and equipment changes. The information is used as input to prepare the large industrial load forecast by rate class. The annual industrial sector loads are shown in Figure 12.

Figure 12 Industrial Sector Energy

| Year | With future DSM Industrial GWh | Growth Rate \% | Without future DSM <br> Industrial GWh | Growth <br> Rate \% |
| :---: | :---: | :---: | :---: | :---: |
| 2001 | 3,873 | -1.5 | 3,873 | -1.5 |
| 2002 | 3,799 | -1.9 | 3,799 | -1.9 |
| 2003 | 4,046 | 6.5 | 4,046 | 6.5 |
| 2004 | 4,212 | 4.1 | 4,212 | 4.1 |
| 2005 | 4,215 | 0.1 | 4,215 | 0.1 |
| 2006 | 2,888 | -31.5 | 2,888 | -31.5 |
| 2007 | 4,205 | 45.6 | 4,205 | 45.6 |
| $2008^{7}$ | 4,161 | -1.0 | 4,161 | -1.0 |
| $2009^{8}$ | 3,658 | -12.1 | 3,658 | -12.1 |
| $2010^{9}$ | 3,932 | 7.5 | 3,932 | 7.5 |
| 2011 F | 3,995 | 1.6 | 4,004 | 1.8 |
| 2012 F | 4,018 | 0.6 | 4,053 | 1.2 |
| 2013 F | 3,971 | -1.2 | 4,091 | 0.9 |
| 2014 F | 3,898 | -1.8 | 4,123 | 0.8 |
| 2015 F | 3,826 | -1.8 | 4,152 | 0.7 |
| 2016 F | 3,748 | -2.0 | 4,174 | 0.5 |
| 2017 F | 3,670 | -2.1 | 4,193 | 0.5 |
| 2018 F | 3,598 | -1.9 | 4,215 | 0.5 |
| 2019 F | 3,532 | -1.9 | 4,2638 | 0.5 |
| 2020 F | 3,471 | 3,412 |  |  |
| 2021 F |  |  |  |  |

[^3]With no new expansions or customer additions of large magnitude anticipated for 2011 or 2012, combined with slow recovery from the economic recession, growth in the industrial sector is expect to remain low. DSM is expected to diminish overall growth in this sector.

Industrial sector load growth averaged 1.4 percent per year from 2000-2005, but dipped by 20 percent in 2006 due to a major customer shutdown. For the five year period ending 2008, the average annual growth was 0.6 percent, encompassing the 2003 expansion at the largest paper mill. The industrial load for 2009 dropped 12 percent with many customers operating below full load due to market conditions during the recession. In 2010, the industrial sector began a recovery from the recession, posting a growth rate of 7.5 percent and will continue to grow by 1.6 percent in 2011. Between 2011-2021, industrial sales are expected to decline on average by 1.6 percent in this sector with energy conservation, or grow at 0.7 percent in the absence of DSM.

## Total Sales

Given the combined activities of each sector, including large industrial shutdowns, expansions, etc., total sales grew at an average annual rate of 1.0 percent over the 5 years ending 2008, but then had a 3.6 percent drop in 2009 due to the economic slowdown. Combining each of the sector sales forecasts, total Nova Scotia sales are expected to decline with an average annual growth rate of 1.3 percent over the 10 year forecast period due to the effects of energy conservation. Without conservation programs, growth is expected to average 0.8 percent per year. The billed sales are therefore expected to decline from $11,840 \mathrm{GWh}$ in 2011 to 10,430 GWh by the year 2021.

## System Losses and Unbilled Sales

The load forecast is developed using Nova Scotia Power "billed" sales rather than "accrued" sales to provide a longer historical time series upon which to base the models. Billed sales refers to the amount of energy billed to customers in a given time period such as a calendar month or a year, whereas accrued sales recognizes 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 somewhat from accrued sales. Energy generated and sold but not yet billed, is referred to as "Unbilled" sales.

The difference between energy generated for use within provincial borders and the total NSPI billed sales comprises transmission and distribution system losses as well as changes to the level of unbilled sales. Losses of approximately 4 percent of sales within municipal utility service areas are also included in this total Nova Scotia losses estimate.

Based on historical estimates, losses are forecast to range between 6.6 and 6.7 percent of the total Nova Scotia energy requirement over the forecast period.

## Net System Requirement

The Net System Requirement (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. Annual NSR is shown in Figure 13.


Figure 13 Total Energy Requirement

| Year | With future <br> DSM <br> Net System <br> Requirement <br> GWh | Growth Rate <br> $\%$ | Without future <br> DSM <br> Net System <br> Requirement <br> GWh | Growth Rate <br> $\%$ |
| :---: | :---: | :---: | :---: | :---: |
| 2001 | 11,303 | 0.6 | 11,303 | 11.5 |
| 2002 | 11,501 | 1.8 | 11,501 | 1.8 |
| 2003 | 12,009 | 4.4 | 12,009 | 4.4 |
| 2004 | 12,388 | 3.2 | 12,388 | 3.2 |
| 2005 | 12,338 | -0.4 | 12,338 | -0.4 |
| 2006 | 10,946 | -11.3 | 10,946 | -11.3 |
| 2007 | 12,640 | 15.5 | 12,640 | 15.5 |
| 2008 | 12,539 | -0.8 | 12,539 | -0.8 |
| 2009 | 12,073 | -3.7 | 12,073 | -3.7 |
| 2010 | 12,158 | 0.7 | 12,158 | 0.7 |
| 2011 F | 12,688 | 4.4 | 12,803 | 5.3 |
| 2012 F | 12,647 | -0.3 | 12,953 | 1.2 |
| 2013 F | 12,507 | -1.1 | 13,077 | 1.0 |
| 2014 F | 12,339 | -1.3 | 13,208 | 1.0 |
| 2015 F | 12,180 | -1.3 | 13,334 | 1.0 |
| 2016 F | 12,008 | -1.4 | 13,447 | 0.8 |
| 2017 F | 11,832 | -1.5 | 13,547 | 0.7 |
| 2018 F | 11,651 | -1.5 | 13,631 | 0.6 |
| 2019 F | 11,492 | -1.4 | 13,730 | 0.7 |
| 2020 F | 11,333 | -1.4 | 13,823 | 0.7 |
| 2021 F | 11,173 | -1.4 | 13,909 | 0.6 |

The NSR for the province has grown at an average of 0.9 percent per year in the five year period from 2003-2008 and then declined by 3.7 percent in 2009 due to the recession. NSR is forecast to decline by 1.3 percent over the next 10 years with the effects of DSM. Without DSM effects, growth is forecast to average 1.1 percent annually.

## Rate Class Sales

Forecast sales by sector are allocated into 13 rate classes for revenue forecasting purposes. The following section describes these rate classes and their expected energy requirements for the forecast period. In most cases, load growth trends by rate class are due to the same factors that affect the sector to which they belong, however, migration of customers between rate classes in the same sector can affect both historical and forecast energy requirements by class. Sales requirements by class are computed using historical and forecast trends and customer migration between classes.

## Residential

This class includes residential sector customers served directly by NSPI and represented 38 percent of total NSPI sales in 2010. All-electric, non-all-electric and residential Time-of-Day (TOD) rate customers are included in this class. As of December 2010, there were 442,816 domestic customers responsible for annual billed sales of $4,144 \mathrm{GWh}$, an average of 9,359 $\mathrm{kWh} /$ customer. Residential class sales grow for the reasons stated in the residential sector description, and are forecast to diminish by 0.5 percent over the forecast period with the effects of DSM.

## Small General

Prior to 2004, this class comprised commercial sector customers whose annual energy consumption was less than $12,000 \mathrm{kWh}$. This threshold was changed to $32,000 \mathrm{kWh} / \mathrm{yr}$ by January 2005. This moved some customers previously billed under the General (medium commercial) rate to Small General, thereby decreasing the load in the General class and increasing the Small General load. At the end of 2010, this class comprised 23,436 customers that consumed 235 GWh in 2010. It is forecast at 219 GWh in 2012.

## General

Prior to 2004, this class comprised commercial sector customers whose annual energy consumption was greater than $12,000 \mathrm{KWh}$ and for whom no other class was applicable. As discussed in the Small General class section, this threshold was changed, causing a migration of customers from General to Small General. As of 2010, this class had approximately 11,410 customers accounting for the major portion of commercial sector energy and 21 percent of total NSPI sales for 2010. By 2012, energy sales for this class are anticipated to be 2,531 GWh and decline annually at an average of 2.0 percent over the forecast period.

## Large General

This class comprises large commercial sector customers (malls, universities, hospitals, etc) whose regular maximum demand is $2,000 \mathrm{kVA}$ or more. As of December 2010, there were 17 customers in this class representing 3.6 percent of NSPI sales.

## Small Industrial

This class comprises small industrial, farming and processing customers whose regular demand is less than 250 kVA . This class was made up of 2,251 customers as of December 2010, and had sales representing 2.1 percent of NSPI energy sales.

## Medium Industrial

This class is applicable to any industrial customer having a regular demand of at least 250 kVA , but less than $2,000 \mathrm{kVA}$. As of December 2010, there were 196 customers in this class, representing about 3.6 percent of NSPI sales.

## Large Industrial

This class is available to larger industrial customers having a regular demand of $2,000 \mathrm{KVA}$ or more. Customers in this class may choose to have all or a portion of their load served as interruptible with the remaining load considered firm. Customers on the interruptible rider receive a reduction in demand charge. As of December 2010, there were 25 customers with the interruptible rider and four customers taking firm service only. The combined energy for the firm and interruptible customers was 929 GWh , and represented 8.1 percent of 2010 Nova Scotia Power energy sales. The anticipated combined energy for firm and interruptible customers in 2012 is 933 GWh , or 7.9 percent of energy sales.

## Municipal

This class comprises municipal utilities that purchase wholesale electricity from NSPI and distribute it within their own service territories. The six municipalities are: Antigonish, Berwick, Canso, Lunenburg, Mahone Bay and Riverport. Loads within these municipalities include customers in residential, commercial and industrial sectors, and have been included in Nova Scotia Power's total sector sales estimates. Energy in this class also includes the losses incurred by the municipal utility in delivering the electricity requirements. These losses are estimated to average approximately 4 percent of sales.

An Open Access Transmission Tariff (OATT), which supports the opening of the electricity market in Nova Scotia, is now available to the six municipal utilities. Beginning in 2007, it has been possible for these municipalities to source their electricity from providers other than NSPI. While this forecast currently assumes that Nova Scotia Power continues to serve this load, adjustments will have to be made if or when the volume becomes significant in terms of longterm forecasting. In 2010, the municipal class represented 1.7 percent of total Nova Scotia Power sales. The anticipated energy sales in 2012 are 197 GWh including the effects of energy conservation programs.

## Unmetered Services

This class is comprised of street and area lighting, as well as miscellaneous lighting and small loads. In 2010, unmetered sales represented approximately 1.0 percent of total Nova Scotia Power sales. The anticipated energy sales in 2012 are 116 GWh including the effects of a street light relamping project. An estimated 4 GWh is projected to be saved in the first year of the project to replace most of the street lights in Nova Scotia with light-emitting diode (LED) technology. The project is expected to span a five year period beginning in 2012 and result in total annual savings of 44 GWh .

## Generation Replacement and Load Following

This class is available to customers who have their own generation capacity of no less than 2,000 kW . As of December 2010, this class had three customers and represented about 0.1 percent of
total Nova Scotia Power sales. This class is also interruptible load and is currently forecast to remain near its 2010 level of approximately 20 GWh annually.

## Mersey System

This class involves specific contract energy to one customer, Bowater Mersey Paper Company, in accordance with the Mersey System Agreement.

## Extra Large Industrial Two Part Real Time Pricing (ELI 2P-RTP)

This rate operates with a standard energy rate and credits/charges for actual loads below/above the customer's pre-determined baseline load level (CBL). It is optionally available to, and currently in use by, two large industrial customers that are served at 138 KV . This rate was designed to create a mechanism enabling customers to gain benefits equal to the benefit created by altering load usage in accordance with hourly price signals. The customer pays a standard energy charge with credits based on decremental energy below the CBL and costs added for incremental energy taken above the CBL. In addition, it is priority interruptible in nature from a supply perspective. Sales under this rate in 2010 were $1,857 \mathrm{GWh}$ or approximately 16 percent of NSPI sales. For 2012, 1,904 GWh are forecast on this rate.

## One-Part Real Time Price (1P-RTP)

This is an energy-only rate based on NSPI's 20 minute-ahead forecast hourly marginal energy costs plus differing fixed cost adders for on-peak and off-peak usage. It is available to customers served at transmission or distribution voltages with loads of $2,000 \mathrm{kVA}$ or more. The fixed cost adders are calculated annually in advance and are based on NSPI's budgeted costs. Potentially lower prices in off-peak periods can provide an incentive to customers to shift energy consumption from weekdays to nights and weekends, off the NSPI system peak. This rate was used significantly in 2001 and 2002, but became unattractive to customers in 2003 as off-peak marginal costs rose.

## System Losses and Unbilled Sales

This category includes Nova Scotia Power transmission losses, distribution losses and the year-over-year change in unbilled sales. Losses on sales within the service area of municipal utilities are not included in this class, but are included in the municipal rate class to which they belong. Transmission losses are forecast at approximately 3 percent of the transmission system energy requirement. NSPI distribution losses are forecast at approximately 5.5 percent of distribution level sales. Residential and commercial classes tend to have higher losses due to the lower voltages at which they are served. The overall mix of sales to each sector results in total NSPI losses which are forecast to average 6.6 percent of NSR over the forecast period.

## 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 and due to the weather-sensitive load component in Nova Scotia, the total system peak occurs in the period from December through February.

Peak demands are measured on an individual hour-by-hour basis and are not directly related to monthly heating degree days, but rather to the daily or hourly temperatures which drive space heating load. On some cold weather occasions, load does not reach the anticipated peak due to NSPI requests for interruption or the ELI-2P-RTP customers responding to price signals. For the winter of $2009 / 2010$, the January peak reached $2,114 \mathrm{MW}$ at a temperature of $-13^{\circ} \mathrm{C}$ with the largest industrial customers operating below full load. This peak was 124 MW less than the highest peak that occurred six years earlier in January 2004, when the temperature was $5^{\circ} \mathrm{C}$ colder.

With the exception of large customer classes, monthly and annual net system peaks are computed using forecast monthly energy and average historical coincident load factors for each of the rate classes. Monthly peak loss percentages are applied to each monthly sales peak to produce losses by class and are then summed to produce the total peak demand forecast. This method produces forecast peaks that while not explicitly tied to a particular hourly temperature, recognize and average the actual peak and energy relationships from recent years.

