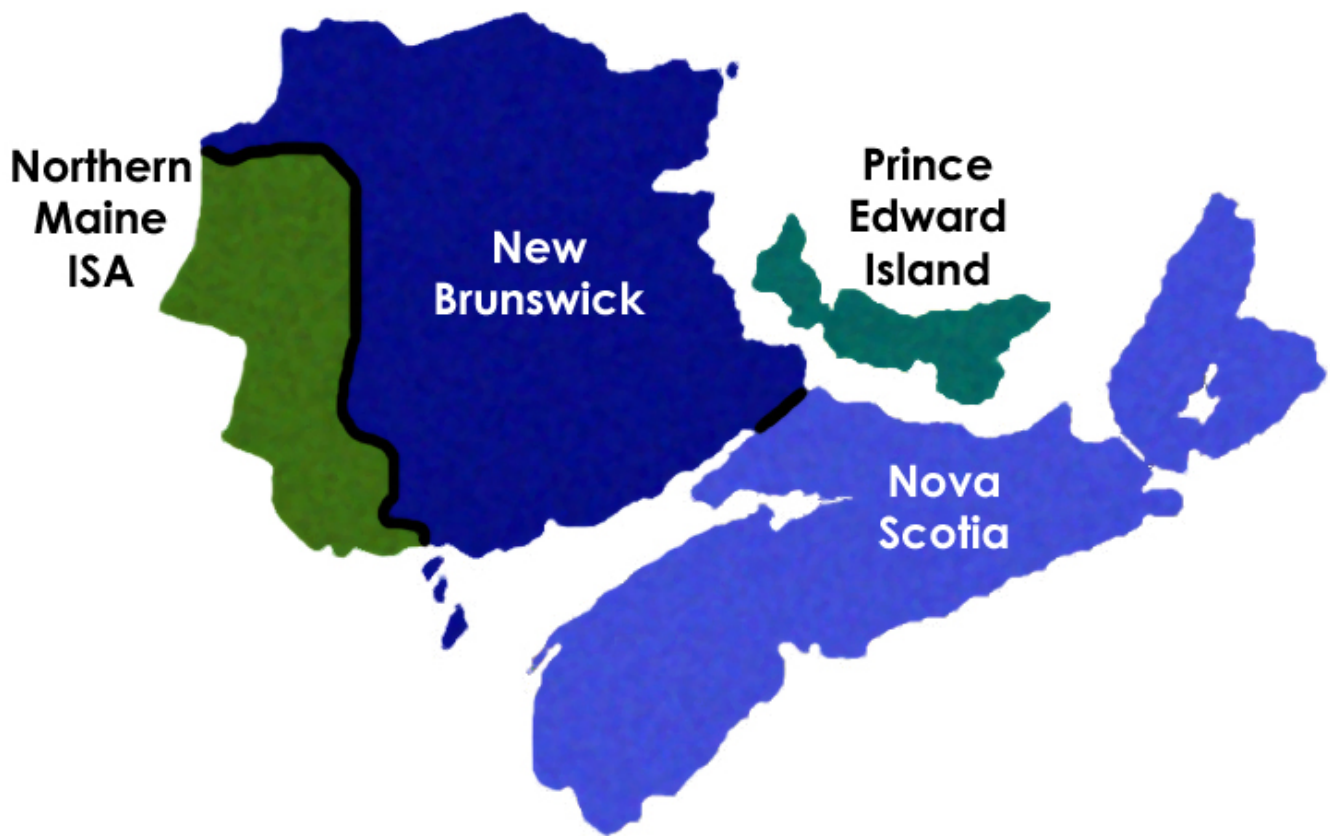


**NPCC  
2012 MARITIMES AREA  
INTERIM REVIEW OF RESOURCE  
ADEQUACY**



**NEW BRUNSWICK SYSTEM OPERATOR  
NOVA SCOTIA POWER INCORPORATED  
MARITIME ELECTRIC COMPANY LIMITED  
NORTHERN MAINE ISA, INC.**

Approved by the RCC November 27, 2012

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## 1.0 EXECUTIVE SUMMARY

The 2012 Maritimes Area Interim Review of Resource Adequacy (Interim Review), covering the period of January 2013 through December 2015, has been prepared to satisfy the Reliability Assessment Program as established by the Northeast Power Coordinating Council (NPCC). This Interim Review follows the resource adequacy review guidelines as specified in the *NPCC Regional Reliability Directory #1 Appendix D (Adopted: December 1, 2009)*.

