

**NOVA SCOTIA UTILITY AND REVIEW BOARD**



**IN THE MATTER OF THE PUBLIC UTILITIES ACT**

- and -

**IN THE MATTER OF** the establishment of performance standards for **NOVA SCOTIA POWER INCORPORATED** relating to power system reliability, adverse weather response and customer service

**BEFORE:**

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Roland A. Deveau, Q.C, Vice Chair  
Steven M. Murphy, MBA, P.Eng, Member

**INTERVENORS:**

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Judith Ferguson, LL.B.

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**BOARD COUNSEL:**

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Stacy O'Neill, LL.B.

**HEARING DATE:** September 19, 2016

**FINAL SUBMISSIONS:** October 25, 2016

**DECISION DATE:** November 28, 2016

**DECISION:** Performance standards established for reliability, response to adverse weather conditions, and customer service. NSPI must report to the Board respecting its performance on the standards. Standards will be reviewed in five years.

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## 1.0 INTRODUCTION

[1] This Decision is further to a public hearing conducted by the Nova Scotia Utility and Review Board (“Board”) on the establishment of performance standards for Nova Scotia Power Incorporated (“NSPI”, “Company”, “Utility”) in respect of reliability, the response to adverse weather conditions, and customer service. The establishment of performance standards is enabled by s. 31 of the *Electricity Plan Implementation (2015) Act* (“EPIA”), enacted December 18, 2015, which amended Section 52 of the *Public Utilities Act*, R.S.N.S. 1989, c. 380, as amended (“Act”).

[2] Board Counsel engaged the services of London Economics International LLC (“LEI”) to explore and present potential options for the Board to consider when setting performance standards. LEI filed a Report with the Board on May 17, 2016, regarding the establishment of performance standards for NSPI relating to power system reliability, adverse weather response and customer service.

[3] A total of nine Formal Intervenors responded to the Notice of Hearing published by the Board. The following parties participated in the hearing: NSPI; the Consumer Advocate (“CA”); the Small Business Advocate (“SBA”); the Industrial Group, whose counsel represented 12 Intervenors; Port Hawkesbury Paper LP (“PHP”); and the Nova Scotia Departments of Energy and Environment (“Province”). The Board also received one written submission from a member of the public, who appeared at the evening session.

[4] S. Bruce Outhouse, Q.C., and Stacy O’Neill, LL.B., acted as Board Counsel.

[5] NSPI filed evidence in this matter, including the evidence of Philip Q. Hanser, a principal of The Brattle Group (“Hanser Report”), while the CA filed evidence of Peter J. Lanzalotta, of Lanzalotta & Associates LLP (“Lanzalotta Report”).

[6] Information Requests (“IRs”) were also exchanged by various parties in advance of the hearing.

[7] The public hearing was conducted by the Board on September 19, 2016, in its hearing room in Halifax, Nova Scotia.

## 2.0 PUBLIC UTILITIES ACT

[8] In summary, s. 52A of the *Act* requires the Board to establish performance standards for NSPI in respect of reliability and response to adverse weather conditions, while s. 52B requires the Board to establish performance standards in respect of “such areas of NSPI’s customer service as it determines appropriate”. Sections 52C to 52E provide for reporting in relation to NSPI’s performance compared to the standards, as well as the Board’s oversight with respect to NSPI’s compliance.

[9] The relevant provisions of the *Act* include:

### **Performance standards for adverse weather conditions**

**52A** (1) The Board shall establish performance standards for Nova Scotia Power Incorporated in respect of reliability and response to adverse weather conditions.

(2) For the purpose of subsection (1), performance standards relating to reliability must be determined by the Board based upon

(a) such North American electrical utility industry standards as it considers appropriate, modified, where necessary, to account for any circumstances or conditions existing in the Province;

and

(b) any other factors or requirements prescribed by the regulations.

(3) For the purpose of subsection (1), performance standards relating to responses to adverse weather conditions must be determined by the Board based upon

(a) such standards as it considers appropriate in order to ensure that Nova Scotia Power Incorporated’s response to adverse weather conditions is consistent with the standards of other electrical utilities operating along the North Atlantic seaboard having regard to the nature and severity of the adverse weather condition and the extent of the damage sustained; and

(b) any other factors or requirements prescribed by the regulations.

**Performance standards for customer service**

**52B** (1) The Board shall establish performance standards in respect of such areas of Nova Scotia Power Incorporated's customer service as it determines appropriate.

(2) For the purpose of subsection (1), performance standards relating to customer service must be established by the Board based upon

(a) information to be collected by the Board to determine a baseline in respect of the customer service provided by Nova Scotia Power Incorporated in the areas determined appropriate by the Board;

(b) the objective of gradually improving Nova Scotia Power Incorporated's performance in the areas of customer service determined appropriate by the Board; and

(c) any other factors or requirements prescribed by the regulations. [Emphasis added]

[10] The *EPIA* also amended the *Act* to provide the Board with discretion to impose reporting requirements on NSPI with respect to its performance on the standards:

**Release of reports related to performance standards**

**52C** Whenever required in connection with any investigation by the Board or a person appointed pursuant to Section 82, Nova Scotia Power Incorporated shall provide the Board with such reports and information as the Board may require to show completely and in detail Nova Scotia Power Incorporated's conduct in relation to any performance standard established by the Board.

**Status reports relating to performance**

**52D** (1) The Board may require Nova Scotia Power Incorporated to provide it with periodic status reports, at such times and including such information as the Board may require, on Nova Scotia Power Incorporated's performance in respect of the standards established pursuant to Sections 52A and 52B.

(2) Within ninety days following the end of each calendar year, Nova Scotia Power Incorporated shall provide a written report to the Board on its performance in respect of the standards established pursuant to Sections 52A and 52B.

(3) The written report must be in such form and contain such information as the Board determines appropriate.

[11] Further, the Board has the authority under the *Act* to take remedial measures to ensure NSPI's compliance with the performance standards:

**52D** (4) Where, following receipt of the report referred to in subsection (2), the Board determines that Nova Scotia Power Incorporated has failed to achieve any performance standard established pursuant to Section 52A, the Board may order Nova Scotia Power Incorporated to pay an administrative penalty or to develop and file a plan for bringing itself into compliance with a performance standard, or both.

(5) Where, following receipt of the report referred to in subsection (2), the Board determines that Nova Scotia Power Incorporated has failed to achieve any performance standard established pursuant to Section 52B, the Board may order

Nova Scotia Power Incorporated to pay an administrative penalty or to develop and file a plan for bringing itself into compliance with a performance standard, or both.

...

#### **Administrative penalties**

...

**52E** (2) The amount of any administrative penalty ordered to be paid is the amount determined by the Board to be appropriate in order to promote future compliance with the performance standards and not for punitive purposes or effects or for redressing a wrong done to society at large.

(3) The cumulative total of administrative penalties levied against Nova Scotia Power Incorporated in a calendar year must not exceed one million dollars.

(4) Any administrative penalties levied against Nova Scotia Power Incorporated must be credited to customers through Nova Scotia Power Incorporated's Fuel Adjustment Mechanism or, where no such mechanism exists, in any manner the Board determines appropriate.

(5) Notwithstanding subsection (4), any amounts to be credited to customers may be allocated amongst Nova Scotia Power Incorporated's customers in any manner that the Board determines appropriate.