The system peak for 2012 is forecast at 2,308 MW. Over the longer term, net system peak is forecast to decrease to $1,991 \mathrm{MW}$ in 2021, which represents decline of 1.5 percent annual growth rate due to the effects of conservation and DSM programs. Without these programs, annual growth averages 1.0 percent.

## Non-Firm Coincident Peak

NSPI offers interruptible or "non-firm" service to industrial customers. Certain industrial customers who meet specific criteria may utilize discounted rates in exchange for agreeing to have their electricity supply interrupted on short notice in order to meet any necessary emergency peak reductions required to maintain system stability. These rate classes are the "Generation Replacement and Load Following" rate, the "Extra Large Industrial Two Part Real Time Pricing" rate and the "Interruptible" rider of the Large Industrial rate. The combined interruptible demand of these customers coincident with the monthly system peaks may at times exceed 400 MW. At the January 2010 peak, there were 30 customers on these rates, representing a combined coincident non-firm peak of 314 MW .

Non-firm coincident peak demand is forecast explicitly by customer for the near-term and an allowance is made for unallocated or new customer growth in the longer term. Although one customer departed from the non-firm rate in 2009, the remaining customers who currently take non-firm service are expected to continue on the rate and therefore non-firm coincident peak is forecast to grow only moderately from its current level assuming there are no major changes made to the rate's availability or requirements over the forecast period.

## Total Coincident Firm Peak

Total Coincident Firm Peak is the demand at the time of Nova Scotia Power's system peak that is attributable to all firm classes (e.g.: residential, small general, etc.), but excluding the non-firm customer classes mentioned above.

Total Non-coincident Firm Peak is defined as the highest peak demand for the combined firm classes, which may or may not be coincident with the time of NSPI's total system peak, depending upon non-firm customer demand fluctuations. Load shape statistics indicate that especially during winter months, the non-coincident firm peak and the coincident firm peak are usually close, due to the peak often being driven by cold temperatures.

## Load Forecast

## Appendices

## Appendix A

## 2010 NSPI Forecast

## Residential Sector Econometric Model Detail

$D O M E N G=302.4$ AIDX $+0.2540 C H D D-28.25 R R E P+0.1095 R R C G O O D S+0.4458$ DOMENG $_{-1}$


## Residential Model Input Variables and Contributions

| Year | AIDX | $\begin{aligned} & \text { AIDX } \\ & \text { Contrib. } \end{aligned}$ | CHDD | $\begin{aligned} & \text { CHDD } \\ & \text { Contrib. } \end{aligned}$ | Electric Price | Electric Price Contrib. | Consumer Goods Sales | Consumer Goods Contrib. | DomEng ${ }_{[-1]}$ | DomEng $_{[-1]}$ Contrib. | Nat. Gas Effect | Future DSM | DomEng* | Actual | Growth |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | GWh |  | GWh |  | GWh |  | GWh |  | GWh | GWh | GWh | GWh | GWh | \% |
| 1994 | 1.784 | 539 | 3,567 | 906 | 11.90 | -336 | 7,556 | 827 | 3,506.9 | 1,563 |  |  | 3,500 | 3,498 | -0.2\% |
| 1995 | 1.768 | 535 | 3,587 | 911 | 11.74 | -332 | 7,483 | 819 | 3,498.3 | 1,560 |  |  | 3,493 | 3,463 | -1.0\% |
| 1996 | 1.751 | 529 | 3,603 | 915 | 12.02 | -340 | 7,552 | 827 | 3,462.9 | 1,544 |  |  | 3,476 | 3,565 | 2.9\% |
| 1997 | 1.748 | 529 | 3,735 | 949 | 11.73 | -331 | 7,815 | 856 | 3,564.6 | 1,589 |  |  | 3,591 | 3,595 | 0.8\% |
| 1998 | 1.728 | 522 | 3,357 | 853 | 11.72 | -331 | 8,061 | 883 | 3,594.8 | 1,603 |  |  | 3,529 | 3,524 | -2.0\% |
| 1999 | 1.694 | 512 | 3,229 | 820 | 12.17 | -344 | 8,442 | 924 | 3,524.4 | 1,571 |  |  | 3,484 | 3,512 | -0.4\% |
| 2000 | 1.676 | 507 | 3,562 | 905 | 11.68 | -330 | 8,647 | 947 | 3,512.0 | 1,566 |  |  | 3,594 | 3,672 | 4.6\% |
| 2001 | 1.664 | 503 | 3,671 | 933 | 11.42 | -323 | 8,684 | 951 | 3,672.1 | 1,637 |  |  | 3,701 | 3,741 | 1.9\% |
| 2002 | 1.647 | 498 | 3,980 | 1011 | 11.11 | -314 | 8,916 | 976 | 3,741.2 | 1,668 |  |  | 3,839 | 3,829 | 2.3\% |
| 2003 | 1.636 | 495 | 4,163 | 1057 | 11.01 | -311 | 9,023 | 988 | 3,828.9 | 1,707 |  |  | 3,936 | 4,010 | 4.7\% |
| 2004 | 1.613 | 488 | 4,416 | 1122 | 10.78 | -305 | 9,148 | 1,002 | 4,010.5 | 1,788 |  |  | 4,094 | 4,114 | 2.6\% |
| 2005 | 1.595 | 482 | 4,159 | 1056 | 11.21 | -317 | 9,265 | 1,015 | 4,060.1 | 1,810 |  |  | 4,046 | 4,112 | 0.0\% |
| 2006 | 1.578 | 477 | 3,719 | 945 | 11.55 | -326 | 9,400 | 1,029 | 4,133.5 | 1,843 |  |  | 3,967 | 3,979 | -3.2\% |
| 2007 | 1.556 | 471 | 4,630 | 1176 | 10.98 | -310 | 9,579 | 1,049 | 4,108.4 | 1,832 |  |  | 4,222 | 4,218 | 6.1\% |
| 2008 | 1.512 | 457 | 4,570 | 1161 | 11.20 | -316 | 9,868 | 1,081 | 4,175.3 | 1,861 |  |  | 4,260 | 4,231.9 | 0.9\% |
| 2009 | 1.514 | 458 | 4,921 | 1250 | 12.42 | -351 | 10,014 | 1,097 | 4,221.8 | 1,882 |  |  | 4,340 | 4,327.8 | 1.9\% |
| 2010 | 1.492 | 451 | 4,287 | 1089 | 11.59 | -327 | 10,342 | 1,132 | 4,282.0 | 1,909 |  |  | 4,259 | 4,258.3 | -1.9\% |
| 2011 | 1.471 | 445 | 4,968 | 1262 | 11.99 | -339 | 10,428 | 1,142 | 4,398.3 | 1,961 | 0.8 | 31 | 4,444 |  | 4.3\% |
| 2012 | 1.452 | 439 | 5,086 | 1292 | 13.30 | -376 | 10,599 | 1,161 | 4,444.1 | 1,981 | 1.0 | 77 | 4,424 |  | -0.5\% |
| 2013 | 1.434 | 434 | 5,189 | 1318 | 14.19 | -401 | 10,734 | 1,175 | 4,423.7 | 1,972 | 1.1 | 143 | 4,359 |  | -1.5\% |
| 2014 | 1.418 | 429 | 5,273 | 1339 | 14.05 | -397 | 10,829 | 1,186 | 4,358.9 | 1,943 | 1.2 | 204 | 4,300 |  | -1.4\% |
| 2015 | 1.404 | 425 | 5,351 | 1359 | 13.74 | -388 | 10,877 | 1,191 | 4,299.6 | 1,917 | 1.3 | 263 | 4,244 |  | -1.3\% |
| 2016 | 1.391 | 421 | 5,435 | 1381 | 13.61 | -385 | 10,922 | 1,196 | 4,244.4 | 1,892 | 1.4 | 321 | 4,187 |  | -1.3\% |
| 2017 | 1.380 | 417 | 5,524 | 1403 | 13.68 | -386 | 10,936 | 1,198 | 4,187.2 | 1,867 | 1.4 | 379 | 4,122 |  | -1.6\% |
| 2018 | 1.371 | 415 | 5,613 | 1426 | 14.08 | -398 | 10,949 | 1,199 | 4,122.2 | 1,838 | 1.4 | 438 | 4,045 |  | -1.9\% |
| 2019 | 1.363 | 412 | 5,699 | 1447 | 13.82 | -390 | 10,947 | 1,199 | 4,044.6 | 1,803 | 1.5 | 496 | 3,978 |  | -1.6\% |
| 2020 | 1.357 | 410 | 5,786 | 1470 | 13.87 | -392 | 10,935 | 1,197 | 3,978.2 | 1,773 | 1.5 | 555 | 3,907 |  | -1.8\% |
| 2021 | 1.352 | 409 | 5,874 | 1492 | 13.91 | -393 | 10,921 | 1,196 | 3,907.2 | 1,742 | 1.5 | 614 | 3,834 |  | -1.9\% |

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## Commercial Sector Econometric Model Detail

```
Commercial Sector Econometric Model Detail
    COMENG = 0.01906 RQTOS + 0.01362 RPDI + 0.2685 DOMENG + 0.4245 COMENG-I
Forecast Model for ComEng
Regression(4 regressors, 0 lagged errors)
    Term Coefficient Std. Error t-Statistic Percentile
        RQTOS 0.01906 0.005582 3.414 0.9979
        ComEngWA1 0.4245 0.08265 5.136 1.000
        DomEng 0.2685 0.04757 5.644 1.000
        RPDI 0.01362 0.004529 3.009 0.9942
Within-Sample Statistics
    Sample size 30
    Mean 2656.21
    Adj. R-square 1.00 Durbin-Watson 2.03
    Ljung-Box(18) 13.7 P=0.25 Forecast error 29.91
    BIC 34.94
    MAD 20.48
```


## 1 Commercial Model Input Variables and Contributions

| Year | RQTOS | RQTOS contrib GWh | RPDI | RPDI contrib GWh | DomEng | DomEng contrib GWh | ComEng ${ }_{[-1]}$ | ComEng ${ }_{[-1]}$ contrib GWh | Future DSM Effects GWh | ComEng* <br> GWh | Actual GWh | Growth \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1994 | 19,069 | 363 | 16,959 | 231 | 3,498 | 939 | 2,638 | 1,120 |  | 2,654 | 2,660 | 0.8\% |
| 1995 | 19,455 | 371 | 17,085 | 233 | 3,463 | 930 | 2,660 | 1,129 |  | 2,663 | 2,676 | 0.6\% |
| 1996 | 19,490 | 371 | 16,796 | 229 | 3,565 | 957 | 2,676 | 1,136 |  | 2,693 | 2,713 | 1.4\% |
| 1997 | 20,027 | 382 | 17,070 | 232 | 3,595 | 965 | 2,713 | 1,152 |  | 2,731 | 2,725 | 0.5\% |
| 1998 | 20,772 | 396 | 17,707 | 241 | 3,524 | 946 | 2,725 | 1,157 |  | 2,740 | 2,702 | -0.8\% |
| 1999 | 21,971 | 419 | 18,250 | 249 | 3,512 | 943 | 2,725 | 1,157 |  | 2,767 | 2,767 | 2.4\% |
| 2000 | 22,729 | 433 | 18,374 | 250 | 3,672 | 986 | 2,797 | 1,187 |  | 2,857 | 2,829 | 2.3\% |
| 2001 | 23,531 | 448 | 18,652 | 254 | 3,741 | 1,005 | 2,847 | 1,208 |  | 2,915 | 2,959 | 4.6\% |
| 2002 | 24,509 | 467 | 18,668 | 254 | 3,829 | 1,028 | 2,971 | 1,261 |  | 3,011 | 2,996 | 1.3\% |
| 2003 | 24,955 | 476 | 18,562 | 253 | 4,010 | 1,077 | 3,004 | 1,275 |  | 3,081 | 3,091 | 3.1\% |
| 2004 | 25,250 | 481 | 19,074 | 260 | 4,114 | 1,104 | 3,088 | 1,311 |  | 3,156 | 3,188 | 3.1\% |
| 2005 | 25,593 | 488 | 19,385 | 264 | 4,112 | 1,104 | 3,177 | 1,349 |  | 3,205 | 3,225 | 1.2\% |
| 2006 | 25,837 | 492 | 19,833 | 270 | 3,979 | 1,068 | 3,240 | 1,375 |  | 3,206 | 3,211 | -0.4\% |
| 2007 | 26,231 | 500 | 20,376 | 278 | 4,218 | 1,133 | 3,244 | 1,377 |  | 3,287 | 3,343 | 4.1\% |
| 2008 | 26,865 | 512 | 20,663 | 281 | 4,232 | 1,136 | 3,332 | 1,414 |  | 3,351 | 3,327 | 0.2\% |
| 2009 | 26,741 | 510 | 21,187 | 289 | 4,318 | 1,159 | 3,327 | 1,412 |  | 3,368 | 3,320 | 0.5\% |
| 2010 | 27,536 | 525 | 21,581 | 294 | 4,258 | 1,143 | 3,311 | 1,406 |  | 3,365 | 3,365 | -0.1\% |
| 2011 | 28,034 | 534 | 21,677 | 295 | 4,475 | 1,201 | 3,388 | 1,438 | 66 | 3,401 |  | 1.0\% |
| 2012 | 28,575 | 545 | 22,069 | 301 | 4,514 | 1,212 | 3,467 | 1,472 | 171 | 3,355 |  | -1.3\% |
| 2013 | 29,116 | 555 | 22,361 | 305 | 4,542 | 1,220 | 3,527 | 1,497 | 265 | 3,309 |  | -1.4\% |
| 2014 | 29,574 | 564 | 22,558 | 307 | 4,586 | 1,231 | 3,574 | 1,517 | 378 | 3,240 |  | -2.1\% |
| 2015 | 29,984 | 571 | 22,691 | 309 | 4,634 | 1,244 | 3,617 | 1,535 | 485 | 3,173 |  | -2.0\% |
| 2016 | 30,154 | 575 | 22,763 | 310 | 4,682 | 1,257 | 3,658 | 1,553 | 592 | 3,101 |  | -2.3\% |
| 2017 | 30,473 | 581 | 22,820 | 311 | 4,722 | 1,268 | 3,693 | 1,568 | 693 | 3,031 |  | -2.2\% |
| 2018 | 30,795 | 587 | 22,884 | 312 | 4,750 | 1,275 | 3,725 | 1,581 | 788 | 2,965 |  | -2.2\% |
| 2019 | 31,136 | 593 | 22,951 | 313 | 4,789 | 1,286 | 3,753 | 1,593 | 880 | 2,903 |  | -2.1\% |
| 2020 | 31,325 | 597 | 23,007 | 313 | 4,824 | 1,295 | 3,783 | 1,606 | 970 | 2,839 |  | -2.2\% |
| 2021 | 31,436 | 599 | 23,068 | 314 | 4,857 | 1,304 | 3,809 | 1,617 | 1058 | 2,774 |  | -4.4\% |