Results of this Interim Review show that the Maritimes Area will comply with the NPCC resource adequacy criterion that requires a loss of load expectation (LOLE) value of no more than 0.1 days/year for all years from 2013-15. A summary of the Maritimes Area LOLE values for 2013-15 is shown in Table 1 below.

**Table 1 – Maritimes Area LOLE Values for 2013 to 2015**

Year	2012 Interim Review (days/year)	2010 Comprehensive Review (days/year)
2013	0.002	0.002
2014	0.002	0.003
2015	0.002	0.004

All of the LOLE results for this 2012 Interim Review are lower versus the results of the 2010 Comprehensive Review. The most significant assumption change that has contributed to these lower LOLE values is that interconnection tie benefits of 300 MW are assumed for each year in this Interim Review versus the zero tie benefits that were assumed in the 2010 Comprehensive Review.

Partly offsetting the beneficial effect of increased tie benefits are three other significant changes from the 2010 Comprehensive Review:

- The interface limit from New Brunswick to Nova Scotia is reduced from 300 MW to 150 MW on account of load growth in southeastern New Brunswick.
- Seasonal shutdowns of Nova Scotia’s coal fired Lingan units 1 and 2 with capacities of 153 MW each have been planned for March to November of each year beginning 2012.
- Lingan Unit 2 proposed retirement in March of 2015.

No changes were made in this Interim Review with respect to fuel supplies, emergency operating procedures, or market rules. While renewable portfolio standards in the Maritimes Area have mandated increased levels of renewable generation, the associated renewable capacity forecasts are similar to amounts modeled in the 2010 Comprehensive Review.

On October 19, 2011 the New Brunswick government released its new energy blueprint, a three year energy strategy aimed at reducing and stabilizing energy prices, providing energy security, ensuring reliability of the electrical system, environmental responsibility, and providing effective regulation. The plan will amalgamate the NB Power group of companies and the New Brunswick System Operator into a single vertically integrated Crown utility but will not affect resource adequacy in the Maritimes Area.

The 660 MW Point Lepreau Nuclear Generating Station is scheduled to be placed back into service beginning October 1, 2012. This re-start is delayed by 1.5 years from the March 31, 2011 start date used in the 2010 Comprehensive Review base case. However, a sensitivity run was performed in the 2010 Comprehensive Review for a one year delay contingency. Even without Point Lepreau capacity, the Maritimes Area meets the NPCC resource adequacy criterion for all years from 2013-15.

## 2.0 INTRODUCTION

This 2012 Interim Review is the second update of the 2010 Maritimes Area Comprehensive Review of Resource Adequacy approved by the Reliability Coordinating committee (RCC) in September 2010. The Maritimes Area is a winter peaking area with separate markets and regulators in New Brunswick, Nova Scotia, Prince Edward Island, and Northern Maine. The New Brunswick System Operator (NBSO) is the Reliability Coordinator for the Maritimes Area.

## 3.0 ASSUMPTION CHANGES

### 3.1 Demand Forecast

The Maritimes Area peak demand is forecast to occur during the month of January each year. Table 2 shows the year by year comparison of the annual peak loads used in this Interim Review versus the 2010 Comprehensive Review.