(6) Any administrative penalties levied against Nova Scotia Power Incorporated may not be included when determining Nova Scotia Power Incorporated's rate of return pursuant to this Act. [Emphasis added]

[12] It is to be noted that the performance standards canvassed in this Decision, pursuant to the amendments under the *EPIA*, are distinct from the North American Electric Reliability Corporation ("NERC") reliability standards, as well as those of the Northeast Power Coordinating Council, Inc. ("NPCC") that already apply to NSPI, and which are monitored for compliance by NPCC. Those standards, which were initially approved by the Board in 2011 in Matter M03324, 2011 NSUARB 113, relate to protecting the reliability of the North American bulk power system. Since 2011, new and revised standards are filed with the Board on a quarterly basis for approval. Under these regimes, the Board can order NSPI to comply with the standards in the event of default. Notwithstanding the performance standards canvassed in this Decision, the NERC and NPCC reliability standards continue to apply to NSPI and are reported and enforced separately.

### 3.0 ISSUES

[13] The Board considers that the issues which must be addressed in this Decision are as follows:

1. What reliability standards should be approved by the Board?
2. What exclusions are appropriate from reliability performance metric calculations?
3. What benchmarking should apply to reliability performance standards?
4. What adverse weather response standards should be approved by the Board?
5. What customer service standards should be approved by the Board?
6. What reporting requirements should be adopted?
7. What is the appropriate regulatory response respecting NSPI's performance?
8. When should the performance standards be reviewed?

### 4.0 ANALYSIS AND FINDINGS

#### 1. What reliability standards should be approved by the Board?

[14] Power system reliability can be defined as:

...the degree to which the utility provides continuous service at specified voltage levels.

[Exhibit N-8, p. 13]

[15] LEI indicated jurisdictions and utilities typically measure power system reliability using System Average Interruption Frequency Index ("SAIFI"), System Average Interruption Duration Index ("SAIDI"), Momentary Average Interruption Frequency Index ("MAIFI") and Customer Average Interruption Duration Index ("CAIDI") performance metrics. Furthermore, since similar interpretations can be developed from using either CAIDI or SAIDI, LEI advised that jurisdictions and utilities generally use a combination of SAIFI, CAIDI and MAIFI or SAIFI, SAIDI and MAIFI to measure reliability performance.



[16] SAIFI represents the average number of times that a system customer experiences a power outage during a specific time period (typically a year). SAIDI measures the average duration of a power outage that a system customer experiences over a specific time period (typically a year). MAIFI quantifies the average number of momentary power interruptions that a system customer experiences during a given period (typically a year). CAIDI is the ratio of SAIDI to SAIFI, and represents the average time to restore power service.

[17] LEI also noted that Circuit Average Interruption Duration Index (“CKAIDI”) and Circuit Average Interruption Frequency Index (“CKAIFI”) are additional performance metrics. These measures can be used by jurisdictions and utilities to assess circuit level or feeder reliability, which is not normally captured by system level performance metrics (such as SAIDI and SAIFI). Use of these metrics places more stringent requirements on a jurisdiction or utility to monitor and address performance of individual parts of its networks.

[18] CKAIDI measures the average duration of a power outage that a customer connected to a specific circuit (feeder) experiences over a specific time period (typically a year). CKAIFI represents the average number of times that a customer connected to a specific circuit (feeder) experiences a power outage during a specific time period (typically a year).

[19] LEI’s Report advised that amongst the majority of US states, power system reliability performance and benchmarking are calculated using SAIFI and SAIDI or CAIDI.

[20] LEI reviewed the different possible reliability performance metrics the Board can consider. LEI and NSPI both recommended the following reliability performance

metrics should be adopted: SAIFI, SAIDI, CKAIFI and CKAIIDI. LEI and NSPI have further recommended that all Canadian Electricity Association cause codes (with the exception of the “Scheduled Outage” cause code) should be used when calculating CKAIFI and CKAIIDI.

[21] There were no objections by Intervenors with respect to the use of these reliability performance metrics.

## **Findings**

[22] The Board finds the metrics of SAIFI, SAIDI, CKAIFI and CKAIIDI are appropriate, and orders that they be implemented to measure NSPI reliability performance on an annual basis.

[23] The Board further orders that all Canadian Electricity Association cause codes (with the exception of the “Scheduled Outage” cause code) be used in calculating the annual values of CKAIFI and CKAIIDI.

## **2. What exclusions are appropriate from reliability performance metric calculations?**

### **(i) Severe Outage Events**

[24] LEI and NSPI agree severe outage events and their impacts on utility system performance are not within the control of the Utility. Therefore, both agree reliability performance metrics should be calculated excluding such events. Reliability performance metrics calculated in such a fashion will provide indicators of NSPI performance under “normal conditions”, which utility investment, operations and maintenance decisions and practices have as their primary focus.

[25] Exclusion of severe outage events when calculating reliability performance metrics is further supported by the Institute of Electrical and Electronics Engineers' ("IEEE") Standard 1366-2012 "IEEE Guide for Electric Power Distribution Reliability Indices":

... Assessment of performance trends and goal setting should be based on normal event days (neglecting the impact of [Major Event Days]) ...

[Exhibit N-23, Undertaking #1, Appendix p. 31]

[26] Metrics and standards for utility performance and response during severe weather events is a separate issue addressed later in this Decision.

[27] LEI advised that there are two possible methodologies for defining severe outage events that are excluded when calculating reliability performance metrics. These include: a) the IEEE 1366-2012 Standard methodology; and b) a fixed definition approach.

[28] The IEEE 1366-2012 Standard methodology defines a Major Event Day ("MED") as:

A day in which the daily system System Average Interruption Duration Index (SAIDI) exceeds a Major Event Day threshold value. For the purposes of calculating daily system SAIDI, any interruption that spans multiple calendar days is accrued to the day on which the interruption began. Statistically, days having a daily system SAIDI greater than  $T_{MED}$  are days on which the energy delivery system experienced stresses beyond that normally expected (such as during severe weather). Activities that occur on Major Event Days should be separately analyzed and reported.

[Exhibit N-23, Undertaking #1, Appendix p. 3]

[29] The value of  $T_{MED}$  is calculated using the 2.5 Beta Method, as described in the IEEE 1366-2012 Standard. The Beta methodology is used for classifying MEDs by quantifying the threshold  $T_{MED}$ . The term "Beta" refers to a standard deviation calculated by a statistical approach which measures the range of values in a set of numbers, or the dispersion or variation in a distribution. Any day with a SAIDI greater than the value of

$T_{MED}$  that occurs during the subsequent reporting period is classified as an MED. Any day with a SAIDI value under the  $T_{MED}$  threshold is considered a “normal” day.

[30] LEI noted the IEEE 1366 Standard is increasingly being used as a basis for normalizing reported reliability measures. To be consistent with industry standards and to appropriately normalize reliability data, LEI recommended the use of the IEEE 1366-2012 2.5 Beta methodology to define “Excludable Severe Outage Events”.

[31] The fixed definition approach defines a severe outage event as any event that interrupts service to a defined percentage of a utility’s total customers. For example, in Massachusetts a severe outage event includes those that affect more than 15 percent of the customers in the companies’ service territory.

[32] LEI and NSPI both recommend that a severe outage event be defined as a major or extreme event day (“EED”), as calculated using the IEEE 1366-2012 Standard 2.5 Beta Method or worse. By adopting the IEEE 1366-2012 Standard 2.5 Beta Method, all severe outage events (including MEDs and those with SAIDIs in excess of  $T_{MED}$ ) are removed from the calculation of reliability performance metrics under “normal conditions”.

[33] The SBA expressed concerns related to the use of the IEEE 1366-2012 Standard to define severe outage events that are excludable from “normal conditions” performance metric calculations. One of these concerns relates to how planned outages are handled within the IEEE 1366-2012 Standard framework. This particular concern is addressed later in this Decision. The other concern referenced by the SBA is associated with the complex nature of the IEEE 1366-2012 Standard:

Rather than add layers of complexity to the determination of the performance standards with the IEEE Standard, a rule using a fixed percentage of customers would be administratively more transparent to monitor.