## Commercial Sector Model Fit



## Industrial Econometric Model Details

Small and Medium Industrial class models are shown below.
$S M_{-} I N D=0.01885$ GDP_Man +0.01278 NonRes_Inv + 0.7220 SM_IND $_{-1}$
$M E D_{-} I N D=0.06218 G D P_{-} M a n+1.168 M a n \_E m p+0.5911 M E D_{-} I N D_{-1}$
Dynamic regression

$$
\text { Regression(3 regressors, } 0 \text { lagged errors) }
$$

Term Coefficient Std. Error t-Statistic Percentile

$$
\begin{array}{lllll}
\text { GDP_Man } & 0.01885 & 0.006059 & 3.165 & 0.9943
\end{array}
$$

$$
\begin{array}{lllll}
\text { SM_IND }[-1] & 0.72200 & 0.07601 & 9.535 & 1.000
\end{array}
$$

$$
\begin{array}{lllll}
\text { NonRes_Inv } & 0.01278 & 0.003134 & 3.893 & 0.9988
\end{array}
$$

Within-Sample Statistics

```
    Sample size 25 No. parameters 3
    Mean 203.80 Std. deviation 45.69
```

    Adj. R-square 0.98 Durbin-Watson 0.93
    Ljung-Box(12) \(11.8 \quad \mathrm{P}=0.53\) Forecast error 5.74
    BIC 6.62 MAPE 2.28\%
    MAD 4.12
    Dynamic regression
    Regression(3 regressors, 0 lagged errors)
    Term Coefficient Std. Error t-Statistic Percentile
        \(\begin{array}{lllll}\text { GDP_Man } & 0.06218 & 0.02548 & 2.441 & 0.9768\end{array}\)
        \(\begin{array}{lllll}\text { MED_IND [-1] } & 0.5911 & 0.1372 & 4.309 & 0.9997\end{array}\)
    \(\begin{array}{lllll}\text { Man_Emp } & 1.168 & 0.4372 & 2.673 & 0.9861\end{array}\)
    Within-Sample Statistics
Sample size 25 No. parameters 3
Mean 455.58 Std. deviation 76.49
Adj. R-square 0.95 Durbin-Watson 1.00
Ljung-Box(17) $25.9 \quad \mathrm{P}=0.92$ Forecast error 17.40
BIC 19.81 MAPE 3.00\%
MAD 13.49

## Industrial Model Input Variables and Contributions

## Small Industrial

| Year | GDP_Man <br> \$M2002 | NonRes_Inv <br> \$M2002 | GDP_Man <br> contrib <br> GWh | NonRes_Inv <br> contrib <br> GWh | Sm_Indr-1] | Sm_Indi-1] <br> contrib <br> GWh | Sm_Ind <br> Model <br> GWh | Sm_Ind <br> Actual <br> GWh | Growth <br> $\%$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{1 9 9 4}$ | 1,877 | 486 | 35 | 6 | 136.5 | 98.5 | 140.1 | 139.3 | $2.0 \%$ |
| $\mathbf{1 9 9 5}$ | 2,020 | 577 | 38 | 7 | 139.3 | 100.6 | 146.0 | 147.5 | $5.9 \%$ |
| $\mathbf{1 9 9 6}$ | 2,015 | 631 | 38 | 8 | 147.5 | 106.5 | 152.5 | 153.0 | $3.7 \%$ |
| $\mathbf{1 9 9 7}$ | 2,154 | 636 | 41 | 8 | 153.0 | 110.5 | 159.2 | 168.4 | $10.0 \%$ |
| $\mathbf{1 9 9 8}$ | 2,216 | 1,812 | 42 | 23 | 168.4 | 121.6 | 186.5 | 192.5 | $14.3 \%$ |
| $\mathbf{1 9 9 9}$ | 2,412 | 2,398 | 45 | 31 | 192.5 | 139.0 | 215.1 | 216.1 | $12.3 \%$ |
| $\mathbf{2 0 0 0}$ | 2,408 | 1,429 | 45 | 18 | 216.1 | 156.1 | 219.7 | 213.9 | $-1.0 \%$ |
| $\mathbf{2 0 0 1}$ | 2,421 | 1,509 | 46 | 19 | 213.9 | 154.4 | 219.3 | 222.4 | $4.0 \%$ |
| $\mathbf{2 0 0 2}$ | 2,662 | 1,379 | 50 | 18 | 222.4 | 160.5 | 228.4 | 234.1 | $5.3 \%$ |
| $\mathbf{2 0 0 3}$ | 2,629 | 1,357 | 50 | 17 | 234.1 | 169.0 | 235.9 | 238.3 | $1.8 \%$ |
| $\mathbf{2 0 0 4}$ | 2,848 | 1,298 | 54 | 17 | 238.3 | 172.1 | 242.4 | 239.2 | $0.4 \%$ |
| $\mathbf{2 0 0 5}$ | 2,856 | 1,070 | 54 | 14 | 239.2 | 172.7 | 240.2 | 241.1 | $0.8 \%$ |
| $\mathbf{2 0 0 6}$ | 2,761 | 1,049 | 52 | 13 | 241.1 | 174.1 | 239.5 | 239.9 | $-0.5 \%$ |
| $\mathbf{2 0 0 7}$ | 2,883 | 914 | 54 | 12 | 239.9 | 173.2 | 239.3 | 248.1 | $3.4 \%$ |
| $\mathbf{2 0 0 8}$ | 2,861 | 1,259 | 54 | 16 | 248.1 | 179.1 | 249.1 | 254.5 | $2.6 \%$ |
| $\mathbf{2 0 0 9}$ | 2,640 | 1,664 | 50 | 21 | 254.5 | 183.7 | 254.8 | 252.6 | $-0.7 \%$ |
| $\mathbf{2 0 1 0}$ | 2,714 | 1,621 | 51 | 21 | 252.6 | 182.4 | 254.3 | 253.7 | $0.5 \%$ |
| $\mathbf{2 0 1 1}$ | 2,837 | 1,582 | 53 | 20 | 253.7 | 183.2 | 256.4 |  | $1.0 \%$ |
| $\mathbf{2 0 1 2}$ | 3,135 | 1,688 | 59 | 22 | 256.4 | 185.1 | 265.3 |  | $3.5 \%$ |
| $\mathbf{2 0 1 3}$ | 3,270 | 1,655 | 62 | 21 | 265.3 | 191.5 | 273.8 |  | $3.2 \%$ |
| $\mathbf{2 0 1 4}$ | 3,337 | 1,625 | 63 | 21 | 273.8 | 197.7 | 280.8 |  | $2.6 \%$ |
| $\mathbf{2 0 1 5}$ | 3,397 | 1,586 | 64 | 20 | 280.8 | 202.8 | 286.6 |  | $2.0 \%$ |
| $\mathbf{2 0 1 6}$ | 3,458 | 1,278 | 65 | 16 | 286.6 | 206.9 | 287.9 |  | $0.5 \%$ |
| $\mathbf{2 0 1 7}$ | 3,519 | 1,277 | 66 | 16 | 287.9 | 207.9 | 290.0 |  | $0.7 \%$ |
| $\mathbf{2 0 1 8}$ | 3,596 | 1,276 | 68 | 16 | 290.0 | 209.4 | 293.0 |  | $1.0 \%$ |
| $\mathbf{2 0 1 9}$ | 3,670 | 1,274 | 69 | 16 | 293.0 | 211.5 | 296.5 |  | $1.2 \%$ |
| $\mathbf{2 0 2 0}$ | 3,743 | 1,299 | 71 | 17 | 296.5 | 214.1 | 300.7 |  | $1.4 \%$ |
| $\mathbf{2 0 2 1}$ | 3,810 | 1,307 | 72 | 17 | 300.7 | 217.1 | 305.1 |  | $1.5 \%$ |
|  |  |  |  |  |  |  |  |  |  |

[^5]Medium Industrial

| Year | GDP_Man <br> \$M2002 | Man_Emp <br> O00's | GDP_Man <br> contrib <br> GWh | Man_Emp <br> contrib <br> GWh | Med_Ind[-1] | Med_Ind_-1] <br> contrib <br> GWh | Med_Ind <br> Model <br> GWh | Med_Ind <br> Actual <br> GWh | Growth <br> $\%$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\mathbf{1 9 9 4}$ | 1,877 | 486 | 116.7 | 42.1 | 381 | 225 | 384 | 389 | $2.0 \%$ |
| $\mathbf{1 9 9 5}$ | 2,020 | 577 | 125.6 | 47.1 | 389 | 230 | 403 | 382 | $-1.8 \%$ |
| $\mathbf{1 9 9 6}$ | 2,015 | 631 | 125.3 | 43.4 | 382 | 226 | 395 | 378 | $-1.1 \%$ |
| $\mathbf{1 9 9 7}$ | 2,154 | 636 | 133.9 | 43.8 | 378 | 223 | 401 | 401 | $6.1 \%$ |
| $\mathbf{1 9 9 8}$ | 2,216 | 1,812 | 137.8 | 47.9 | 401 | 237 | 423 | 414 | $3.3 \%$ |
| $\mathbf{1 9 9 9}$ | 2,412 | 2,398 | 150.0 | 51.3 | 414 | 245 | 446 | 454 | $9.6 \%$ |
| $\mathbf{2 0 0 0}$ | 2,408 | 1,429 | 149.7 | 49.1 | 454 | 268 | 467 | 490 | $7.9 \%$ |
| $\mathbf{2 0 0 1}$ | 2,421 | 1,509 | 150.5 | 49.2 | 490 | 289 | 489 | 518 | $5.8 \%$ |
| $\mathbf{2 0 0 2}$ | 2,662 | 1,379 | 165.5 | 50.7 | 518 | 306 | 522 | 531 | $2.6 \%$ |
| $\mathbf{2 0 0 3}$ | 2,629 | 1,357 | 163.5 | 52.6 | 531 | 314 | 530 | 558 | $4.9 \%$ |
| $\mathbf{2 0 0 4}$ | 2,848 | 1,298 | 177.1 | 51.0 | 558 | 330 | 558 | 567 | $1.8 \%$ |
| $\mathbf{2 0 0 5}$ | 2,856 | 1,070 | 177.6 | 47.1 | 567 | 335 | 560 | 557 | $-1.8 \%$ |
| $\mathbf{2 0 0 6}$ | 2,761 | 1,049 | 171.7 | 45.7 | 557 | 329 | 547 | 567 | $1.8 \%$ |
| $\mathbf{2 0 0 7}$ | 2,883 | 914 | 179.3 | 48.2 | 567 | 335 | 563 | 568 | $0.1 \%$ |
| $\mathbf{2 0 0 8}$ | 2,861 | 1,259 | 177.9 | 45.7 | 568 | 336 | 559 | 539 | $-5.0 \%$ |
| $\mathbf{2 0 0 9}$ | 2,640 | 1,664 | 164.2 | 39.7 | 539 | 319 | 523 | 492 | $-8.8 \%$ |
| $\mathbf{2 0 1 0}$ | 2,714 | 1,621 | 168.8 | 39.2 | 492 | 291 | 493 | 493 | $0.2 \%$ |
| $\mathbf{2 0 1 1}$ | 2,837 | 1,582 | 176.4 | 40.4 | 493 | 291 | 502 |  | $1.9 \%$ |
| $\mathbf{2 0 1 2}$ | 3,135 | 1,688 | 194.9 | 40.8 | 502 | 297 | 526 |  | $4.9 \%$ |
| $\mathbf{2 0 1 3}$ | 3,270 | 1,655 | 203.3 | 40.8 | 526 | 311 | 549 |  | $4.3 \%$ |
| $\mathbf{2 0 1 4}$ | 3,337 | 1,625 | 207.5 | 40.4 | 549 | 325 | 567 |  | $3.1 \%$ |
| $\mathbf{2 0 1 5}$ | 3,397 | 1,586 | 211.2 | 40.7 | 567 | 335 | 581 |  | $2.5 \%$ |
| $\mathbf{2 0 1 6}$ | 3,458 | 1,278 | 215.0 | 40.1 | 581 | 343 | 592 |  | $2.0 \%$ |
| $\mathbf{2 0 1 7}$ | 3,519 | 1,277 | 218.8 | 39.9 | 592 | 350 | 603 |  | $1.8 \%$ |
| $\mathbf{2 0 1 8}$ | 3,596 | 1,276 | 223.6 | 39.7 | 603 | 356 | 614 |  | $1.8 \%$ |
| $\mathbf{2 0 1 9}$ | 3,670 | 1,274 | 228.2 | 39.5 | 614 | 363 | 624 |  | $1.8 \%$ |
| $\mathbf{2 0 2 0}$ | 3,743 | 1,299 | 232.7 | 39.5 | 624 | 369 | 635 |  | $1.7 \%$ |
| $\mathbf{2 0 2 1}$ | 3,810 | 1,307 | 236.9 | 39.6 | 635 | 376 | 646 |  | $1.7 \%$ |
| $\boldsymbol{3}$ |  |  |  |  |  |  |  |  |  |

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*     - to align forecast to actuals in 2010, the model contains a launch adjustment of -6.0 GWh for 2010-2021