**Table 2 – Maritimes Area Peak Demand Forecast for 2013 to 2015**

Year	2012 Interim Review (MW)	2010 Comprehensive Review (MW)	Difference (MW)
2013	5,181	5,417	-236
2014	5,190	5,425	-235
2015	5,226	5,444	-218
2013 to 2015 Compound Annual Growth Rate			
Growth Rate	0.4%	0.2%	

The demand forecast for this review is slightly lower in all years and the compound annual growth rate is slightly higher, but still relatively flat as compared to the demand forecast of the 2010 Comprehensive Review.

Closure of the largest paper mill in Nova Scotia with a net load of approximately 150-200 MW was announced during August 2011 and was included in the 2012 Nova Scotia version of the load forecast. Its closure does not affect area reserves as the entire load was interruptible leaving the firm load (covered by reserves) unchanged. Subsequent to completion of this analysis, in late September 2012 it was announced that a new buyer will restart the plant.

### 3.2 Resources Forecast

Significant resource changes from the 2010 Comprehensive review include the following:

- Interconnection tie benefits of 300 MW are assumed for each year. No tie benefits were modeled in the Comprehensive Review. More explanation regarding these tie benefits is provided in section 3.5.
- The return to service of the 660 MW Point Lepreau Nuclear Generation Station scheduled for March 31, 2011 in the Comprehensive Review is scheduled October 1, 2012.
- Retirement of the 299 MW Dalhousie Generation Station scheduled for April 1, 2011 in the Comprehensive Review was delayed until May 31, 2012.
- Seasonal shutdowns of Nova Scotia’s coal fired Lingan units 1 and 2 with capacities of 153 MW each have been planned for March to November of each year beginning 2012.
- Lingan Unit 2 proposed retirement in March of 2015.

No changes were made in this Interim Review with respect to fuel supplies, emergency operating procedures, or market rules. While Renewable Portfolio Standards in the area have mandated increased levels of renewable generation, the associated renewable capacity changes are similar to amounts modeled in the 2010 Comprehensive Review.

Table 3 shows the year by year January generation resources forecast for this review compared to the 2010 Comprehensive Review.

**Table 3 – Maritimes Area Resources Forecast for 2013 to 2015**

Year	2012 Interim Review (MW, wind derated)			2010 Comprehensive Review (MW, wind derated)			Difference (MW)
	Conventional	Wind	Total	Conventional	Wind	Total	Total
2013	6,798	299	7,097	6,570	291	6,861	236
2014	6,808	304	7,112	6,570	291	6,861	251
2015	6,808	309	7,117	6,570	331	6,901	216

Conventional capacity in Table 3 is from the peak load month of January of each year and includes installed generation, contracted inter-area purchases (zero in all 3 years), and tie benefits of 300 MW (see Section 3.5 below). Wind project capacity in Table 3 represents derated MW values equal to the demonstrated or projected average output of wind projects in the Maritimes Area during the winter period. For New Brunswick, Northern Maine, and Prince Edward Island, the derated capacity is based on actual experience with wind projects. For Nova Scotia the derated capacity of existing wind installations is based on a combined three year average of actual and forecasted annual peak capacity factors and for new installations it is based on the forecasted annual capacity factor.

### 3.3 Comparison of Forecast and Required Reserve

The Maritimes Area uses a 20% reserve criterion for planning purposes. The 2010 Comprehensive Review showed that this value for the Maritimes Area meets the NPCC resource adequacy criterion with minimal interconnection assistance. Table 4 shows a year by year comparison of the forecast reserve versus the required reserve. In each year of this review, the forecast reserve exceeds the 20% reserve criterion.