[SBA Closing Submission, p. 3]

[34] Given these concerns, the SBA submitted that a fixed percentage of customers is a more appropriate means of defining a severe outage event in Nova Scotia. The SBA did not, however, quantify a value for the suggested fixed percentage.

## Findings

[35] LEI and NSPI agree severe outage events should be excluded when calculating reliability performance metrics.

[36] Furthermore, there were no objections by Intervenors to excluding severe outage events from reliability performance metrics.

[37] The issue to be decided, therefore, is how to define an “Excludable Severe Outage Event”. More specifically, should an “Excludable Severe Outage Event” be defined using the IEEE 1366-212 Standard methodology, or using the Fixed Definition approach?

[38] With respect to the definition of an “Excludable Severe Outage Event”, the SBA’s Opening Statement refers to the Lanzalotta Report:

While the concept of excluding major storm impacts from reliability index performance is generally accepted, the concept of excluding all weather impacts from reliability impacts raises the question as to whether the utility is responsible to plan for some level of weather impacts on electric service reliability.

[Exhibit N-7, p. 4]

[39] The SBA suggested Mr. Lanzalotta’s concern is that the use of the IEEE 1366-2012 Standard may result in NSPI not being held accountable for dealing with at least some level of inclement weather.

[40] The Board does not agree. First, as required by s. 31 of the *EPIA* and s. 52A of the *Act*, the Board is mandated to establish performance standards for NSPI with respect to response to adverse weather conditions. These particular standards are

discussed in more detail later in this Decision, and will hold NSPI accountable for performance during adverse weather. Second, the IEEE 1366-2012 Standard does not necessarily exclude all inclement weather impacts from being used in the calculation of reliability performance metrics. The IEEE-1366 2012 Standard 2.5 Beta methodology only excludes MEDs and more severe events from reliability performance metrics. Outage events with SAIDI values that do not meet the MED threshold can still result from inclement weather. Since these events would not meet the MED threshold, they would be included in the calculation of “normal conditions” reliability performance metrics. As such, the related inclement weather impacts would be factored in the reliability performance metrics.

[41] The SBA’s preferred fixed definition approach defines a severe outage event as any event that interrupts service to a defined percentage of a utility’s total customers. In the Board’s opinion, this approach appears somewhat subjective. While the SBA has not recommended a value for such a fixed percentage, the evidence presented suggests the typical value ranges from 10% to 15% for utilities still using the Fixed Definition methodology.

[42] In contrast, LEI indicated:

... According to the IEEE standard 1366-2012, major event days are studied separately from normal operation, in order to better reveal trends in normal operation that would be hidden by the large statistical effect of major events. The major event day concept does not rely on subjective analysis of whether days are excluded from calculations; it uses a more objective mechanism where a day in which the daily SAIDI exceeds a threshold value is considered a major event day. [Emphasis added]

[Exhibit N-1, p. 35]

[43] LEI also indicated it:

...considers adoption of the IEEE 1366-2012 standard objective, appropriate, and consistent with industry practice.

[Exhibit N-13, p. 5]

[44] In the Board's opinion, an objective approach (consistent with industry standards and which appropriately normalize reliability data) for defining an "Excludable Severe Outage Event" is preferable to a subjective approach. The subjective nature of the fixed definition approach would leave the setting of the value for the "defined percentage of customers" to discretion. On the other hand, the process to establish the "Excludable Severe Outage Event" threshold using the IEEE 1366-2012 2.5 Beta methodology is well defined, consistent, repeatable, and does not rely on discretion.

[45] In its Closing Submission, the SBA also referenced the evidence of Philip Hanser filed on behalf of NSPI. The SBA noted Mr. Hanser confirmed Maryland, New York and Pennsylvania use the fixed definition approach to define an "Excludable Severe Outage Event". In his direct testimony, Mr. Hanser also confirmed Massachusetts does not use the IEEE 1366-2012 Standard as a performance standard. Massachusetts' use of the fixed definition approach is further corroborated by LEI in Exhibit N-1, p. 29. However, LEI advised that Maryland does, in fact, use the IEEE 1366-2012 Standard to define an "Excludable Severe Outage Event". Regardless, the SBA argued:

Mr. Hanser's evidence did not explain why the IEEE Standard is superior, given the alternative test using a fixed percentage or number of customers is used in 4 jurisdictions in close geographical proximity to Nova Scotia whereas his evidence concerning the IEEE standard's use is for British Columbia, Alberta, California, Delaware and Toronto, presumably Ontario. Only the last of those locations is anywhere close to Nova Scotia and has limited similarities in terms of weather, especially compared to Pennsylvania, New York and Massachusetts.

The SBA submits that the defined percentage test using a fixed percentage of customers, as summarized by Mr. Lanzalotta in his evidence, is more applicable to our region.

[SBA Closing Submission, p. 4]

[46] The SBA's above argument implies the fixed definition approach is more appropriate for use by NSPI, as it is used by four jurisdictions that are in somewhat close

geographic proximity to Nova Scotia. The Board notes, however, that Section 52A(2)(a) of the *Act* states:

**52A(2)** For the purpose of subsection (1), performance standards relating to reliability must be determined by the Board based upon

(a) such North American electrical utility industry standards as it considers appropriate, modified, where necessary, to account for any circumstances or conditions existing in the Province;

...

[47] The *Act*, therefore, does not restrict the Board to setting reliability performance standards based solely on standards of other utilities located in close proximity to Nova Scotia. Furthermore, as it relates to a review of Massachusetts' reasoning for using a Fixed Definition approach, the Board agrees with LEI's conclusions:

LEI understands that the cause of the outages is an important priority for the Massachusetts DPU, and hence it has decided to retain their original definition of an Excludable Major Event. It also seems administratively simpler for the DPU to retain that definition than moving to another regime, since it has been in place for several years. In contrast, in the case of Nova Scotia, using the IEEE-1366-2012 Standard is advantageous because:

- It objectively excludes major events and removes the burden from the Board to review these exclusions on a case by case basis;
- No formal definition of a major event is in place yet, hence the Board and utility do not have to alter their regime; and
- NSPI already tracks and reports data according to the IEEE-1366 Standard.

[Exhibit N-6, p. 3]

[48] The Board also notes and agrees with the following:

... LEI notes that unlike the IEEE approach, a fixed percentage approach is not dynamic, and does not adjust itself based on actual historical performance. In a recent proceeding in Ontario, the System Reliability Working Group noted: "...the IEEE approach is dynamic because it raises the standard of what qualifies as a Major Event from year to year. If a distributor does nothing to make its system more resilient, then its' SAIDI value will increase, as will the threshold necessary to qualify for a Major Event. Since such a distributor would be unable to exclude more and more high impact events, its' reliability performance results will also decline. If a distributor does take steps to make its system more resilient, then the Major Event threshold will remain lower and more events can be excluded from the data, resulting in increased reliability performance results." Source: Ontario Energy Board. *Electricity Distribution System Reliability: Major Events, Reporting on Major Events and Customer Specific Measures*. December 7, 2015. [Emphasis in original]

[Exhibit N-13, p. 2]



[49] Based on the above, the Board finds the IEEE 1366-2012 Standard 2.5 Beta methodology provides a superior and more appropriate means of defining an “Excludable Severe Outage Event” than does the Fixed Definition approach.

[50] The Board also finds the IEEE 1366-2012 Standard 2.5 Beta methodology allows for more reliable scrutiny of utility performance assessment during industry-defined “normal conditions”.