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Table A1: Energy Requirement - 2011 NSPI Forecast
Energy Forecast with Future DSM Program Effects

| Year | Residential Sector GWh | Growth <br> \% | Commercial Sector GWh | Growth \% | Industrial Sector GWh | Growth <br> \% | Total Sales GWh | Growth \% | Losses <br> GWh | Total Energy GWh | Growth <br> \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1994 | 3,498 | 0.4 | 2,660 | 1.0 | 2,756 | 0.3 | 8,914 | 0.5 | 679 | 9,593 | 0.0 |
| 1995 | 3,463 | -1.0 | 2,676 | 0.6 | 2,864 | 3.9 | 9,003 | 1.0 | 671 | 9,674 | 0.8 |
| 1996 | 3,565 | 2.9 | 2,713 | 1.4 | 2,774 | -3.1 | 9,052 | 0.5 | 701 | 9,753 | 0.8 |
| 1997 | 3,595 | 0.8 | 2,725 | 0.5 | 2,867 | 3.3 | 9,187 | 1.5 | 778 | 9,965 | 2.2 |
| 1998 | 3,524 | -2.0 | 2,702 | -0.8 | 3,442 | 20.1 | 9,668 | 5.2 | 743 | 10,412 | 4.5 |
| 1999 | 3,512 | -0.4 | 2,767 | 2.4 | 3,872 | 12.5 | 10,150 | 5.0 | 720 | 10,870 | 4.4 |
| 2000 | 3,672 | 4.6 | 2,829 | 2.3 | 3,930 | 1.5 | 10,431 | 2.8 | 809 | 11,240 | 3.4 |
| 2001 | 3,741 | 1.9 | 2,959 | 4.6 | 3,873 | -1.5 | 10,573 | 1.4 | 730 | 11,303 | 0.6 |
| 2002 | 3,829 | 2.3 | 2,996 | 1.3 | 3,799 | -1.9 | 10,624 | 0.5 | 877 | 11,501 | 1.8 |
| 2003 | 4,010 | 4.7 | 3,091 | 3.1 | 4,046 | 6.5 | 11,147 | 4.9 | 862 | 12,009 | 4.4 |
| 2004 | 4,114 | 2.6 | 3,188 | 3.1 | 4,212 | 4.1 | 11,513 | 3.3 | 874 | 12,388 | 3.2 |
| 2005 | 4,114 | 0.0 | 3,223 | 1.1 | 4,215 | 0.1 | 11,553 | 0.3 | 786 | 12,338 | -0.4 |
| 2006 | 3,979 | -3.3 | 3,211 | -0.4 | 2,888 | -31.5 | 10,078 | -12.8 | 868 | 10,946 | -11.3 |
| 2007 | 4,218 | 6.0 | 3,343 | 4.1 | 4,205 | 45.6 | 11,767 | 16.8 | 873 | 12,639 | 15.5 |
| 2008 | 4,232 | 0.3 | 3,327 | -0.5 | 4,161 | -1.0 | 11,720 | -0.4 | 819 | 12,539 | -0.8 |
| 2009 | 4,318 | 2.0 | 3,320 | -0.2 | 3,658 | -12.1 | 11,297 | -3.6 | 777 | 12,073 | -3.7 |
| 2010 | 4,216 | -2.4 | 3,305 | -0.5 | 3,932 | 7.5 | 11,453 | 1.4 | 704 | 12,158 | 0.7 |
| 2011 | 4,444 | 5.4 | 3,401 | 2.9 | 3,995 | 1.6 | 11,840 | 3.4 | 848 | 12,688 | 4.4 |
| 2012 | 4,437 | -0.2 | 3,355 | -1.3 | 4,018 | 0.6 | 11,811 | -0.2 | 836 | 12,647 | -0.3 |
| 2013 | 4,399 | -0.9 | 3,309 | -1.4 | 3,971 | -1.2 | 11,679 | -1.1 | 828 | 12,507 | -1.1 |
| 2014 | 4,381 | -0.4 | 3,240 | -2.1 | 3,898 | -1.8 | 11,519 | -1.4 | 820 | 12,339 | -1.3 |
| 2015 | 4,372 | -0.2 | 3,173 | -2.0 | 3,826 | -1.8 | 11,371 | -1.3 | 809 | 12,180 | -1.3 |
| 2016 | 4,361 | -0.2 | 3,101 | -2.3 | 3,748 | -2.0 | 11,209 | -1.4 | 799 | 12,008 | -1.4 |
| 2017 | 4,343 | -0.4 | 3,031 | -2.2 | 3,670 | -2.1 | 11,044 | -1.5 | 788 | 11,832 | -1.5 |
| 2018 | 4,312 | -0.7 | 2,965 | -2.2 | 3,598 | -1.9 | 10,876 | -1.5 | 775 | 11,651 | -1.5 |
| 2019 | 4,293 | -0.5 | 2,903 | -2.1 | 3,532 | -1.9 | 10,727 | -1.4 | 765 | 11,492 | -1.4 |
| 2020 | 4,269 | -0.6 | 2,839 | -2.2 | 3,471 | -1.7 | 10,579 | -1.4 | 754 | 11,333 | -1.4 |
| 2021 | 4,243 | -1.2 | 2,774 | -4.4 | 3,412 | -3.4 | 10,430 | -2.8 | 743 | 11,173 | -2.8 |

Table A2: Energy Requirement - 2011 NSPI Forecast

Energy Forecast without Future DSM Program Effects

| Year | Residential Sector GWh | Growth \% | Commercial Sector GWh | Growth \% | Industrial Sector GWh | Growth \% | Total <br> Sales <br> GWh | Growth \% | Losses GWh | Total <br> Energy <br> GWh | Growth \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1994 | 3,498 | 0.4 | 2,660 | 1.0 | 2,756 | 0.3 | 8,914 | 0.5 | 679 | 9,593 | 0.0 |
| 1995 | 3,463 | -1.0 | 2,676 | 0.6 | 2,864 | 3.9 | 9,003 | 1.0 | 671 | 9,674 | 0.8 |
| 1996 | 3,565 | 2.9 | 2,713 | 1.4 | 2,774 | -3.1 | 9,052 | 0.5 | 701 | 9,753 | 0.8 |
| 1997 | 3,595 | 0.8 | 2,725 | 0.5 | 2,867 | 3.3 | 9,187 | 1.5 | 778 | 9,965 | 2.2 |
| 1998 | 3,524 | -2.0 | 2,702 | -0.8 | 3,442 | 20.1 | 9,668 | 5.2 | 743 | 10,412 | 4.5 |
| 1999 | 3,512 | -0.4 | 2,767 | 2.4 | 3,872 | 12.5 | 10,150 | 5.0 | 720 | 10,870 | 4.4 |
| 2000 | 3,672 | 4.6 | 2,829 | 2.3 | 3,930 | 1.5 | 10,431 | 2.8 | 809 | 11,240 | 3.4 |
| 2001 | 3,741 | 1.9 | 2,959 | 4.6 | 3,873 | -1.5 | 10,573 | 1.4 | 730 | 11,303 | 0.6 |
| 2002 | 3,829 | 2.3 | 2,996 | 1.3 | 3,799 | -1.9 | 10,624 | 0.5 | 877 | 11,501 | 1.8 |
| 2003 | 4,010 | 4.7 | 3,091 | 3.1 | 4,046 | 6.5 | 11,147 | 4.9 | 862 | 12,009 | 4.4 |
| 2004 | 4,114 | 2.6 | 3,188 | 3.1 | 4,212 | 4.1 | 11,513 | 3.3 | 874 | 12,388 | 3.2 |
| 2005 | 4,114 | 0.0 | 3,223 | 1.1 | 4,215 | 0.1 | 11,553 | 0.3 | 785 | 12,338 | -0.4 |
| 2006 | 3,979 | -3.3 | 3,211 | -0.4 | 2,888 | -31.5 | 10,078 | -12.8 | 868 | 10,946 | -11.3 |
| 2007 | 4,218 | 6.0 | 3,343 | 4.1 | 4,205 | 45.6 | 11,767 | 16.8 | 873 | 12,639 | 15.5 |
| 2008 | 4,232 | 0.3 | 3,327 | -0.5 | 4,161 | -1.0 | 11,720 | -0.4 | 819 | 12,539 | -0.8 |
| 2009 | 4,318 | 2.0 | 3,320 | -0.2 | 3,658 | -12.1 | 11,297 | -3.6 | 777 | 12,073 | -3.7 |
| 2010 | 4,216 | -2.4 | 3,305 | -0.5 | 3,932 | 7.5 | 11,453 | 1.4 | 704 | 12,158 | 0.7 |
| 2011 | 4,475 | 0.8 | 3,467 | 1.2 | 4,004 | 2.1 | 11,946 | 1.4 | 857 | 12,803 | 1.3 |
| 2012 | 4,514 | 1.9 | 3,527 | 2.1 | 4,053 | 0.7 | 12,094 | 1.6 | 859 | 12,953 | 1.6 |
| 2013 | 4,542 | 1.7 | 3,574 | 1.7 | 4,091 | 0.5 | 12,208 | 1.3 | 869 | 13,077 | 1.3 |
| 2014 | 4,586 | 1.6 | 3,617 | 1.5 | 4,123 | 0.5 | 12,326 | 1.2 | 882 | 13,208 | 1.3 |
| 2015 | 4,634 | 1.6 | 3,658 | 1.4 | 4,152 | 0.6 | 12,444 | 1.2 | 890 | 13,334 | 1.2 |
| 2016 | 4,682 | 1.1 | 3,693 | 1.2 | 4,174 | 0.6 | 12,548 | 1.0 | 899 | 13,447 | 1.0 |
| 2017 | 4,722 | 1.1 | 3,725 | 1.1 | 4,193 | 0.6 | 12,641 | 0.9 | 907 | 13,547 | 0.9 |
| 2018 | 4,750 | 1.1 | 3,753 | 1.0 | 4,215 | 0.6 | 12,718 | 0.9 | 913 | 13,631 | 0.9 |
| 2019 | 4,789 | 0.9 | 3,783 | 1.0 | 4,238 | 0.6 | 12,810 | 0.8 | 921 | 13,730 | 0.8 |
| 2020 | 4,824 | 0.9 | 3,809 | 1.0 | 4,263 | 0.6 | 12,895 | 0.8 | 928 | 13,823 | 0.8 |
| 2021 | 4,857 | 0.6 | 3,832 | 0.7 | 4,285 | 0.6 | 12,975 | 0.6 | 934 | 13,909 | 0.6 |

1 Table A3: Coincident Peak Demand - 2011 NSPI Forecast
2

| Year | Net System Peak MW | Growth \% | Non-Firm Peak MW | Growth \% | Firm Peak MW | Growth \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2000 | 2,009 | 6.6 | 412 | 33.3 | 1,597 | 1.3 |
| 2001 | 1,988 | -1 | 369 | -10.4 | 1,619 | 1.4 |
| 2002 | 2,078 | 4.5 | 348 | -5.7 | 1,730 | 6.9 |
| 2003 | 2,074 | -0.2 | 291 | -16.4 | 1,783 | 3.1 |
| 2004 | 2,238 | 7.9 | 377 | 29.6 | 1,861 | 4.4 |
| 2005 | 2,143 | -4.2 | 392 | 4.0 | 1,751 | -5.9 |
| 2006 | 2,029 | -5.3 | 386 | -1.5 | 1,644 | -6.1 |
| 2007 | 2,145 | 5.7 | 381 | -1.3 | 1,764 | 7.3 |
| 2008 | 2,192 | 2.2 | 352 | -7.5 | 1,840 | 4.3 |
| 2009 | 2,092 | -4.5 | 268 | -23.9 | 1,824 | -0.8 |
| 2010 | 2,114 | 1.0 | 295 | 10.0 | 1,820 | -0.3 |
| 2011 | 2,310 | 9.3 | 316 | 7.3 | 1,994 | 9.6 |
| 2012 | 2,308 | -0.1 | 309 | -2.4 | 2,000 | 0.3 |
| 2013 | 2,277 | -1.4 | 308 | -0.3 | 1,970 | -1.5 |
| 2014 | 2,242 | -1.6 | 304 | -1.3 | 1,938 | -1.6 |
| 2015 | 2,208 | -1.5 | 298 | -1.9 | 1,910 | -1.4 |
| 2016 | 2,173 | -1.6 | 292 | -1.9 | 1,880 | -1.5 |
| 2017 | 2,135 | -1.7 | 287 | -2.0 | 1,849 | -1.7 |
| 2018 | 2,096 | -1.9 | 281 | -1.9 | 1,815 | -1.8 |
| 2019 | 2,061 | -1.7 | 276 | -1.8 | 1,785 | -1.6 |
| 2020 | 2,026 | -1.7 | 271 | -1.7 | 1,755 | -1.7 |
| 2021. | 1,991 | -1.7 | 267 | -1.7 | 1,725 | -1.7 |


| Year | Net System Peak MW | Growth \% | Non-Firm Peak MW | Growth \% | Firm Peak MW | Growth \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2000 | 2,009 | 6.6 | 412 | 33.3 | 1,597 | 1.3 |
| 2001 | 1,988 | -1 | 369 | -10.4 | 1,619 | 1.4 |
| 2002 | 2,078 | 4.5 | 348 | -5.7 | 1,730 | 6.9 |
| 2003 | 2,074 | -0.2 | 291 | -16.4 | 1,783 | 3.1 |
| 2004 | 2,238 | 7.9 | 377 | 29.6 | 1,861 | 4.4 |
| 2005 | 2,143 | -4.2 | 392 | 4.0 | 1,751 | -5.9 |
| 2006 | 2,029 | -5.3 | 386 | -1.5 | 1,644 | -6.1 |
| 2007 | 2,145 | 5.7 | 381 | -1.3 | 1,764 | 7.3 |
| 2008 | 2,192 | 2.2 | 352 | -7.5 | 1,840 | 4.3 |
| 2009 | 2,092 | -4.5 | 268 | -23.9 | 1,824 | -0.8 |
| 2010 | 2,114 | 1.0 | 295 | 10.0 | 1,820 | -0.3 |
| 2011 | 2,344 | 10.9 | 317 | 7.7 | 2,026 | 11.4 |
| 2012 | 2,369 | 1.1 | 311 | -2.0 | 2,058 | 1.5 |
| 2013 | 2,390 | 0.9 | 314 | 0.9 | 2,076 | 0.9 |
| 2014 | 2,415 | 1.0 | 316 | 0.8 | 2,099 | 1.1 |
| 2015 | 2,439 | 1.0 | 318 | 0.7 | 2,120 | 1.0 |
| 2016 | 2,461 | 0.9 | 320 | 0.5 | 2,141 | 1.0 |
| 2017 | 2,480 | 0.8 | 322 | 0.5 | 2,159 | 0.8 |
| 2018 | 2,496 | 0.6 | 323 | 0.5 | 2,172 | 0.6 |
| 2019 | 2,515 | 0.8 | 325 | 0.5 | 2,190 | 0.8 |
| 2020 | 2,532 | 0.7 | 327 | 0.6 | 2,205 | 0.7 |
| 2021 | 2,548 | 1.3 | 329 | 1.1 | 2,220 | 1.4 |

