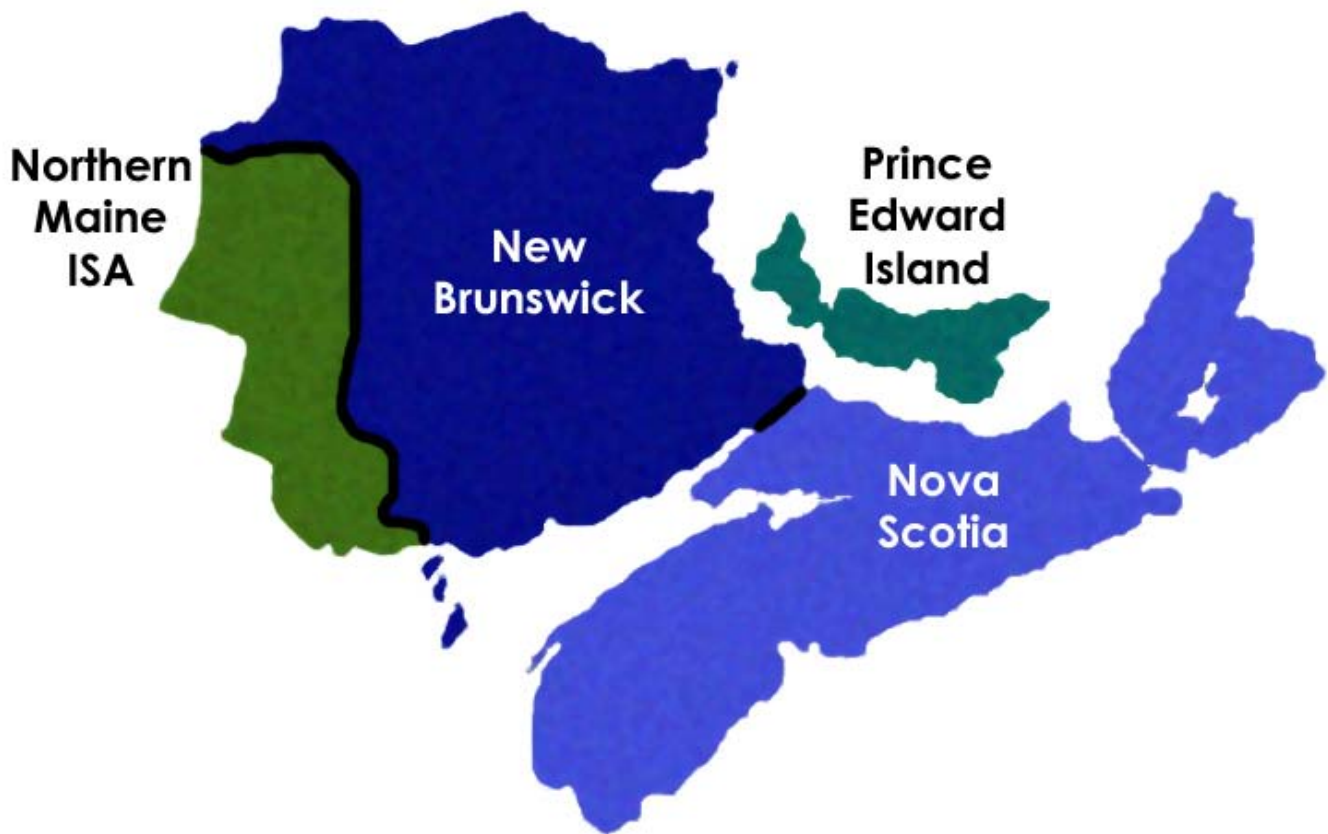


**NPCC  
2011 MARITIMES AREA  
INTERIM REVIEW OF RESOURCE  
ADEQUACY**



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

**September 2011**

Approved at the November 29, 2011 RCC Meeting

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## 1.0 EXECUTIVE SUMMARY

The 2011 Maritimes Area Interim Review of Resource Adequacy (Interim Review), covering the period of January 2012 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 less than 0.1 days/year for all years from 2012-15. A summary of the Maritimes Area LOLE values for 2012-15 is shown in Table 1 below.

**Table 1 – Maritimes Area LOLE Values for 2012 to 2015**

Year	2011 Interim Review (days/year)	2010 Comprehensive Review (days/year)
2012	0.002	0.002
2013	0.001	0.002
2014	0.001	0.003
2015	0.000	0.004

All of the LOLE results for this Interim Review are lower versus the 2010 Comprehensive Review. The most significant assumption changes that have contributed to these lower LOLE values are:

- Purchases from Hydro Québec and Nalcor Energy to New Brunswick totaling 366 MW for January and February 2012 and 183 MW for March 2012 are included.
- Interconnection tie benefits of 300 MW from New England are assumed for each year.
- Retirement of the 299 MW Dalhousie Generation Station previously scheduled for April 1, 2011 is delayed until May 31, 2012.