[51] Therefore, the Board orders that the IEEE 1366-2012 Standard 2.5 Beta methodology be used to define severe outage events that are excluded from the calculations of NSPI reliability performance metrics on an annual basis.

**(ii) Planned Outages**

[52] A planned outage is defined by the IEEE as:

The intentional disabling of a component’s capability to deliver power, done at a preselected time, usually for the purposes of construction, preventative maintenance, or repair.

[Exhibit N-23, Undertaking #1, Appendix p. 3]

[53] LEI advised the exclusion of planned outages from the calculation of reliability performance metrics assists in better studying and evaluating a utility’s reliability performance during unplanned events. LEI also referenced the IEEE 1366-2012 Standard, which states:

Reliability performance can be assessed for different purposes. It may be advantageous to calculate reliability indices without planned interruptions in order to review performance during unplanned events. ...

[Exhibit N-23, Undertaking #1, Appendix p. 31]

[54] In line with the IEEE 1366-2012 Standard, LEI recommended planned outage events be excluded from the calculation of the Utility’s reliability performance metrics. NSPI agreed with this recommendation.

[55] In its Closing Submission, the SBA described potential shortcomings associated with calculating utility reliability performance metrics with and without planned outages. The SBA noted the drawback of including planned outages:

...will have the effect of either lengthening the period of time outages or increasing frequency that has nothing to do with how the system will perform during a storm. And so, when performance is measured during a storm, the company will have a lower standard to meet because of its own operational decision to interrupt power.

[SBA Closing Submission, p. 2]

[56] In discussing the shortcomings of excluding planned outages, Mr. Lanzalotta stated:

The amount of planned outages required can reflect, to a significant degree, a utility's choices regarding system design and regarding operational procedures. Giving the utility a free pass regarding reliability reporting because an outage was planned does little to incent the utility to minimize such outages, depending on the cost of doing so. And, it's not apparent that electric customers will appreciate the difference.

[Exhibit N-7, pp. 4-5]

## **Findings**

[57] The Board believes that evaluation of unplanned outages (i.e., those that do not result from planned outages) is one of the key requirements to effectively assess NSPI's reliability performance. Therefore, the Board agrees that exclusion of planned outages from the calculation of reliability performance metrics will help to more thoroughly evaluate NSPI's reliability performance.

[58] However, the Board also notes Mr. Lanzalotta's argument that customers do not necessarily appreciate the difference between outages caused by planned events and unplanned events. The Board believes customers are generally more concerned about the duration and frequency of outages rather than the reason for outages. As such, the Board finds there should be some means of measuring and assessing NSPI performance during planned and unplanned outages.

[59] Therefore, the Board orders that the annual NSPI reliability performance metrics of SAIFI, SAIDI, CKAIFI and CKAIIDI be calculated exclusive of planned outages.

[60] The Board further orders that NSPI provide an annual report to the Board describing the duration and frequency of all system and circuit (feeder) planned outages. These annual reports shall be provided to the Board. The planned outage information presented in these annual reports will not be subject to administrative or compliance penalties. However, the data will be used by the Board to determine whether planned outage compliance metrics and benchmarks need to be established as part of the initial five-year review.

### 3. What benchmarking should apply to reliability performance standards?

#### (i) Historical Company averages

[61] LEI advised the use of benchmarking as a technique to assess a utility's level of performance is widely used by regulators around the world.

[62] LEI further noted utility benchmarking generally takes the form of one of the following:

**Historical averages:** targets set based on average historical performance observed for the utility;

**Peer group averages:** benchmarks based on the performance in similar areas for designated provincial or regional peers; and

**Technical or statistical benchmarks:** standards can be set using technical equipment optimal performance and benchmarks tailored to the precise business conditions.

[Exhibit N-1, p. 15]

[63] LEI also advised:

Among the majority of the US states, benchmarks are set using SAIFI, SAIDI or CAIDI values (either fixed, or based on historical performance, or as an average/rolling average of their past performance).

[Exhibit N-1, p. 15]

[64] In the case of NSPI, LEI suggested if a peer group benchmarking process is used to assess Company performance, it would likely need to include a sample of regional utilities. These utilities would include:

...US states of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont.

As such, regional utilities along the North Atlantic Seaboard could include utilities from the above-mentioned states along with New Brunswick Power, Maritime Electric, Newfoundland and Labrador Hydro, and Newfoundland Power.

[Exhibit N-5, p. 27]

[65] LEI and NSPI both recommended that a performance benchmarking process using historical NSPI averages is most appropriate for establishing Company performance standards.

[66] In its Closing Submission, the CA indicated he is prepared to accept the use of historical average benchmarking. However, the CA prefers a peer group benchmarking process using benchmarks based on performance of other utilities across the North Atlantic Seaboard, including the United States Atlantic Coast. The CA suggested this method is preferred because:

...Severe weather similar to that experienced in Nova Scotia is not uncommon to utilities across the North Atlantic Seaboard. Reliability performance is a dynamic topic. NSPI is considering system improvements, such as advanced metering and distribution circuit automation, that have the potential to improve reliability performance both during normal conditions and during storms. The more inclusive the set of comparison utilities is, the more representative the reliability impacts of changes such as these is expected to be.

[CA Closing Submission, p. 3]

## Findings

[67] The Board understands the CA's reasoning for preferring that a peer group benchmarking process be applied to NSPI. However, the Board finds there are limitations with the peer group benchmarking process.

[68] One such limitation relates to the definition of performance metrics used by various potential peer utilities. As Mr. Hanser notes in his evidence:

Utilities and state regulators do not have completely consistent definitions of the interruptions that should be included and excluded from “normal” SAIDI, SAIFI, and CAIDI, but generally attempt to distinguish controllable outages from uncontrollable outages. This inconsistency makes comparisons (or benchmarking) across utilities difficult.

[Exhibit N-8, p. 13]

[69] In addition, LEI and Mr. Hanser advised that Massachusetts, New York and Pennsylvania exclude certain severe outage events from reliability performance metric calculations in a different fashion than other regional utilities. Inconsistent definitions of performance metrics and excludable severe outage events across peer utilities could make it difficult to ensure an “apples to apples” comparison of NSPI’s performance metrics against some peer utilities.

[70] Furthermore, as LEI noted, there are some potential peer utilities (particularly those within Atlantic Canada) that have yet to implement performance standards. Without such standards in place, those utilities are not necessarily held accountable for reliability performance. In such a case, their related performance metrics may be inordinately high. To benchmark NSPI against such utilities could, therefore, result in inappropriately high benchmarks.

[71] The CA noted NSPI is considering system improvements, such as advanced metering and distribution circuit automation, which have the potential to improve reliability performance during normal conditions. If such improvements do, in fact, improve NSPI reliability performance, benchmarking using historical company averages will tend to make the subsequent benchmarks more stringent over time. This would not necessarily be the case using a peer group benchmarking process if the benchmarks and reliability performance of the peer utilities does not improve over time.

[72] The Board finds that benchmarking based on Company historical averages is appropriate and a more useful measure.

**(ii) SAIDI and SAIFI**

[73] In its Opening Statement, LEI presented three alternative methodologies for establishing SAIDI and SAIFI benchmarks against which utility reliability performance can be assessed. Two of these methodologies (Options a and b) involve a “glide path” benchmarking methodology. The third alternative (Option c) involves setting SAIDI and SAIFI benchmarks based on NSPI’s historical five-year rolling average plus one standard deviation for these metrics. Under Option c, the benchmarks are reset each year. In addition, within a five-year review period, the Option c SAIDI and SAIFI benchmarks must be equal to or better than the prior’s year’s target.

[74] To assess SAIDI and SAIFI performance, annual SAIDI and SAIFI values are compared to the annual SAIDI and SAIFI benchmarks.