Table A4: Coincident Peak Demand - 2010 NSPI Forecast

Peak Forecast without Future DSM Program Effects

|  |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Class Billed Sales (GWh) | 2007 Actual | 2008 Actual | 2009 Actual | 2010 Actual | 2011 | 2012 |
| Residential | 4,142 | 4,156 | 4,244 | 4,144 | 4,370 | 4,364 |
| Small General | 246 | 239 | 237 | 235 | 231 | 219 |
| General Demand | 2,471 | 2,463 | 2,458 | 2,447 | 2,547 | 2,531 |
| Large General | 420 | 419 | 417 | 416 | 408 | 394 |
| Unmetered | 112 | 112 | 112 | 113 | 118 | 116 |
| Small Industrial | 248 | 254 | 253 | 254 | 255 | 262 |
| Medium Industrial | 568 | 539 | 492 | 495 | 496 | 512 |
| Large Industrial | 984 | 996 | 901 | 929 | 933 | 933 |
| RTP | 0 | 0 | 0 | 0 | 0 | 0 |
| Mersey System | 368 | 369 | 291 | 356 | 368 | 369 |
| GR\&LF | 20 | 11 | 6 | 20 | 19 | 19 |
| Municipal | 197 | 197 | 198 | 193 | 199 | 197 |
| ELI Rate | 2,002 | 1,976 | 1,695 | 1,857 | 1899 | 1904 |
| Total Billed Sales | 11,778 | 11,732 | 11,304 | 11,461 | 11,843 | 11,819 |
| Losses \& UUnbilled | 861 | 807 | 769 | 697 | 840 | 828 |
| Net System Requirement | 12,640 | 12,539 | 12,073 | 12,158 | 12,683 | 12,647 |

Table A3: Energy Sales by Rate Class - 2010 NSPI Forecast

Rate Class Energy Sales
With Future DSM Program Effects

Rate Class Energy Sales
Without Future DSM Program Effects

| Class Billed Sales (GWh) | 2007 Actual | 2008 Actual | 2009 Actual | 2010 Actual | 2011 | 2012 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Residential | 4,142 | 4,156 | 4,244 | 4,144 | 4,399 | 4,438 |
| Small General | 246 | 239 | 237 | 235 | 240 | 242 |
| General Demand | 2,471 | 2,463 | 2,458 | 2,447 | 2,593 | 2,648 |
| Large General | 420 | 419 | 417 | 416 | 418 | 418 |
| Unmetered | 112 | 112 | 112 | 113 | 118 | 120 |
| Small Industrial | 248 | 254 | 253 | 254 | 256 | 265 |
| Medium Industrial | 568 | 539 | 492 | 495 | 502 | 526 |
| Large Industrial | 984 | 996 | 901 | 929 | 939 | 948 |
| RTP | 0 | 0 | 0 | 0 | 0 | 0 |
| Mersey System | 368 | 369 | 291 | 356 | 368 | 369 |
| GR\&LF | 20 | 11 | 6 | 20 | 19 | 19 |
| Municipal | 197 | 197 | 198 | 193 | 202 | 204 |
| ELI Rate | 2,002 | 1,976 | 1,695 | 1,857 | 1899 | 1904 |
| Total Billed Sales | 11,778 | 11,732 | 11,304 | 11,461 | 11,954 | 12,102 |
| Losses \& $\Delta$ Unbilled | 861 | 807 | 769 | 697 | 849 | 851 |
| Net System Requirement | 12,640 | 12,539 | 12,073 | 12,158 | 12,803 | 12,953 |

## Appendix B

## Figures

Figure B1: Nova Scotia Gross Domestic Product Basic Prices


Note: Statistics Canada often re-estimates historical information to reconcile with changes in variable composition and to ensure historical consistency with forecasts. This is the case in the graph above.

Figure B2: Nova Scotia Consumer Goods Sales


Note: Statistics Canada often re-estimates historical information to reconcile with changes in variable composition and to ensure historical consistency with forecasts. This is the case in the graph above.

Figure B3: Nova Scotia Real Disposable Income


Note: Statistics Canada often re-estimates historical information to reconcile with changes in variable composition and to ensure historical consistency with forecasts. This is the case in the graph above.

Figure B4: Nova Scotia Manufacturing GDP and Non-Residential Investment


Figure B5: Nova Scotia Manufacturing Employment


Figure B6: Nova Scotia Energy Sales


Figure B7: Total Nova Scotia Energy Losses


Figure B6: Total Nova Scotia Energy Requirement (NSR)


Figure B7: Net System Peak Demand and Firm Peak Demand


## Appendix C

## Forecast Sensitivity by Major Variable

| Variable | Assumed Change | Effect on 2011 Load GWh | Effect on 2016 Load GWh |
| :---: | :---: | :---: | :---: |
| Lagged Dependent Variable $2 \%$ growth on base year, 2010 | Residential | 28.1 | 0.7 |
|  | Commercial | 12.9 | 0.1 |
|  | Industrial | 10.3 | 1.2 |
|  | All | 51.4 | 2.1 |
| Consumer Goods Sales | +2\%/yr (2011 on) | 62.6 | 427.1 |
| Gross Domestic Product (GDP) | +2\%/yr (2011 on) | 11.4 | 117.3 |
| GDP - Manufacturing | +2\%/yr (2011 on) | 4.8 | 70.4 |
| Real Disposable Income | +2\%/yr (2011 on) | 6.4 | 63.8 |
| Investment - Non-Residential | +2\%/yr (2011 on) | 0.4 | 5.7 |
| Employment - Manufacturing Sector | +2\%/yr (2011 on) | 0.9 | 10.2 |
| Residential Electricity Price | +10\% in 2011 | -46.8 | -156.1 |
| Heating Degree-Days | + 200 HDD/yr (2011 on) | 86.9 | 192.4 |
| Heating Oil Price | +10¢ per litre (2011 on) | 0.0 | 43.5 |
| DSM Program Effects | half of projected reduction | 59.9 | 699.4 |
| Residential Customer Additions | +2000/yr (2011 on) | 21.8 | 223.6 |

## Appendix C: Forecast Sensitivity by Major Variable

## Forecast Sensitivity by Major Variable

Based upon the 2011 load forecast models, the following table shows the relative sensitivity of the forecast to changes in various input assumptions.

Note: This table portrays changes to individual variables only. In many cases, there are interdependencies that would require scenario development for more complete evaluation.

## Requirement:

Fuel Price Forecasts (industry forecasts used to indicate future trends in gas, oil, and coal prices).

## Submission:

The following industry information has been used to develop the fuel forecast used in NSPI’s 2012 General Rate Application:

- Price strip for natural gas from NYMEX, basis $\square$ quote
- $\quad$ Price strip for Heavy Fuel Oil, broker quotes
- Price strip for Light Fuel oil, broker quotes
- McCloskey’s FAX: International Coal Market Update
- Wood MacKenzie Quarterly Price Forecast
- Indicative Offers

This information has been purchased from various industry associations and is copyrighted. NSPI cannot therefore reproduce these reports for distribution to other parties. This information is available for viewing at NSPI offices.

Requirement:

Lead-Lag Study.

Submission:

Please refer to Attachment 1.

# Nova Scotia Power Inc. 

# Lead-Lag Study <br> For Determining <br> Cash Working Capital 

March 30, 2011

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Exhibits:
JTBC-1: Resume - John T. Browne

## INTRODUCTION

Nova Scotia Power Inc. ("NSPI") is an integrated electric utility. Its rates are regulated by the Nova Scotia Utility and Review Board ("NSUARB") using a return on rate base methodology. This methodology allows NSPI an opportunity to recover through its regulated rates a fair return on its rate base. To support the amount of cash working capital included in its 2012 rate base, the utility has conducted a lead-lag study.

Based on its lead-lag study which reflects its estimates as of March 25, 2011, NSPI has estimated its cash working capital requirement for the 2012 test year to be $\$ 66.6$ million. The calculation of this amount is set out in Table 1 which replicates Table 12 in the "Summary of Results" section.

Table 1 presents:

- the major categories of cash operating expenses;
- the revenue lag ("Rev Lag") for each expense category which is discussed in a later section and which is the same for each expense category except for Cost of Goods Sold;
- the expense lag ("Exp Lag") for each expense category which are discussed in a later section;
- the net lag for each expense category which is equal to the revenue lag less the expense lag;
- the cash working capital percentage ("CWC \%") for each expense category which is equal to the net lag divided by $366^{1}$;
- the cash working capital for each expense category which is equal to the cash operating expense multiplied by the cash working capital percentage;
- the total of the cash working capital for each of the cash operating expense categories;
- the cash working capital associated with the harmonized sales tax ("HST") the goods and services tax ("GST") and demand side management ("DSM") which are discussed in a later section; and
- the total cash working capital that should be included in NSPI's 2012 rate base.

[^6]

[^7]In Table 1, there is no revenue lag for Cost of Goods Sold. Many customers pay at the time of purchase (or shortly thereafter), and the amounts are immaterial. Therefore, to be conservative, NSPI assumed a zero revenue lag for this expense.

NSPI asked me as a chartered accountant and economist with experience in addressing regulatory issues ${ }^{3}$ to:

- Advise on the methodology for its lead-lag study.
- Review its lead-lag study to determine whether the methodology is reasonable and adequately supports the determination of the net cash working capital that is to be included in NSPI's rate base for the 2012 test year.

Based on my understanding of NSPI's methodology as set out in the "Opinion" section, the methodology that NSPI used in its lead-lag study is a reasonable application of the traditional approach used by regulated utilities to establish their cash working capital requirement, and therefore, for purposes of establishing its 2012 rate base, the methodology adequately supports the determination of NSPI's cash working capital requirement. As discussed in the "Opinion" section, my opinion deals solely with the methodology employed by NSPI.

The next five sections of this report sets out my understanding of NSPI's lead-lag study. The next section presents the basic methodology used in the study. This is followed by sections that discuss the revenue lag; the expense lags for each of the cash operating expense categories; the impact of the HST / GST and DSM on NSPI's cash working capital; and the summary of the study results.

The last section presents my opinion on the methodology used in NSPI's lead-lag study.

[^8]
## METHODOLOGY

NSPI has completed a lead-lag study to support the cash working capital that will be included in its rate base for the 2012 test year.

## CASH WORKING CAPITAL

In carrying out its operations, a utility incurs costs that are recovered through its revenues. However, there is usually a lag from the time that a utility pays for the costs to provide service and the time it collects the revenues to recover those costs. Cash working capital represents the investment required to fund cash operating expenses until they are recovered through the collection of revenues.

NSPI is regulated under a return on rate base methodology whereby a return is included in the revenue requirement that it is allowed to recover through rates. The return is expected to compensate the utility for the cost of its investment in regulated operations and is calculated by multiplying the utility's average rate base by its weighted average cost of capital. This rate base should equal its investment required for regulated operations, including the amount required to fund cash working capital.

## SCOPE

NSPI has employed the definition of cash working capital traditionally used by regulated utilities. This traditional definition defines cash working capital as the investment required to finance cash operating expenses from the time they are paid until the time they are recovered from customers.

In determining cash working capital, the traditional definition considers payables associated with cash operating expenses and receivables associated with the revenues intended to recover these costs.

Cash working capital based on the traditional definition is what the NSUARB approved in the last decision in which it specifically dealt with this issue ${ }^{4}$.

## LEAD-LAG STUDY

NSPI has used a lead-lag study to determine its cash working capital. This method of estimating the amount of cash working capital is the one most commonly used by major Canadian utilities.

[^9]With a lead-lag study, a utility determines the average time from payment of cash operating expenses to the time those costs are recovered from customers. This establishes the average amount of cash working capital required per dollar of cash operating expenses. The result is applied to the estimated amount of cash operating expenses to determine the cash working capital that should be included in the utility's rate base. A lead-lag study tends to reflect the most accurate measure of the cash working capital required by a utility.

The measurement of the time between payment and recovery of cash operating expenses is usually broken into two steps: the time between the provision of service and the time of recovery; and the time between the provision of service and payment. The net lag (or lead) is determined by subtracting the second period of time from the first.

A lead-lag study involves the following steps:

- Determine the average net lag from the time of sale to the time that the revenues are collected from customers (i.e., revenue lag).
- Determine the average net lag from the time of sale to the time of payment for each major category of cash operating expense (i.e., expense lag).
- Calculate the average net lag for each category of cash operating expense by subtracting the average expense lag for that category from the average revenue lag.
- Calculate the net cash working capital associated with each category of cash operating expense (i.e., expense * net lag / number of days in the year)
- Calculate the total of the working capital associated with each cash operating expense.
- Add the net impact of the collection and payment of sales taxes and similar items (i.e., HST / GST and DSM) on working capital.


## DATA

In completing its lead-lag study, NSPI used data from 2009. At the time the study was undertaken, this was the most recent year for which a complete year of data was available.

With regards to the revenues and expenses used in the study, NSPI started with the amounts from its 2009 regulated statements. NSPI then removed the amounts listed in Table 2 from its expenses because they were not cash operating expenses.

Table 2

| Lead - Lag Study <br> Exclusions From 2009 Expenses |  |
| :--- | ---: |
| Depreciation Expense | $\$ \mathrm{~mm}$ |
| Accretion Expense | 140.2 |
| Regulatory Amortization | 3.3 |
| Fuel Adjustment Mechanism | 27.2 |
| Future Income Taxes | 13.5 |
| Bad Debt Expense | -5.2 |
| Interest | 4.6 |
| Preferred Dividends | 111.5 |
| AFUDC | 9.5 |
|  |  |

## HEDGES

NSPI enters into hedging arrangements for foreign exchange and commodity prices to help manage the risk associated with its fuel purchases. These hedges may affect the timing of the cash flows associated with its purchases, and therefore affect the related net expense lag.

The impact of the hedges on NSPI's cash working capital requirements is difficult to estimate, and over time, it is expected the impacts will tend to average out to zero. As a result, in establishing individual expense lags, the impact of hedges was not included in the calculations.

This is consistent with how hedges were treated in NSPI's previous lead-lag study

## ADJUSTMENTS FOR 2012

Once the study was completed using data from 2009, the results were adjusted for estimated changes between 2009 and 2012. These changes are set out in the "Summary of Results" section and are based on NSPI's estimates as of March 25, 2011.

## NET LAG - REVENUES

The net revenue lag represents the average number of days between the provision of service and the date that the revenue from the service is collected from customers. It is comprised of three lags:

- service lag - the number of days between the provision of service and the end of the service period;
- billing lag - the number of days between the end of the service period and the date that an invoice is issued; and
- collection lag - the number of days between the date that an invoice is issued and the date the money is collected from customers.