Partly offsetting the beneficial effects on LOLE of the aforementioned changes are two other significant changes from the 2010 Comprehensive review:

- The return to service of the 660 MW Point Lepreau Nuclear Generation Station scheduled for March 31, 2011 in the Comprehensive Review is delayed until October 1, 2012.
- 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.

There are no changes in this Interim Review with respect to environmental regulations, fuel supplies, emergency operating procedures, or market rules.

## 2.0 INTRODUCTION

This 2011 Interim Review is the first update of the 2010 Maritimes Area Comprehensive Review of Resource Adequacy approved by the 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 (PEI), 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 2012 to 2015**

Year	2011 Interim Review (MW)	2010 Comprehensive Review (MW)	Difference (MW)
2012	5472	5410	+62
2013	5419	5417	+2
2014	5434	5425	+9
2015	5449	5444	+5
Compound Annual Growth Rate			
Growth Rate	-0.1%	0.2%	

The demand forecast for this review is slightly higher in all years, but the compound annual growth rate is practically unchanged.

Potential closure of the largest paper mill in Nova Scotia with a net load of approximately 150-200 MW was announced during August 2011 but was not modeled in this study due to uncertainty. Its closure would not affect area reserves as the entire load is interruptible leaving the firm load (covered by reserves) unchanged.

### 3.2 Resources Forecast

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

- Purchases from Hydro Québec and Nalcor Energy to New Brunswick totaling 366 MW for January and February 2012 and 183 MW for March 2012 are included.

- Interconnection tie benefits of 300 MW from New England 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 delayed until October 1, 2012.
- Retirement of the 299 MW Dalhousie Generation Station scheduled for April 1, 2011 in the Comprehensive Review is delayed until May 31, 2012.
- Small biomass and diesel generating facilities totaling 45 MW of capacity were retired or mothballed in the Northern Maine sub area during 2011.
- An additional 27 MW of wind project capacity (derated) is expected by 2012. An additional 41 MW is expected by 2015 for a total of 359 MW compared to the 331 MW total in the 2010 Comprehensive review.

There are no changes in this review with respect to environmental regulations, fuel supplies, emergency operating procedures, or market rules.

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 2011 to 2015**

Year	2011 Interim Review (MW)			2010 Comprehensive Review (MW)			Difference (MW)
	Conventional	Wind	Total	Conventional	Wind	Total	Total
2012	6839	318	7157	6570	291	6861	296
2013	6844	328	7182	6570	291	6861	321
2014	6848	330	7188	6570	291	6861	327
2015	6873	359	7232	6570	331	6901	331

Conventional capacity in Table 3 includes installed generation, contracted purchases, and tie benefits. 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 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 winter capacity factor. In New Brunswick and Northern Maine, where wind projects have not been installed as long, derating of wind capacity is based upon results from the Sept. 21, 2005 NBSO report “Maritimes Wind Integration Study”. These results showed that the effective capacity from wind projects, and their contribution to LOLE, was equal to or better than their seasonal capacity factors. This report is available at:

[http://www.nbso.ca/Public/\\_private/2005%20Maritime%20Wind%20Integration%20Study%20 Final .pdf](http://www.nbso.ca/Public/_private/2005%20Maritime%20Wind%20Integration%20Study%20Final_.pdf)

### 3.3 Comparison of Planned and Required Reserve

The Maritimes Area uses a 20% reserve criterion for planning purposes. Table 4 shows a year by year comparison of the planned reserve versus the required reserve. In each year of this review, the planned reserve exceeds the 20% reserve criterion.

**Table 4 – Comparison of Planned and Required Reserve for 2012 to 2015**

Year	Generation Resources (MW)	Forecast Coincident Peak (MW)	Interruptible Load (MW)	Planned Reserve		Required Reserve	
				MW	%	MW	%
2012	7157	5472	371	2056	40.3%	1020	20%
2013	7182	5419	370	2133	42.2%	1010	20%
2014	7188	5434	366	2122	41.8%	1014	20%
2015	7232	5449	360	2143	42.1%	1018	20%

While the Point Lepreau refurbishment project is on schedule for its current October 1, 2012 return date, the 2013 reserve surplus of 1123 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 from New England 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 load peak 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 1,076 – 1,353 MW. Based on this study, the 300 MW of tie benefits assumed for this Interim Review is conservative.

#### 4.0 LOLE RESULTS

A summary of the Maritimes Area LOLE values for 2012 to 2015 is shown in Table 5 below. All LOLE values for this 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	2011 Interim Review (days/year)	2010 Comprehensive Review (days/year)
2012	0.002	0.002
2013	0.001	0.002
2014	0.001	0.003
2015	0.000	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 2012 to 2015.