[75] LEI recommended an initial transition year (2017) be implemented to allow NSPI time to complete appropriate data recording and modify operations so the Utility can be compliant with performance standard benchmarks. As such, LEI recommended the initial five-year review period for Option c be 2018 to 2022. LEI further advised that the initial 2018 SAIDI and SAIFI benchmarks be based on NSPI’s five-year rolling average plus one standard deviation for the years 2013 to 2017.

[76] LEI also noted:

In setting the desired benchmark for performance under normal conditions, it is important to account for NSPI’s significant capital expenditure program over the 2009–2011 period, aimed at improving the overall reliability of the system. As such, historical performance benchmarking should not include the period prior to 2012. For instance, the initial benchmark (starting 2017) could be based on NSPI’s historical average performance between 2012 and 2016.

[Exhibit N-1, p. 68]

[77] LEI recommended SAIDI and SAIFI benchmarks for 2017 (which LEI recommends be a one-year penalty-exempt transition year) be based on NSPI's historical average data for 2012 to 2016.

[78] During cross-examination, counsel for the Industrial Group questioned Mr. Goulding of LEI regarding the use of the five-year rolling average plus one SD under Option c. Specifically, Ms. Rubin asked Mr. Goulding why the proposed five-year rolling benchmark would not be set at least marginally better than the prior year's target, rather than equal to or better. Mr. Goulding responded:

So I think that one of the objectives here is to maintain. And we believe that through the dynamic of having to meet the rolling average and not backslide, it is possible that the impact that you're looking for will occur because, if the utility is trying to meet this rolling average, plus one standard deviation, they're actually willing to try and build themselves some margin for error; they're going to want to try and meet something that's a little bit above it in order to get there. In terms of once they do that, then there is a bit of an ongoing ratchet effect that will improve performance.

[Transcript, p. 62]

[79] LEI and NSPI both recommended the use of Option c as the preferred method of establishing SAIDI and SAIFI performance monitoring benchmarks. Furthermore, LEI and NSPI recommended that 2017 should be a penalty-exempt transition year for which the SAIDI and SAIFI benchmarks be based on NSPI's 2012 to 2016 average performance plus one standard deviation. LEI and NSPI also recommended that the initial five-year review period for Option c be 2018 to 2022 and the initial 2018 SAIDI and SAIFI benchmarks be based on NSPI's five-year rolling average plus one standard deviation for the years 2013 to 2017.

[80] There were no objections by Intervenors with respect to the use of Option c. The Intervenors did object, however, to the implementation of a penalty-exempt transition year in 2017. The Industrial Group also recommended that the language of the

Option c approach be reviewed after an initial review period to confirm the “ratchet” effect (as suggested by LEI) is, in fact, occurring.

## Findings

[81] The Board finds that Option c is a satisfactory methodology for establishing benchmarks for SAIDI and SAIFI.

[82] However, for reasons detailed later in this Decision, the Board does not agree it is appropriate to implement a penalty-exempt transition year in 2017. This notwithstanding, one of the reasons put forward by both LEI and NSPI for implementing a 2017 transition year relates to the idea that 2012 was an anomalous year with no MEDs or EEDs:

Mr. Pinjani: So the concept now is in for the transition year, so we're setting that five-year benchmark starting for the full five-year term, starting by 2018. Through the transition year, we're looking at '12 to '16, but beyond the transition year we move to 2013.

Mr. Murphy: Okay, I understand that but the fact that it's a transition year, why does that come into play in terms of ---

Mr. Pinjani: There were some internal discussions about that, so that boils down to the 2012 being anomalous year, to some extent, as well. So 2012, if you look at the NSPI responses -- IR responses to the Board, they're -- 2012 in itself was a pretty anomalous year given there were no storm days as NSPI defines it, or neither a major event day or an extreme event day. (Inaudible) itself, and if you look at the SAIDI and the SAIFI numbers from the last 10 years, 2012 was quite a bit of an anomaly in itself.

[Transcript, pp. 104-105]

[83] By implementing a penalty-exempt transition year in 2017, NSPI would not be subject to potential penalties associated with exceeding 2017 SAIDI and SAIFI benchmarks that use 2012 to 2016 to calculate the five-year rolling average plus one standard deviation. Furthermore, implementation of a 2017 transition year would effectively eliminate 2012 SAIDI and SAIFI results from benchmark calculations used to establish penalty thresholds in subsequent years.



[84] After reviewing the data provided with Undertaking U-6, the Board does not agree 2012 was an anomalous year with respect to typical NSPI SAIDI and SAIFI values (with MEDs, EEDs and planned outages excluded, per the Board's findings noted previously). The 2012 SAIFI value is within roughly 15 percent of the 2011 to 2015 average SAIFI value. The 2012 SAIDI value is within roughly 25 percent of the 2011 to 2015 average SAIDI value.

[85] In addition, during cross-examination, LEI explained the use of one standard deviation in setting SAIFI and SAIDI benchmarks:

Mr. Goulding: ...I think that what we're trying to design is a bit of a -- what's sometimes referred to as a dead band around the number so that -- I think there's two things.

One is that you don't want minor deviations around the average to affect the signal. In other words, as we're trying to move along we want to provide a degree of elasticity, if you will, in the target because you're not going to be able to assure flat line performance every single year. There's going to be some normal variation in that and we want to kind of capture that normal variation, especially given the fact that we're saying that you can -- your standard is only going to become more stringent over time; it's not going to relax. We think it's appropriate to have that standard deviation in there.

I think the second reason is that we recognize over time that using the five-year historical period is going to incorporate some years in which there's elements that provide for -- the utility may be doing its job as best it can and still have a bad year. And while we want that to be reflected -- well, we want there to be penalties. We want them to be incentivized to avoid having those bad years. We also want to make sure that we're not setting up a standard in which we haven't allowed for a reasonable amount of variation year on year.

So I think that's the overall objective. We can argue about whether it should be one standard deviation, or it should be a little bit less than one standard deviation, or more, but we've put that forward as being a reasonable sort of dead band that allows for an appropriate performance expectation of the utility.

[Transcript, pp. 102-103]

[86] During cross-examination, Mr. Hartlen from NSPI also provided input related to the use of one standard deviation in setting SAIFI and SAIDI benchmarks:

The benchmark would be based on the five-year rolling average. The standard deviation, as mentioned earlier by LEI, would provide a dead band, if you will, to allow for variability that we have, mostly relating to weather.

[Transcript, p. 117]

[87] Given this testimony, the Board finds the addition of one standard deviation to the Option c historical five-year rolling average for SAIFI and SAIDI benchmarks will provide for weather variability. As such, the addition of one standard deviation should help to offset the impact that a year NSPI considered to be anomalous (such as 2012) may have on benchmark setting.

[88] To illustrate this point, the Board's review of the data provided in Undertaking U-6 shows that the 2011 to 2015 average plus one standard deviation for SAIFI and SAIDI are within approximately six and three percent of the respective values for the worst performing year (2015) over the period.

[89] With the Board finding that a 2017 penalty-exempt transition year is not warranted, the Board finds that the appropriate initial five-year period for Option c benchmarking purposes is 2017 to 2021.

[90] Therefore, the Board orders that Option c be implemented as the NSPI SAIDI and SAIFI benchmarking and reliability performance assessment methodology on an annual basis. The Board also orders that the initial five-year period for Option c be 2017 to 2021, and the initial 2017 SAIDI and SAIFI benchmarks be based on NSPI's five-year rolling average plus one standard deviation for the years 2012 to 2016.