NSPI calculated a weighted average revenue lag of 51.56 days. As set out in Table 3, this is a weighted average of the lags for each of the following revenue categories:

- Bi-monthly Customers
- Monthly Customers
- Large Customers
- Grid Sales
- Ecoenergy Rebates
- Natural Gas Sales


## BI-MONTHLY AND MONTHLY CUSTOMERS

Domestic (i.e. residential), commercial and industrial customers other than large customers (discussed below) are billed either bi-monthly or monthly with billing dates spread throughout the month. Standard payment terms are 30 days for bi-monthly customers and 20 days for monthly customers.

The average service lag was 29.92 days for bi-monthly customers and 14.71 days for monthly customers. The billing lag for both types of customers was 2 days.

The average collection lag was determined by dividing the average accounts receivable by the average daily billings (i.e., total billings divided by 365). Prior to this calculation, the allowance for doubtful accounts was removed from accounts receivable and the bad debt expense was removed from the total billings. Except for a specific allowance related to large customers, it was assumed that both the allowance for doubtful accounts and the bad debts expense applied only to the bi-monthly and monthly customers.

|  |  |  |  |  |  | Table 3 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Revenue Net Lag 2009 |  |  |  |  |  |
| Bi-monthly Customers | 2009 Revenues |  | Lag |  |  |  |
|  | \$,000 \% |  | $\underline{\text { Service }}$ | Billing \& Collection | $\underline{\text { Net }}$ | Weighted Average |
|  | 635,983 | 50.59 | 29.92 | 35.21 | 65.13 | 32.95 |
| Monthly Customers | 328,985 | 26.17 | 14.71 | 24.31 | 39.02 | 10.21 |
| Large |  |  |  |  |  |  |
| Customers | 247,943 | 19.72 | 14.71 | 20.37 | 35.08 | 6.92 |
| Grid Sales | 895 | 0.07 | 14.81 | 20.18 | 34.99 | 0.02 |
| Natural Gas Sales | 42,643 | 3.39 | 14.66 | 25.48 | 40.14 | 1.36 |
| Ecoenergy Rebates | 735 | 0.06 | 45.13 | 124.63 | 169.75 | 0.10 |
|  | 1,257,183 |  |  |  |  | 51.56 |

After removing the amount related to large customers, the remainder of the allowance for doubtful accounts was allocated to the bi-monthly and monthly customer classes on the basis of their average accounts receivable balances. The bad debt expense was then allocated on the same basis as the allowance for doubtful accounts.

The average accounts receivable was calculated as the average of the weekly balances. Only 46 weeks of data were available. For the other six weeks, the average for the previous and subsequent weeks was used.

The above calculations produced a weighted average collection lag of 33.21 days for bimonthly customers and 22.31 days for monthly customers. With the billing lag of two days, the total billing and collection lags were 35.21 days and 24.31 days.

## LARGE CUSTOMERS

In 2009, 65 customers fell in the category of Large Customers. They are billed monthly on the first business day following the month that service is provided. However, the invoices are dated the last day of the month for which service was provided. The standard payment terms are 20 days.

Since Large Customers are billed monthly, the average service lag was 14.71 days; and since the invoices are dated the last day of the month for which service was provided, the billing lag was zero days.

To determine the average collection period, NSPI conducted a detailed review of all billings to Large Customers in 2009. NSPI identified the invoice date and the payment date for each bill and calculated a weighted average collection lag of 20.37 days.

## GRID SALES

Grid sales are power sales to customers outside of Nova Scotia. Sales for each month are invoiced in the following month with settlement in the latter part of that month. It was assumed that any sales are made evenly throughout each month resulting in a service lag ranging from 13.5 to 15 days.

NSPI reviewed each of the invoices covering its grid sales in 2009 to identify the service, billing and collection lags. NSPI then calculated the total net lag for each invoice and the weighted average net lag for all invoices.

## NATURAL GAS SALES

Where it has excess gas, NSPI resells its natural gas. Sales for each month are invoiced in the following month with settlement towards the end of that month. It was assumed that sales are made evenly throughout each month resulting in a service lag ranging from 13.5 to 15 days.

NSPI reviewed each of the invoices covering its natural gas sales in 2009 to identify the service, billing and collection lags. It then calculated the total net lag for each invoice and the weighted average net lag for all invoices.

## ECOENERGY REBATES

Ecoenergy rebates are amounts received through the Federal Government's Ecoenergy program. The rebates offset the cost of renewable power.

At the end of each quarter, a claim is made to the Federal Government for the rebates.
In 2009, the claims were made by an IPP that sold power to NSPI. The IPP then passed on to NSPI its share of the rebates. NSPI reviewed each of the four payments covering the rebates
to identify the service, billing and collections lags. It then calculated the total net lag for each payment and the weighted average net lag for all of the payments.

In 2012, it is expected that NSPI will continue to receive rebates indirectly through IPPs but will also make claims directly for renewable energy that it produces. This is not expected to have a material impact on NSPI's net revenue lag.

## NET LAG - CASH OPERATING EXPENSES

The expense lag represents the time from the provision of service by NSPI to the time the related cash operating expenses are paid. It can comprise three lags:

- service lag - where a supplier provides a service over a period of time, the average number of days between the provision of service by the supplier and the end of the service period;
- billing lag - the number of days between the end of the service period, or the date goods are acquired, and the date that an invoice is issued; and
- payment lag - the number of days between the date that an invoice is issued and the date the amount is paid to the supplier.

NSPI divided its cash operating expenses into the following categories and calculated a net expense lag for each category:

- Fuels
- Cost of Goods Sold
- OM\&G - Labour
- OM\&G - Other
- Grants in Lieu of Taxes
- Income Taxes


## FUELS

Fuels includes fuel for generation, additives used in the production of power, solid fuel handling costs and purchased power.

The expense lag is usually determined in relation to the point in time the related services are provided to NSPI's customers. However, in some cases, fuel is placed in inventory and the average amount of inventory is included in NSPI's rate base. In these cases, the net expense lead should be calculated as:

- the average time in inventory; less
- the average time between the fuel being inventoried and paid.

Since the time in inventory is recognized by including the average inventory in rate base, the time between the fuel being inventoried and the supplier being paid should be
recognized as a reduction in cash working capital. Therefore, where the cost of the fuel is inventoried, the expense lag is determined by the average time between the fuel being added to inventory and the time payment is made to the suppliers.

Table 4 sets out the calculation of the weighted average expense lag for fuels.
Table 4

|  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} 2009 \\ \underline{(\$, 000)} \\ \hline \end{gathered}$ | \% | Net Lag | Weighted Net Lag |
| Natural Gas | 180,914.1 | 33.05 | 39.06 | 12.91 |
| Heavy Fuel Oil | 0.0 | 0.00 | 15.52 | 0.00 |
| Light Fuel Oil | 2,158.8 | 0.39 | 37.28 | 0.15 |
| Diesel | 3,151.3 | 0.58 | 34.45 | 0.20 |
| Solid Fuel | 289,017.2 | 52.79 | 22.88 | 12.08 |
| Solid Fuel Handling Costs | 4,139.8 | 0.76 | 37.96 | 0.29 |
| Additives - 2009 | 4,964.0 | 0.91 | 35.01 | 0.32 |
| Additives - <br> Mercury Sorbents | 452.0 | 0.08 | 38.74 | 0.03 |
| Purchased Power | 37,440.9 | 6.84 | 34.19 | 2.34 |
| IPPs | 25,199.5 | 4.60 | 24.36 | 1.12 |
| TOTAL | 547,437.6 |  |  | 29.43 |

## Natural Gas

Natural gas is acquired and either burned or re-sold throughout the month resulting in a service lag of between 13.5 and 15 days. To determine the service, billing and payment lags for natural gas, NSPI reviewed all of the purchases for 2009. After calculating the net lag for each purchase as the sum of the service, billing and payment lags, the weighted average of the net lags was calculated.

## Heavy Fuel Oil, Light Fuel Oil, Diesel and Solid Fuel (Coal and Petcoke)

To determine the average time between the date heavy fuel oil, light fuel oil, diesel and solid fuel were recorded in inventory ${ }^{5}$ and the date the suppliers were paid, NSPI considered all of the purchases for 2009. After determining the net lag for each purchase, the weighted average of the net lags was calculated for each type of fuel.

In 2009, NSPI faced the unusual situation of having a negative expense for heavy fuel oil. This was the result of low consumption combined with favourable hedges. As a result, for purposes of calculating the weighted net lag for fuel in 2009, the heavy fuel oil expense was deemed to be zero. In arriving at the weighted net lag for 2012, the estimated heavy fuel oil expense for 2012 was used.

## Solid Fuel Handling Costs

Solid fuel handling costs are expensed as incurred and not inventoried
The net expense lags for each of the expense categories in solid fuel handling costs were taken from the net expense lags for similar types of OM\&G expenses. A weighted average of these net lags was then calculated.

## Additives

Additives - 2009
Excluding mercury sorbents, there are three categories of additives: limestone, fireshield and targeted in-furnace injection ("TIFI").

To determine the average time between the date the additives were recorded in inventory, or expensed, and the date the suppliers were paid, NSPI reviewed all purchases in 2009. After determining the net lag for each purchase, the weighted average of the net lags was calculated.

## Additives - Mercury Sorbents

Mercury sorbents were not used in full production during 2009. Therefore purchases from June 2010 were used to estimate the expense lag associated with these additives.

To determine the average time between the date the additives were recorded in inventory, or expensed, and the date the suppliers were paid, NSPI reviewed all purchases in June

[^10]2010. After determining the net lag for each purchase, the weighted average of the net lags was calculated.

## Purchased Power \& IPPs

NSPI is billed monthly for purchased power and power purchased from in-province independent power producers ("IPPs"), and it was assumed that this power is acquired throughout the month. As a result the service lag varied from 13.5 to 15 days. To determine the service, billing lag and payment lags, NSPI reviewed all of the purchased power acquired in 2009. After calculating the net lag for each purchase as the sum of the service, billing and payment lags, the weighted average of the net lags was calculated for each type of purchased power.

## COST OF GOODS SOLD

Cost of goods sold refers to the cost of electro thermal storage ("ETS") units and their installation.

The net lag was calculated as the weighted average of the net lag on the cost of the ETS units and the net lag on the cost of installation.

- To estimate the net lag on the cost of the ETS units, invoices from 2009 equal to $94 \%$ of the estimated purchases in 2009 were reviewed. Information from these invoices was used to establish the lag from the time the units were placed in inventory till the time the suppliers were paid.
- To estimate the net lag on the cost of installation, invoices representing $38 \%$ of the installation costs expensed in 2009 were reviewed to establish the net lag from the date of installation to the date the suppliers were paid.


## OM\&G - LABOUR

As a result of labour costs, payments are made to employees, the government for taxes and other parties for employee benefits. To estimate the weighted average expense lag associated with these costs, NSPI reviewed the majority of the payments related to its OM\&G labour expense in 2009.

Table 5 sets out the weighted average expense lag for labour.

## Net Pay to Employees

The payments to employees are net of deductions for income taxes, the employees' share of other government payments (e.g., EI and CPP) and employee benefits.

Table 5

|  | OMG - Labour Net Lag 2009 |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $\begin{array}{r} 2009 \\ (\$, 000) \\ \hline \end{array}$ | \% | Net Lag | Weighted <br> Net Lag |
| Bi- Weekly |  |  |  |  |
| Net Pay | 78,890.5 | 52.2 | 14.42 | 7.53 |
| Government Payments | 44,448.9 | 29.4 | 21.54 | 6.34 |
| Benefit Supplier Payments | 7,346.3 | 4.9 | 109.05 | 5.30 |
| Other Payments Payroll Dates | 12,812.1 | 8.5 | 14.42 | 1.22 |
| Other Payments -Non-payroll Dates | 3,487.8 | 2.3 | 39.63 | 0.91 |
| Incentive |  |  |  |  |
| Net Pay | 1,900.3 | 1.3 | 232.00 | 2.92 |
| Government Payments | 1,909.1 | 1.3 | 237.00 | 3.00 |
| Other Payments Payroll Dates | 54.7 | . 00 | 239.00 | 0.09 |
| Other Payments -Non-payroll Dates | 206.6 | 0.1 | 231.00 | 0.32 |
| TOTAL | 151,056.5 |  |  | 27.63 |

NSPI employees are paid bi-weekly. They are paid for the two weeks ending each second Thursday, with payments deposited in their bank accounts on the following Friday, except where there is a holiday in which case they are paid on the preceding day.

The payments are funded by NSPI on the day of deposit. This results in a service lag of 6.5 days and an average payment lag of slightly less than 8 days, for a total average net lag of 14.42 days.

An incentive payment or bonus is paid to employees in February of the following year. Since only half the payment is recognized as an expense for regulatory purposes, only half the payment was considered in the lead-lag study. The service period covers the entire year resulting in an average service period of 182 days. The payments for 2009 were deposited in employee accounts on February 19, 2010, resulting in a payment lag of 50 days. Combining the service and payment lags resulted in a total net lag of 232 days.

## Government Payments

Government payments include the employees' income tax deductions, the employee and employer share of Employment Insurance ("EI") and Canada Pension Plan ("CPP") payments, and the employer's Workman's Compensation Benefits ("WCB") payments.

NSPI reviewed the actual payments made to the government associated with each pay period and the incentive payment to establish the average payment lag for both the biweekly payroll and the incentive pay. The service periods were the same as with the net pay to employees.

The review found a weighted average payment lag of 15.04 days for the government payments associated with the bi-weekly payroll, and 55 days for the government payment associated with the incentive payment. Combined with the service lags, this produced a net lag of 21.54 days for the bi-weekly payroll and 237 days for the incentive payroll.

## Benefit Supplier Payments

The benefit supplier payments are the employee and employer shares of the payments for long term disability, life, dental and health insurance. These payments only relate to the bi-weekly pay payroll and not the incentive pay.

NSPI reviewed the actual payments made to its benefit supplier for each pay period to establish the average payment lag. The review found a weighted average payment lag of 102.55 days. Combined with the service lag, which was the same as with the net pay to employees, this resulted in net lag of 109.05 days.

In 2012, NSPI will be using a new benefit supplier. Under terms agreed to with the new supplier, payments related to any payroll paid in the month are to be paid on the last day of the month.

## Other Payments - Payroll Dates and Non-payroll Dates

Other payments refer to amounts deducted from employees' pay and paid to other parties for pensions, Canada savings bonds, etc. It also includes the employer portion of these payments other than the pension payments included in "OM\&G - Excluding Labour" as
"Employee Benefits". These latter payments are the employer pension payments in excess of those that match the employee pension payments.