**Table 4 – Forecast and Required Reserve for January of 2013 to 2015**

Year	Generation Resources (MW)	Forecast Coincident Peak (MW)	Interruptible Load (MW)	Forecast Reserve		Required Reserve	
				MW	%	MW	%
2013	7,097	5,181	242	2,158	44	989	20
2014	7,112	5,190	241	2,163	44	990	20
2015	7,117	5,226	240	2,131	41	997	20

$$\text{Forecast Reserve (\%)} = \frac{[\text{Gen. Resources} - (\text{Forecast Peak} - \text{Interruptible})] * 100\%}{(\text{Forecast Peak} - \text{Interruptible})}$$

While refurbishment of the 660 MW Point Lepreau generator is on schedule for its current October 1, 2012 return date, the 2013 reserve surplus of 1169 MW from Table 4 is more than adequate to accommodate a delayed return to service of this station. Updates on the Point Lepreau refurbishment are publicly available at <http://poweringthefuture.nbpower.com/en/default.aspx>.

### 3.4 Interface Limits

With the exception of the interconnection tie benefits discussed in section 3.5, external interfaces to the Maritimes Area are not modeled. The interface limit from New Brunswick to Nova Scotia is reduced from 300 MW to 150 MW on account of load growth in southeastern New Brunswick.

### 3.5 Interconnection Tie Benefits

In the 2010 Comprehensive Review, zero interconnection tie benefits were assumed. Starting in 2011, NBSO assumes 300 MW of tie benefits to New Brunswick in its resource adequacy assessments. This is based on the lowest historical Firm Transmission Capability posted from New England to New Brunswick. Because New England experiences its peak demand during summer, a surplus of capacity is assumed available to the winter peaking Maritimes Area. To the extent that future conflicting commercial capacity transactions occur across this interface, these tie benefits will be reduced accordingly. Tie benefits from

other neighbouring jurisdictions are not considered at this time because they also experience peak loads in winter.

In the CP-8 report *Review of Interconnection Assistance Reliability Benefits (June 1, 2011)* the range of estimated annual tie benefit potential for the Maritimes Area for 2011 was 1076 – 1353 MW. Based on this study, the 300 MW of tie benefits assumed for this Interim Review is conservative.

### 3.6 New Brunswick Energy Blueprint

On October 19, 2011 the New Brunswick government released its new energy blueprint, outlining five key objectives:

- Low and stable energy prices
- Energy security
- Reliability of the electrical system
- Environmental responsibility
- Effective regulation.

These objectives are integrated into a list of 20 action items that the New Brunswick government intends to pursue during the next three years.

Significant items in the blueprint include:

- The amalgamation of the NB Power group of companies, and the New Brunswick System Operator, into a single, vertically integrated Crown utility
- A review of the natural gas distribution model to achieve lower rates
- A shift from focusing on wind generation in its renewable energy standard toward less intermittent sources and demand side management.

The changes outlined in the blue print do not affect resource adequacy in the Maritimes Area. The New Brunswick Energy Blueprint and the final report of the New Brunswick Energy Commission are available on the New Brunswick Department of Energy website at:

<http://www.gnb.ca/energy>

### 3.7 Point Lepreau Nuclear Generating Station

The 660 MW Point Lepreau Nuclear Generating Station is scheduled to be placed back into service beginning October 1, 2012. This re-start is delayed by 1.5 years from the March 31, 2011 start date used in the 2010 Comprehensive Review base case. Even without the 660 MW of Point Lepreau capacity, Table 4 above shows that the Maritimes Area has sufficient reserves to meet its 20% resource adequacy criterion for all years from 2013-15.



#### **4.0 LOLE RESULTS**

A summary of the Maritimes Area LOLE values for 2013 to 2015 is shown in Table 5 below. All LOLE values for this Interim Review meet the NPCC resource adequacy criterion, and are lower versus the 2010 Comprehensive Review.

**Table 5 – Maritimes Area LOLE Values for 2012 to 2015**

Year	2012 Interim Review (days/year)	2010 Comprehensive Review (days/year)
2013	0.002	0.002
2014	0.002	0.003
2015	0.002	0.004

#### **5.0 CONCLUSIONS**

Results of this review show that the Maritimes Area will comply with the NPCC resource adequacy criterion that requires a loss of load expectation (LOLE) value of less than 0.1 days/year for all years from 2013 to 2015.