[91] The Board also orders that upon reaching the end of the initial five-year review period, the Option c benchmarking methodology be reviewed to confirm that the "ratcheting effect" is operating.

**(iii) CKAIDI and CKAIFI**

[92] LEI suggested that NSPI circuit (feeder) reliability performance be assessed annually as follows:

- If a circuit (feeder) appears among the worst five percent of all the Company's circuits (feeders) for two consecutive years, it shall be labeled as a **problem circuit (feeder)**. Any problem circuit (feeder) that appears among the worst five percent of all the Company's circuits (feeders) for the third reporting year shall be labeled a **chronic circuit (feeder)**.
- CKAIDI and CKAIFI annual benchmark values be set as the average of the CKAIDI and CKAIFI values for all NSPI circuits (feeders) in that given year plus two standard deviations. The benchmarks would be reset annually.
- The average CKAIDI and CKAIFI values of all chronic circuits (feeders) be compared to the annual CKAIDI and CKAIFI benchmarks.

[93] NSPI agreed to use the CKAIDI and CKAIFI reliability performance assessment methodology proposed by LEI.

[94] There were no objections by Intervenors with respect to the proposed CKAIDI and CKAIFI reliability performance assessment methodology.

## Findings

[95] The Board finds the proposed CKAIFI and CKAIDI reliability performance assessment methodology satisfactory, and orders that it be implemented to measure NSPI CKAIFI and CKAIDI reliability performance on an annual basis over the next five-year period.

### 4. What adverse weather response standards should be approved by the Board?

[96] LEI advised specific metrics can be used to track performance of a utility in response to adverse weather conditions.

[97] These metrics typically relate to promptness in restoring service, customer communications, estimated restoration time, and responses to incoming calls at customer care centres.

[98] LEI identified the following specific adverse weather (or “storm”) response performance metrics and benchmarks that can be applied to NSPI:

- (1) Notifying customers within four hours of the Company’s decision to open the NSPI Emergency Operations Centre. The notifications shall be provided to all customers using multiple channels, such as the NSPI website, social media and automated messaging.
- (2) A minimum 85 percent of telephone calls answered within 45 seconds at the Company’s customer care centre during severe outage events (i.e., MEDs and above, as defined by the IEEE 1366-2012 Standard). “Calls answered” refers to telephone calls that are answered by a customer service representative after a caller asks to speak to a representative. The wait time associated with the “calls answered” metric is from the time the customer asks to speak to a representative to the time that the call is answered by a representative. Calls answered using an automated system are not included if a customer chooses to speak to a customer representative. Alternatively, if a customer chooses an automated system, those calls are included in the calculation of this metric.
- (3) A 10 percent or less polite disconnect rate annually for all outage calls. A polite disconnect results when a customer on hold waiting for a customer service agent is disconnected after receiving a brief disconnect message.

A polite disconnect can result when call lines are very busy, and call volume may be too high to keep customers on hold.

- (4) Estimated Time to Restore (“ETR”) updates provided to all customers with no delay once new restoration time estimates are known.

[99] LEI and NSPI recommended on the use of these storm response performance metrics.

[100] LEI and NSPI also recommended that the benchmarks for these metrics be fixed for 2017, and until the end of the initial five-year review period, which LEI and NSPI suggested be 2018 to 2022.

[101] LEI proposed an additional quantitative storm response performance metric aimed at addressing the SBA’s concerns. This particular metric is the “Percentage of Customers Restored within the first 48 hours of a Severe Weather Event” for both MEDs and EEDs separately. MEDs and EEDs are defined using the IEEE 1366-2012 Standard 2.5 and 3.5 Beta methodology, respectively.

[102] LEI and NSPI agreed on the use of this additional storm response performance metric.

[103] LEI and NSPI also agreed that the benchmarks for the MED and EED “Percentage of Customers Restored within the first 48 hours of a Severe Weather Event” metric be based on NSPI’s respective historical averages since 2004 minus one standard deviation. The benchmarks will be updated annually by including the most recent data available at the time of benchmark updating.

[104] There were no objections by Intervenor with respect to the use of these storm response performance metrics, benchmarks and benchmarking methodologies.

## Findings

[105] The Board finds the storm response performance metrics, benchmarks and benchmarking methodologies described above are satisfactory.

[106] For reasons outlined in subsequent sections of this Decision, the Board does not agree that the initial five-year review period be 2018 to 2022. Instead, the Board finds a more appropriate initial five-year review period to be 2017 to 2021, without a transition year.

[107] The Board orders that the above described storm response standards be implemented to measure storm response performance on an annual basis.

### **5. What customer service standards should be approved by the Board?**

[108] LEI advised that standards in relation to customer service, unlike standards in relation to system reliability and storm response, tend to vary depending on the jurisdiction and the market in which they apply, along with the expectations of the regulator.

[109] It advised there are no universally adopted standards across all jurisdictions or utilities. However, in its Report, LEI identified certain of the key performance standards that are sometimes considered, including: percentage of calls answered; percentage of disconnected calls; percentage of estimated bills; new service connection times; and notice of outages. LEI advised that the benchmarking methods for customer service metrics are identical or similar to those for power system reliability metrics.

[110] With respect to customer calls, LEI noted that customer calls are normally categorized as “received”, “satisfied” and “polite disconnects”.

[111] If an individual is satisfied by the response they receive from an automated service, and does not ask to speak to a customer service agent, the call is considered “call satisfied”. If the individual wants to speak to a customer service representative at the Customer Care Centre, the call is considered a “call offered”.

[112] During normal operations NSPI does not typically initiate “polite disconnects”. Polite disconnects during storm conditions are dealt with elsewhere in this Decision.

[113] LEI further advised the amount of time taken to establish a new service connection provides a valuable gauge of NSPI’s customer service and its ability to provide electrical service within a reasonable time frame.

[114] Percentage of bills estimated is another customer metric identified by LEI.

[115] LEI reviewed the different possible service metrics the Board can consider. In the end, NSPI and LEI reached consensus on a set of customer service standards and targets as follows:

- (1) Annual result of 70 percent of calls to the Company’s Customer Care Centre answered in 30 seconds or less, including calls answered using the Company’s automated system when a customer chooses to use that system to resolve their inquiry;
- (2) No more than two percent of customer bills estimated as a percentage of total bills annually;
- (3) Customer notification of outages via NS Power’s live outage map; and
- (4) New service connection time.

[116] For standard (1), given the limited amount of data available, it was agreed that the target for this metric would be fixed until such time as the Company had additional data. As data is available the Company will use five-year historical average data using

the same methodology proposed for setting the Company SAIDI and SAIFI targets, i.e., five-year rolling average plus one standard deviation, or the prior year's benchmark, whichever is better.

[117] In its Closing Submission, the Company described the new service connection time:

In addition to the above three customer service standards, NS Power is also in agreement with LEI's proposed metric of "New Service Connection Times" based on the Company's existing service metrics. The targets for this metric will also be set each year based on historical data using the same methodology proposed for setting the Company's SAIDI and SAIFI targets (i.e. five-year rolling average, plus one standard deviation), but excluding MEDs and EEDs, as well as a set number of days following MEDs and EEDs where significant restoration occurred, hampering new service connections.

[NSPI Closing Submission, pp. 9-10]

[118] NSPI proposed that the specific quantitative targets for the new service connection times be proposed as part of the Board's Compliance Filing process and subject to review and comment by the Company and other Intervenors.

[119] There was no objection by Intervenors with respect to these customer service standards and targets.

## **Findings**

[120] The Board finds the customer service standards and targets (1) through (4) described above are satisfactory and orders that they be implemented as the Customer Service Standards and Targets for the next five-year period.