The payments were divided into two categories: those paid on the same day employees are paid and those paid on other dates. In both cases the service periods were the same as with the net pay to employees

In the case of the payments paid on the same date as the payroll, the payment lag and net lag for the bi-weekly pay were the same as for the associated net pay. For the incentive pay, the payment was made on the date of the next regular payroll which was seven days after the incentive payment was made to employees. This added seven days to the payment lag and net lag compared to the incentive net pay.

In the case of payments made on other dates and related to the biweekly payroll, NSPI reviewed $78 \%$ of the payments and used the resulting weighted average payment lag of 33.13 days for all of the payments. Combined with the service lag, this resulted in net lag of 39.63 days

In the case of the payment made on another date related to the incentive pay, NSPI reviewed the payment to determine that the payment lag was 49 days. Combined with the service lag, this resulted in a net lag of 231 days.

## OM\&G - EXCLUDING LABOUR

Table 6 sets out the weighted average expense lag for OM\&G - Excluding Labour (hereafter referred to as OM\&G).

To estimate the weighted average expense lag for OM\&G, NSPI first estimated a net expense lag for 11 of the 12 largest categories of OM\&G expense, representing \$98.1 million or $81.9 \%$ of the gross OM\&G expense. The rent category was excluded since about $95 \%$ of the amount in this category related to rent for the Barrington Tower. With NSPI's relocation in 2011, these rental payments will not be relevant in 2012.

The weighted average of the 11 estimated net lags was 35.64 days and this amount was used as the net expense lag for all OM\&G.

To estimate the expense lags for each of the 11 categories, NSPI reviewed purchases that related to 2009 and were paid in 2009. In total, NSPI reviewed 186 invoices plus the biweekly invoice details from Canada Post. In aggregate, it reviewed purchases totalling $\$ 34.7$ million. This was equal to $35.3 \%$ of the total expenses for the 11 categories in 2009 and $28.9 \%$ of the gross OM\&G expenses in 2009.

For the individual categories, the amounts reviewed as a percent of 2009 expense ranged from $11.1 \%$ to $99.9 \%$. In all cases where the percentage was below $50 \%$, at least 15 invoices were reviewed.

|  |  |  |  | Table 6 |
| :---: | :---: | :---: | :---: | :---: |
|  | OM\&G - Excluding LabourNet Lag2009 |  |  |  |
|  | $\begin{array}{r} 2009 \\ (\$, 000) \\ \hline \end{array}$ | \% | Net Lag | Weighted Net Lag |
| Materials | 12,654.9 | 12.9 | 50.62 | 6.53 |
| Contracts | 46,345.1 | 47.2 | 42.19 | 19.93 |
| Freight, Post. \& Del. | 2,424.4 | 2.5 | 32.98 | 0.81 |
| Telephones | 1,749.3 | 1.8 | 53.69 | 0.96 |
| Consulting | 8,335.8 | 8.5 | 82.04 | 6.97 |
| Fleet Fuel | 2,984.8 | 3.0 | 51.73 | 1.57 |
| Rental \& Maint. | 3,131.9 | 3.2 | 45.27 | 1.44 |
| Legal \& Audit | 6,373.2 | 6.5 | 59.93 | 3.89 |
| Employee Benefits | 8,724.2 | 8.9 | 7.85 | 0.70 |
| Insurance | 3,676.5 | 3.7 | -120.33 | -4.51 |
| Data Communications | 1,721.5 | 1.8 | -151.66 | -2.66 |
|  | 98,121.7 |  |  | 35.64 |
| Other OM\&GExpenses |  |  |  |  |
|  |  |  |  |  |  |
|  | 119,824.2 |  |  |  |

For each category, NSPI determined the net lag for each purchase reviewed and then calculated the weighted average of the individual net lags. These weighted average net lags were used as the estimated net lags for the categories.

In 2012, the estimated weighted average net lag is estimated to decrease from 35.64 days to 26.48 days. This decrease is due primarily to the expected increase in the "Employee Benefits" category from $\$ 8.7$ million in 2009 to $\$ 34.7$ million in 2012 and the resulting greater weight given to its net lag of 7.85 days.

## GRANTS IN LIEU OF TAXES

NSPI does not pay municipal taxes other than deed transfer tax. Instead it pays grants in lieu of taxes to the Provincial Government. The amounts are paid in two instalments each year:

- January 31 - covering the period January 1 through December 31 of the current year
- June 1 - covering the period from April 1 of the current year through March 31 of the following year.

Table 7 sets out the weighted average expense lag for "Grants in Lieu of Taxes".
Table 7


## INCOME TAXES

NSPI makes instalments on its federal and provincial income taxes, provincial capital tax ("PCT") and Part VI.I tax at the end of each month. All of these taxes are combined under the heading Income Taxes. Where the actual tax expense exceeds the amount of the instalments, there is a final true-up at the end of February of the following year. Where the actual tax expense is less than the amount of the instalments, a refund is received after NSPI files its tax return.

The Income Tax payments for 2009 had characteristics that are not expected to be repeated in 2012. Therefore the net lag was calculated using the expected instalments and true-up for 2012.

In 2012, it is expected that NSPI will be making monthly instalments based on its taxes payable for 2011. As NSPI's taxes payable for 2012 are expected to be significantly higher than in 2011, NSPI's 2012 monthly instalments are expected to cover a small portion of NSPI's 2012 taxes, resulting in the majority of the 2012 taxes being paid at the end of February 2013. As a result, NSPI has estimated the weighted average expense lag for Income Taxes to be 210.04 days.

## HST / GST \& DSM

The harmonized sales tax ("HST"), the goods and services tax ("GST") and demand side management ("DSM") are not part of NSPI expenses. They are amounts that NSPI is required to collect and then remits to a third party; or in the case of the HST credit, is required to pay and then receives a refund from the government. Although not an expense, NSPI is required to make the associated payments, and the difference between the time of payment and the related recovery affects NSPI's financing requirements.

The impact of the HST and GST on NSPI cash working capital in 2009 is set out in Table 8. The impact of DSM is not included on the table since it did not apply in 2009.

Table 8

|  | HST / GSTImpact on Working Capital2009 |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | (\$ mm) | $\begin{aligned} & \mathrm{Net} \\ & \underline{\mathrm{Lag}} \end{aligned}$ | $\begin{gathered} \text { CWC } \\ \underline{\%} \end{gathered}$ | Working <br> Capital <br> (\$ mm) |
| HST Collected | 157.5 | -15.98 | -4.4 | -6.9 |
| HST / GST Paid | 58.7 | 27.15 | 7.4 | 4.4 |
|  |  |  |  | -2.5 |

## HST COLLECTED

NSPI collects HST from its customers which it then remits to the government. NSPI has the use of the HST it collects from the time it is collected from customers until the time it remits the funds on to the government. This reduces NSPI's net financing requirements.

NSPI collects HST on most of its in-province sales although there are some exceptions, such as sales to first nations customers. NSPI does not collect HST on sales to customers outside of Canada or to affiliates: many of its grid sales and most of its natural gas sales are to such customers.

The amounts collected are usually paid to the government at the end of the month following the month in which the customer's invoice is dated. In the case of some customers that fall into the Large Customer category, the amounts collected are paid to the government at the end of the second month following the month in which the customer's invoice is dated

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In 2009, there was a provincial rebate program under which the Province of Nova Scotia provided rebates to NSPI equal to the provincial portion of the HST on a portion of domestic residential sales. NSPI remitted HST to the Federal Government as if the rebates did not exist, but credited customers for the amount of the rebates at the time the customer invoices were generated. The Provincial Government than provided the rebates to NSPI. In 2012, the rebates are expected to cover the entire provincial portion of the HST on domestic residential sales.

NSPI estimated the HST collected by category of sale. It also estimated the average net lead for each category. This net lead represented the time from when the HST was collected from customers, or the Province, to when NSPI remitted the HST. Except for Grid Sales and Natural Gas Sales, this net lead was calculated as the difference between:

- the number of days between the date an invoice was issued and the date the HST related to the invoice (including the portion covered by the provincial rebate) was paid to the government; and
- the number of days between the date an invoice was issued and the date HST included in the invoice was collected from customers or the rebate related to the invoice was collected from the Province.

In the case of Regular Customers - Rebates (i.e., regular customers that qualify for the provincial rebate) the net lead was a weighted average of:

- The net lead for HST recoverable from customers; and
- The net lead for HST covered by the rebate.

In the case of Grid Sales and Natural Gas Sales, the time between the collection of HST and the date the related amounts were refunded was calculated directly

For each category of sale, the estimated amount of HST was multiplied by the net lead. The weighted average of the net leads was then calculated. Table 9 sets out the net leads associated with each of the customer categories and the weighted average net lead.

## HST/GST PAID

NSPI pays HST as part of the cost of many of its goods and services and pays the goods and services tax ("GST") to the government on imports. NSPI then receives a refund from the government for the HST and GST paid. NSPI must fund the HST and GST payments from the time it pays them until the time it receives a refund from the government. This increases NSPI's net financing requirements.

Table 9

| Impact of HST Collected <br> on <br> Working Capital 2009 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| HST |  |  |  |  |
|  | \$, 000 | \% | $\underline{\underline{\text { Net }}}$ | Weighted <br> Net Lead |
| Regular Customers - <br> Rebates | 69,060 | 43.9 | 5.19 | 2.27 |
| Regular Customers Other | 54,598 | 34.7 | 23.04 | 7.99 |
| Large Customers | 32,143 | 20.4 | 26.18 | 5.34 |
| Grid Sales | 63 | 0.0 | 40.91 | 0.02 |
| Natural Gas Sales | 1,616 | 1.0 | 34.87 | 0.36 |
|  | 157,480 |  |  | 15.98 |

For purposes of the lead-lag study, only HST and GST related to cash operating expenses were considered.

NSPI pays the HST when it pays the invoices bearing the HST. The refund for HST paid is netted against the payment to the government for HST collected at the end of the month following the month that the invoice is dated. Invoices not processed before the end of the month are included with the invoices in the following month, or possibly even later, thereby delaying the refund of HST. NSPI has not considered this possibility in the calculation of its net cash working capital and this tends to reduce its estimated cash working capital requirement.

NSPI estimated the HST paid by category of expense. It also estimated the average lag for each category from the time HST is paid until the time it is refunded as the difference between:

- the number of days between the date an invoice was issued and the date the HST included in the invoice was refunded; and
- the number of days between the date an invoice was issued and the date HST included in the invoice was paid to suppliers.

NSPI assumed invoices are issued throughout the month resulting in an average time from the issuing of an invoice to receiving a refund of 45.63 days. The time from the issuing of an invoice to the payment date is the payment lag which was determined in establishing the expense lags for each category.

In the case of the GST, the amounts are paid to the government at the end of the month and refunded at the end of the next month resulting in a net lag of 30.42 days.

Table 10 sets out the net lags associated with each of the major expense categories and the weighted average net lag.

Table 10

| Impact of HST/GST Paid <br> on <br> Working Capital 2009 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\underline{\text { HST / GST }}$ |  | Invoice Date to |  |  |  |
|  | \$,000 | \% | Refund | Paid | Net | Weighted Net Lag |
| OM\&G | 13,295 | 22.65 | 45.63 | 36.69 | 8.94 | 2.02 |
| Fuels | 36,271 | 61.79 | 45.63 | 12.62 | 33.01 | 20.40 |
| Total HST | 49,566 |  |  |  |  |  |
| GST | 9,134 | 15.56 |  |  | 30.42 | 4.73 |
|  | 58,700 |  |  |  |  | 27.15 |

## DSM

In 2009, NSPI was responsible for DSM programs. However, beginning in 2010, an independent administrator, Efficiency Nova Scotia Corporation ("ENSC"), has been established to administer the DSM programs for the province of Nova Scotia.

In 2012, NSPI will collect a DSM Cost Recovery Rider Charge ("DCRR") on behalf of ENSC. The DCRR will be a separate charge included on most customer bills and collected when customers pay their bills.

Each month, NSPI will make a payment to ENSC that reflects the DCRR included in forecast revenues for the previous month, even if those revenues are not billed until after
the month end. The payment will be made on the first scheduled wire transfer date in each month.

For 2012, the net lag will be calculated as the difference between:

- the number of days between the date service associated with the DCCR is provided and date the DCCR is paid to ENSC; and
- the number of days between the date service is provided and the date the associated revenues are collected from customers.

The first amount will assume that revenue is earned evenly throughout the month. The latter amount will reflect the relevant lags determined in arriving at the net revenue lag.

## SUMMARY OF RESULTS

Table 11 summarizes NSPI's cash working capital based primarily on 2009 data. It reflects what has been discussed in previous sections.

Table 11

|  | Nova Scotia Power Inc. Cash Working Capital 2009 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{array}{r} 2009 \\ (\$ \mathrm{~mm}) \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{Rev} \\ & \mathrm{Lag} \end{aligned}$ | $\begin{aligned} & \text { Exp } \\ & \text { Lag } \end{aligned}$ | $\begin{aligned} & \text { Net } \\ & \underline{\mathrm{Lag}} \end{aligned}$ | $\begin{gathered} \text { CWC } \\ \underline{\%} \end{gathered}$ | Working Capital (\$ mm) |
| Fuels | 543.7 | 51.56 | 29.43 | 22.13 | 6.1 | 33.0 |
| Cost of Goods Sold | 1.7 |  | 38.89 | -38.89 | -10.7 | -0.2 |
| OM\&G - <br> Labour | 109.4 | 51.56 | 27.63 | 23.93 | 6.6 | 7.2 |
| OM\&G - <br> Excl'd Labour | 103.4 | 51.56 | 35.64 | 15.92 | 4.4 | 4.5 |
| Grants in lieu of Taxes | 34.9 | 51.56 | -136.66 | 188.22 | 51.6 | 18.0 |
| Income Taxes | 54.4 | 51.56 | 210.04 | -158.48 | -43.4 | -23.6 |
|  |  |  |  |  |  | 38.8 |
| HST-Collected | 157.5 |  |  | -15.98 | -4.4 | -6.9 |
| HST-Paid | 58.7 |  |  | 27.15 | 7.4 | 4.4 |
|  |  |  |  |  |  | 36.3 |

To estimate its cash working capital for 2012, NSPI started with its results for 2009 and then, to reflect changes expected between 2009 and 2012, made a number of adjustments based on NSPI's estimates as of March 25, 2011. These adjustments include the following:

- replaced the 2009 amounts for each major category of cash operating expense with the estimates for 2012;
- changed the revenue lag to reflect changes in the mix of revenues by customer type;
- changed the expense lag for fuels to reflect changes in the expected mix of fuels;
- changed the expense lag for labour to reflect the expected payment terms for the supplier of long term disability, life, dental and health insurance;
- changed the expense lag for $O M \& G$ to reflect changes in the mix of $O M \& G$ expenses;
- changed the impact of HST/GST on cash working capital to reflect the increase in HST by two percentage points to $15 \%$, the expansion of the provincial rebate program, estimated changes in the amounts to which HST/GST will be applied, and changes in the mix of revenues and expenses to which the HST/ GST will be applied; and
- added the impact of DSM on cash working capital.

With the above changes, NSPI's estimated its cash working capital for 2012 to be $\$ 66.6$ million as calculated in Table 12.

Table 12

|  | Nova Scotia Power Inc. Cash Working Capital 2012 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{gathered} 2012 \\ (\$ \mathrm{~mm}) \end{gathered}$ | Rev $\underline{\text { Lag }}$ | $\begin{aligned} & \text { Exp } \\ & \text { Lag } \end{aligned}$ | Net <br> Lag | $\begin{gathered} \text { CWC } \\ \underline{\%} \end{gathered}$ | Working <br> Capital <br> (\$ mm) |
| Fuels | 612.2 | 51.86 | 27.13 | 24.73 | 6.8 | 41.4 |
| Cost of Goods Sold | 1.5 | 0 | 38.89 | -38.89 | -10.6 | -0.2 |
| OM\&G - <br> Labour | 127.0 | 51.86 | 23.37 | 28.49 | 7.8 | 9.9 |
| OM\&G - <br> Excl'd Labour | 125.8 | 51.86 | 26.48 | 25.38 | 6.9 | 8.7 |
| Grants in lieu of Taxes | 36.4 | 51.86 | -136.66 | 188. 52 | 51.5 | 18.8 |
| Income Tax | 33.6 | 51.86 | 210.04 | -158.18 | -43.2 | -14.5 |
|  |  |  |  |  |  | 64.1 |
| HST-Collected | 213.9 |  |  | -12.07 | -3.3 | -7.1 |
| HST-Paid | 67.3 |  |  | 29.02 | 7.9 | 5.3 |
| DSM | 43.7 |  |  | 35.80 | 9.8 | 4.3 |
|  |  |  |  |  |  | 66.6 |

## OPINION

I have reviewed the NSPI lead-lag study that is to be used to support the cash working capital requirement that will be included in NSPI's rate base for the 2012 test year.

The lead-lag study was completed by NSPI, although I advised NSPI on the methodology used in the study, including the application of the basic methodology to the major categories of NSPI's revenues and expenses.

NSPI's study was conducted using data from 2009. 2009 was chosen because it was the most recent year for which a complete year of data was available at the time the study was undertaken. The initial results were then updated for estimated differences between 2009 and 2012. Based on the estimates as of March 25, 2011, NSPI's cash working capital requirement for 2012 is $\$ 66.6$ million.

The lead-lag study used various financial data and other information as inputs. For example, NSPI collected information on the time between the date of various invoices and the date those invoices were paid, and it provided information on its operations that affected the estimation of its cash working capital. I did not perform verification procedures on these inputs or the calculations provided by NSPI.

The focus of my opinion, and the review to support it, was the reasonableness and adequacy of the methodology employed in NSPI's lead-lag study. This methodology included the application of the basic methodology to the major categories of NSPI's revenues and expenses.

My understanding of the methodology used by NSPI has been summarized in the previous sections of this report. This understanding is based on my review which included the following:

- I reviewed documentation on NSPI's methodology that had been prepared by the utility.
- I reviewed the schedules used in NSPI's lead-lag study ${ }^{6}$ to assist in understanding the methodology employed by the utility.
- I had a number of discussions with NSPI employees.

Based on my understanding of NSPI's methodology as set out above, the methodology that NSPI used in its lead-lag study is a reasonable application of the traditional approach

[^11]used by regulated utilities to establish their cash working capital requirement, and therefore, for purposes of establishing its 2012 rate base, the methodology adequately supports the determination of NSPI's cash working capital requirement.

## RESUME - JOHN T. BROWNE

Summary: John Browne has been assisting clients in applying regulatory principles and resolving financial, accounting and costing issues related to rate regulation for over 25 years. Prior to establishing his own practice 11 years ago, he was a consultant with Deloitte and Touche LLP, the last seven years as a partner.

He has directed and worked on a wide range of studies for rate-regulated entities that have dealt with accounting and cost allocation principles, the determination of rate base, cost of service determination, product costing/pricing, rate of return, capital structure, and methods of regulation.

He has appeared as an expert witness on accounting, costing and financial issues before following regulatory tribunals: Canadian Radio-television and Telecommunications Commission, Canadian Transport Commission, the Alberta Public Utilities Board / the Alberta Energy and Utilities Board, the Manitoba Public Utilities Board, Newfoundland and Labrador Board of Commissioners of Public Utilities and the Nova Scotia Board of Commissioners of Public Utilities.

Education / $>$ Bachelor of Commerce - Queen's University
Professional $>$ Master of Arts (Economics) - Queen's University
Qualifications: > Chartered Accountant

Committees/ Mr. Browne was Chairman of the Canadian Institute of Chartered Publications Accountants ("CICA") Study Group that produced the CICA research report "Financial Reporting By Rate Regulated Enterprises".

He authored or co-authored the CA Magazine articles "A Matter Of Principles - Part I" "A Matter Of Principles - Part II" and "Regulatory Assets". These articles dealt with accounting by rate-regulated enterprises.

He co-authored the Deloitte \& Touche publication "Basics of Canadian Rate Regulation" and authored the Deloitte \& Touche monograph "The Contractual Pitfalls of Relying on GAAP". He has also authored a number of papers for distribution to clients and potential clients such as "Fundamentals of Rate Regulation" (an update of "Basics of Canadian Rate Regulation").

Key Clients: Mr. Browne's major clients have included: Newfoundland Power Inc., Nova Scotia Power Inc., New Brunswick Power Corporation, Hydro Quebec, Ontario Hydro, Manitoba Hydro, SaskPower, Edmonton Power, Ottawa Hydro, Canadian Electricity Association, Ontario Energy Board, Atco Gas, Enbridge, Newfoundland Telephone Company Ltd., Bell Canada, Manitoba Telephone System, Saskatchewan Telecommunications, AGT/TELUS, Teleglobe, Telesat Canada, Southwestern Bell Telephone Company, New York Telephone, The Telecommunication Authority of Singapore and Dhiraagu (Maldives).

Selected - Completed a survey of Canadian regulators to determine what they Assignments: viewed as their objectives and how they interpreted those objectives.

- Researched and analysed the methodology for calculating working capital for Edmonton Power. Prepared evidence on the issue and appeared as an expert witness.
- Assisted a telecommunications company in developing and supporting a position on working capital for a regulatory hearing.
- Advised Nova Scotia Power on the methodology for a lead-lag study and reviewed the methodology employed to determine whether it was reasonable and adequately supported the utility's net cash working capital. The opinion was included in the utility's rate submission (issue was resolved as part of negotiated settlement).
- Advised Newfoundland Power on issues related to the calculation of cash working capital, reviewed the methodology it used to establish its cash working capital, and provided an opinion as to whether the methodology was consistent with established regulatory practice and appropriate in the context of the utility. The opinion was included in the utility's rate submission (issue was resolved as part of negotiated settlement).
- Assisted Hydro-Québec by researching issues related to the determination of rate base for a first time rate application and preparing a report that recommended how the utility's rate base should be established at its initial rate hearing.
- Assisted Newfoundland Power by providing an opinion on regulatory accounting policies including: relationship of regulatory accounting policies to GAAP, the use of the accrual vs. billed method for recognizing revenue, the treatment of unrecognized unbilled revenue and policies related to the utility's transition to an asset rate base methodology. The opinion was submitted to the utility's regulator and expert testimony was provided.
- Prepared a report for Hydro-Québec TransÉnergie that addressed regulatory issues related to the transfer of assets into the utility's regulated rate base.
- Reviewed various regulatory issues as part of the due diligence for Altalink's purchase of TransAlta's transmission assets in Alberta.
- Provided a written opinion for Nova Scotia Power on its regulatory treatment of amounts related to an income tax dispute. The report dealt with past taxes that had not been recovered in allowed rates and future taxes that may not be payable.
- Prepared a report for SaskPower, an integrated electric utility, that addressed the issues related to including or excluding non-core operations from the scope of rate regulation and the regulatory implications for any dealings between these types of operations and its core regulated operations.
- Provided a one-day workshop on regulatory issues to an electric utility with both distribution and transmission operations. The key focus was on performance-based regulation and affiliate transactions.
- Provided a written opinion for Newfoundland Light \& Power on accounting and regulatory issues related to future employee benefits and the company's hydro production equalization reserve. The opinion was included in the company's rate submission.
- Completed a study for New Brunswick Power that identified and evaluated the options for restructuring the electric power industry in New Brunswick and privatizing all or part of the Company. As part of the assignment, reviewed the developments occurring throughout the world with a focus on North America.
- Provided a written opinion for Nova Scotia Power that addressed whether its proposal to change from market value to market related value in determining its pension expense was consistent with generally accepted accounting principles and established regulatory principles.
- Assisted a diversified energy company by reviewing its transfer prices to and from regulated operations and recommending changes.
- Researched and analysed the issue of a deferral plan for the introduction of a new plant into rate base. Prepared evidence on the issue for Nova Scotia Power and appeared as an expert witness. Subsequently prepared evidence and appeared as an expert witness on changes to the deferral of the costs on the plant due to changes in circumstances.
- Prepared a report that dealt with the corporate charges from a parent company to a regulated gas utility. The report evaluated the consistency of the charges with the past decisions of the OEB and its Affiliate Relationships Code for Gas Distributors. The report was submitted to the OEB.
- Assisted Ontario Hydro Services Company (now Hydro One), in understanding its regulatory options by researching and providing advice on a number of regulatory issues related to transfer pricing, structural organization, accounting for income taxes, relationships with affiliated companies, performance-based regulation, etc.
- Researched and evaluated options for the regulation of Nova Scotia Power. A recommendation was submitted to the utility's regulator and expert testimony provided.
- Advised New Brunswick Power Distribution and Customer Service Corporation on regulatory issues related to a proposed fuel deferral account.
- Analysed the issue of the appropriate accounting and regulatory treatment of Nova Scotia Power's defeasance program. Prepared evidence and appeared as an expert witness on the issue.
- Researched and evaluated the appropriateness of Newfoundland Power Inc.'s inter-corporate charges. A recommendation with support was submitted to the Newfoundland and Labrador Board of Commissioners of Public Utilities.
- Completed a study and recommended a cost of equity rate for Edmonton Power for each of the years 1985, 1986, 1987, 1988, 1989, 1993 and 1996. The reports for 1985, 1986 and 1996 were included in the Company's rate submissions to the Public Utilities Board of Alberta / Alberta Electric and Utility Board and expert testimony was provided at a public hearing.
- Assisted New Brunswick Electric Power in addressing various accounting issues related to its first rate hearing.
- Completed a study to establish an appropriate capital structure for Edmonton Power and prepared a report recommending an appropriate capital structure for regulatory purposes that formed part of the utility's 1996 submission to the Alberta Energy and Utility Board.
- Advised Manitoba Hydro on the development of appropriate financial targets and prepared evidence on the issue for submission to the utility's regulator. The assignment required researching and analysing the issue of appropriate financial targets for a government owned utility.
- Researched, analysed and prepared a recommendation on the issue of whether Nova Scotia Power should recover a purchase premium paid by the utility on the purchase of a distribution utility.
- Prepared and delivered a half day seminar on accounting for the effects of rate regulation for a Canadian electric utility.
- Participated in the in the OEB consultation process dealing with the transition to IFRS. As part of this participation, made a presentation on proposed principles to guide the development and maintenance of regulatory accounting policies (RAP) and a framework for evaluating proposed changes in RAP.
- Advised the business unit of a major telecommunications company on the appropriate basis for establishing the transfer prices to be charged to other business units within the company.
- Evaluated the ability of a telecommunications company's existing costing systems to meet CRTC Phase III costing requirements and provided an opinion on whether the methodology would be defensible.


[^0]:    ${ }^{1}$ DSM amortized costs are reflected in the Financial tables under the "regulatory amortization" component.

[^1]:    ${ }^{1}$ The actual results of 2008 include the effects of DSM estimated at 0.9 GWh
    ${ }^{2}$ The actual results of 2009 include the effects of DSM estimated at 8.0 GWh
    ${ }^{3}$ The actual results of 2010 include the effects of DSM estimated at 22.4 GWh

[^2]:    ${ }^{4}$ The actual results of 2008 include DSM effects estimated at 2.5 GWh
    ${ }^{5}$ The actual results of 2009 include DSM effects estimated at 25.4 GWh
    ${ }^{6}$ The actual results of 2010 include DSM effects estimated at 40.2 GWh

[^3]:    ${ }^{7}$ The actual results of 2008 include DSM effects estimated at 0.9 GWh
    ${ }^{8}$ The actual results of 2009 include DSM effects estimated at 4.8 GWh
    ${ }^{9}$ The actual results of 2010 include DSM effects estimated at 19.9 GWh

[^4]:    *     - to align forecast to actuals in 2010, the modeled DomEng contains a launch adjustment of 4.9 GWh for 2010-2020.

[^5]:    *     - to align forecast to actuals in 2010, the model contains a launch adjustment of -0.5 GWh for 2010-2021

[^6]:    1 The net lag is divided by the number of days in the year. Normally this is 365 , but 2012 will be a leap year with 366 days

[^7]:    2 The numbers in the tables may not add, or multiply across, due to rounding.

[^8]:    3 A copy of my resume has been attached as Exhibit JTBC-1.

[^9]:    4 Nova Scotia Utilities and Review Board: NSUARB-NSPI-P-882; March 10, 2006.

[^10]:    5 A small portion of the total purchases related to services provided or environment fees associated with fuel, and these purchases were expensed. In the case of these purchases, the net lag was calculated from the time the services were provided until the supplier was paid.

[^11]:    6 Other than changes that were discussed with me and which are reflected in the previous sections, NSPI has stated that it did not make any material changes to the schedules from the time I reviewed them until March 25, 2011.