[121] With respect to item (4), new service connection time, the Board directs NSPI to provide to LEI the specific quantitative targets in connection with the Compliance Filing process, as noted above.



## 6. What reporting requirements should be adopted?

[122] The statutory reporting requirements are detailed in Section 52D of the *Act* which states, in part:

### **Status reports relating to performance**

**52D (1)** The Board may require Nova Scotia Power Incorporated to provide it with periodic status reports, at such times and including such information as the Board may require, on Nova Scotia Power Incorporated's performance in respect of the standards established pursuant to Sections 52A and 52B.

**(2)** Within ninety days following the end of each calendar year, Nova Scotia Power Incorporated shall provide a written report to the Board on its performance in respect of the standards established pursuant to Sections 52A and 52B.

[123] NSPI proposed an annual report be submitted to the Board on performance standards outlining its performance with respect to each standard. NSPI, in its Closing Submission, went on to state:

With respect to actual reporting requirements, NS Power is committed to publicly reporting in a manner that is both transparent and comprehensible in order to ensure that customers, as well as the Board and Intervenor, will be able to understand how the Company is progressing with respect to the implementation of these standards.

[NSPI Closing Submission, p. 11]

[124] During the hearing, the Board raised with NSPI the requirement for additional reporting over and above the annual report. Additional reporting appears to be contemplated by Section 52D(1):

The Chair: I guess -- I guess in addition to reporting to the Board, customers are interested on your performance, and maybe this is naïve, but I thought perhaps that quarterly, or half-yearly or something, that customers would be able to go to some Web site and see how it is you're performing in accordance with the standards. Have you contemplated that at all?

Mr. Hartlen: Mr. Chair, we do that internally. We have internal metrics that we record across the organization and ---

The Chair: But we don't see that and the customers don't see it, do they?

Mr. Hartlen: No, that's correct.

The Chair: Yeah.

Mr. Hartlen: It's not reported externally.

The Chair: So it's one thing to give us a quite a dry, you know, 50-page report with all sorts of statistics in it, but I think part of the intention here was to -- was that customers would be able to know how you're progressing with respect to the implementation of these standards. And I have to say that I thought Section 52(d)(1) meant something more than just sending an annual report to us.

Mr. Hartlen: We would fully agree that this is within the Board's discretion. The one piece that we might offer is that the -- we have to think about the customer education factor and how complicated this was to actually understand and to communicate. Given - - just looking at the number of metrics here and the definitions, and I think what could be - - what we might reasonably do is look for a way to have a simplified version that could be understood by all and you wouldn't have to be in the industry, you wouldn't have to be an employee, you wouldn't have to be an industry expert, and that it would be meaningful. But that's about the only suggestion that I have to this point.

The Chair: So you wouldn't resist that suggestion?

Mr. Hartlen: No. That's certainly something that we would, you know, assist with and consider.

[Transcript, pp. 182-183]

[125] In addition, NSPI proposed a report, upon request of the Board, after an extreme event such as Post-Tropical Storm Arthur.

[126] None of the parties appeared to object to NSPI's proposed reporting requirements.

## Findings

[127] The Board confirms, pursuant to Section 52D of the *Act*, that NSPI is to provide an annual report in respect of the standards established in this Decision, within 90 days of December 31<sup>st</sup> each year. The Board will then invite stakeholder comments and will consider whether any penalties should be imposed, or other direction to NSPI is required based on the annual report. The Board does not intend to consider imposition of penalties during the course of any year so that it can take into account the entirety of NSPI's performance in a year prior to considering penalties for that year.

[128] Further, as part of its annual report, NSPI is directed to include revised performance standard targets for the next ensuing year, and their derivation.

[129] In addition to reporting on performance with respect to the standards, NSPI's report will include a detailed summary of all MED and EED events during the year outlining the following:

- (i) SAIFI and SAIDI during the event;
- (ii) Restoration profile;
- (iii) Restoration challenges;
- (iv) Customer service results;
- (v) Crew Information; and
- (vi) Media Releases.

[130] When requested by the Board, NSPI will provide the Board with a report on any weather events.

[131] Finally, NSPI is directed to investigate quarterly reporting on its website of statistics showing its year-to-date achievement of performance standards. It should be in a form that is easily accessible by customers. NSPI will not be in a position to do this by January 1, 2017; however, the Board directs a report be filed by January 30, 2017, with respect to what might be done in this regard.

## **7. What is the appropriate regulatory response respecting NSPI's performance?**

### **(i) Should administrative penalties apply to all standards?**

[132] As set out earlier in this Decision, the Board's jurisdiction to enforce NSPI's compliance with performance standards is set out in the amendments to the *Act*. In summary, where NSPI has failed to achieve any performance standard, the Board may

order the Utility to pay an administrative penalty or to develop and file a plan for bringing itself into compliance with the performance standard, or to both pay an administrative penalty and file a compliance plan.

[133] Further, the cumulative total of administrative penalties levied against NSPI in a calendar year must not exceed one million dollars.

[134] NSPI agreed that performance standards relating to reliability should be subject to administrative penalties. However, it submitted that the application of administrative penalties should be restricted in the case of performance standards for storm response and customer service. In the latter cases, the Utility suggested that the filing of a compliance plan is a sufficient measure to ensure NSPI's adherence to the standards.

[135] While NSPI acknowledged the Board's jurisdiction to impose administrative penalties on the Company to a maximum of \$1,000,000 annually, it argued that administrative penalties should not be imposed at all with respect to any customer service standards, and that in the case of storm response standards such penalties should only apply to the standard respecting "Promptness in restoring power after a Major or Extreme Event Day" (as measured by the percentage of customers restored within the first 48 hours of a severe weather event). It suggested that administrative penalties should not apply to any other storm response metrics.

[136] With respect to customer service performance standards, NSPI submitted that it had shown strong performance on customer service:

...Development and filing of a plan for bringing the Company into compliance with a performance standard is more useful for customer service metrics until such time as baseline information on current customer levels is collected and analyzed. Further, given NS Power's strong performance in customer service as shown by the available data identified in Section 5, the Company submits that filing of a compliance plan should the

Company miss a target is sufficient to ensure customers continue to benefit from strong performance within this area.

[Exhibit N-8, p. 48]

[137] The CA, SBA and the Industrial Group oppose NSPI's restricted approach respecting the application of administrative penalties to storm response and customer service standards.

[138] In relation to customer service metrics, specifically, the CA submitted:

The potential for imposition of a financial penalty is an important component of the operation of performance standards. Without the ability to impose a penalty a breach of the standards is of diminished significance, including a diminished motivation to maintain and improve performance.

It is the view of the Consumer Advocate that it is important to ratepayers to know that there are consequences if NS Power fails to meet customer service performance requirements. Ratepayers will be particularly sensitized to a breach of performance standards and will want assurance that the breach has consequences.

[CA Closing Submission, pp. 1-2]

[139] Counsel for the Industrial Group submitted:

As outlined above, it is clear that the **EPIA** contemplated penalties for breach of failing to meet customer service standards (52D). A compliance plan may be the appropriate response in any given circumstance, but that is a matter to be determined by the Board at the relevant time. The Industrial Group does not support limiting the Board's discretion in relation to customer service penalties in the manner proposed by NSPI. [Emphasis in original]

[Industrial Group Closing Submission, p. 2]

## Findings

[140] The Board does not accept NSPI's submission that no financial penalties should be applied in the event of the Utility's failure to meet any customer service performance standard, and all but one storm response metric. As noted above, NSPI suggested that an administrative penalty would be appropriate with respect to a failure to

satisfy the standard related to “Promptness in restoring power after a Major or Extreme Event Day”, but not for any other storm response standard.

[141] First, the Board notes that there is nothing in the language of the legislation that would suggest that a different regulatory response is warranted in the case of customer service standards or other storm response metrics, compared to that applicable to reliability standards. Indeed, in relation to all types of performance standards, the legislation clearly sets out the Board’s authority to order NSPI to pay an administrative penalty or file a compliance plan, or both.

[142] As noted by counsel for the Industrial Group, the Board’s discretion with respect to ensuring compliance is stated explicitly with respect to both reliability standards (s. 52D(4)) and customer service standards (s. 52D(5)). The Board accepts her submission that the Board’s discretion should not be fettered in the manner suggested by NSPI.

[143] Second, as submitted by the CA, the potential imposition of an administrative penalty by the Board in the event of NSPI’s failure to meet any standard is an integral means of ensuring compliance. Without the compliance tool of administrative penalties, the Board would have no meaningful method of imposing regulatory discipline and rigor to all performance standards.

[144] Finally, as noted by the CA, the availability of administrative penalties will help maintain ratepayers’ confidence in the Utility’s pursuit of all performance standards. If the Board accepts NSPI’s evidence of the Utility’s strong performance on customer service metrics (which it does), then there should be no reason to diminish consumer confidence by not holding NSPI fully accountable to continue such results.

**(ii) How should the \$1 million administrative penalty cap be applied?**

[145] NSPI submitted that where it fails to meet a performance standard (and the standard involves an instance in which NSPI considers an administrative penalty is appropriate, as noted above), any administrative penalty should be applied on a graduated basis, up to a maximum of \$200,000 per metric or standard.

[146] In the Board's finding in the immediately preceding section, the Board determined that administrative penalties were available as a compliance tool with respect to all performance standards established by the Board. Accordingly, the remainder of NSPI's submissions on this point should be read with that finding in mind.

[147] In its pre-filed evidence on the issue of a monetary penalty cap, NSPI concluded:

In the event the Board adopts administrative penalties, NS Power also recommends such penalties be limited to the four proposed reliability metrics and the one proposed storm response metric set out below, ... All remaining metrics would be subject to the requirement for a compliance plan. The proposed four reliability metrics along with one storm response metric would be capped at \$200,000 each, totaling \$1,000,000. It is industry standard to allocate a larger portion of the maximum administrative penalty amount to reliability metrics.

In summary, if administrative penalties are adopted by the Board, the total penalties associated with reliability metrics proposed by the Company would be \$800,000 and the total administrative penalties associated with storm response would be \$200,000. ...

[Exhibit N-8, pp. 46-47]

[148] LEI did not agree with NSPI's recommendation on a penalty cap. At the hearing, Mr. Goulding testified, in cross-examination by the CA:

Mr. Merrick: In suggestion of capping penalties, what would be a rationale for individually capping each of the components within a category, maybe \$200,000 maximum on each of the sets of metrics? Is there any rationale for that?

Mr. Goulding: That's not what we have proposed.

Mr. Merrick: No, I appreciate that.

Mr. Goulding: Yeah, I just wanted to make that clear.

And from our perspective, providing the Board with discretion in terms of allocation is important, particularly given that relative to other jurisdictions the total size of the penalties is limited statutorily here in Nova Scotia and is smaller on a percentage of revenues basis than in other jurisdictions.

We think that the flexibility of allowing the Board to allocate the total amount of penalties across the various categories is important.

[Transcript, pp. 51-52]

[149] The CA, SBA and the Industrial Group oppose a \$200,000 penalty cap per metric.

[150] The CA and SBA endorse LEI's view on the point, i.e., that it is not appropriate to restrict the Board's discretion in the way suggested by NSPI.

[151] The CA referred to his cross-examination of Mr. Goulding at the hearing, wherein the latter acknowledged a penalty of \$200,000 is small in relation to a utility the size of NSPI.

[152] Mr. Goulding concluded:

I think that it's important to allow for the Board to review these; for there to be transparency, and for the Board to be able to think about how it imposes a penalty and what firepower remains for the Board thereafter, in terms of the quantity of the penalty.

[Transcript, p. 54]

[153] Counsel for the Industrial Group submitted:

Absent any limiting language in the legislation, the Board's discretion should not be fettered in the manner suggested by NSPI. In any given year, NSPI may meet or exceed standards in some areas but grievously fail in another. In such circumstances, the Board may determine it to be appropriate that the maximum administrative penalty in relation to a single performance standard metric be imposed. So long as the cumulative total of penalties leveled against NSPI in a calendar year does not exceed \$1 million (52E(3)), then, the Industrial Group submits that it is within the Board's discretion entirely.

[Industrial Group Closing Submission, p. 2]

## Findings

[154] In its review of the issue of penalty caps, the Board remains mindful of s. 52E(2) of the Act:



**52E (2)** The amount of any administrative penalty ordered to be paid is the amount determined by the Board to be appropriate in order to promote future compliance with the performance standards and not for punitive purposes or effects or for redressing a wrong done to society at large.

[155] The Board also notes that the proposed \$200,000 penalty cap is relatively small, compared to the size of NSPI.

[156] Taking into account the submissions of all parties, the Board finds that no cap should be artificially imposed on its discretion to impose an administrative penalty in any case. The Board accepts the submissions of the Intervenors, and the testimony of Mr. Goulding, that it must retain the flexibility to impose an appropriate administrative penalty, as circumstances warrant.

[157] Thus, the Board concludes that it should have the discretion to impose an administrative penalty of up to \$1 million in any case, in order to “promote future compliance”.

[158] On a related topic as to the appropriate level of administrative penalties to be imposed in any case, the Board notes that NSPI’s evidence referred to “graduated” penalties. Also, LEI observed that one option available to the Board was to use a “sliding scale” approach, which “provides for increasing penalties subject to the deviation of performance of NSPI away from the established target”: see Exhibit N-1, p. 63. Further to the discussion above, the Board notes that LEI acknowledged the Board may also administer penalties based on its discretion for deviations from the set benchmark.

[159] The Board considers that it should retain a discretion as to the appropriate regulatory response following NSPI’s failure to meet one or more standards.

**(iii) Should there be a one year penalty-exempt transition year?**

[160] The performance standards approved by the Board will take effect January 1, 2017, with the first reporting period ending December 31, 2017.

[161] In its Report, LEI recommended that there should be a one year transition period before the application of any monetary administrative penalties.

[162] NSPI supported this recommendation:

Further to its Closing Submissions, NS Power continues to support LEI's recommendation to adopt a one-year, penalty-exempt transition period. The transition period is intended to ensure appropriate time to modify and deal with administrative matters upon implementation of performance standards. The Company would still be subject to the same reporting obligations to the Board. As stated by Mr. Goulding during cross-examination by Ms. Rubin, the one-year, penalty-exempt phase-in is "sensible" given the fact that the Company does not yet know what performance regime will be imposed on it by the Board. Without a phase-in period, it provides the Company with very little time to orient itself towards whatever the new standards are, which are to be implemented by January 1, 2017. Similarly, as stated by Mr. Hartlen during cross-examination by Ms. Rubin, the phase-in period will allow NS Power to accommodate the alignment of reporting and processes, possible IT requirements, training of staff to a new environment and procedures, procedures for annual reporting, and other unknown items that may arise once the standards are implemented.

In addition to the testimony of Mr. Goulding and Mr. Hartlen, NS Power notes that it would be required to take the following administrative action upon implementation of performance standards: assess the Company's current performance and the activities required to achieve further compliance with standards set by the Board; design a standardized reporting system for all metrics; determine whether targeted investments will be required in light of the approved targets set by the Board; and determine whether changes are required to the ESRP around storm resource planning and pre-staging based on the approved restoration target set by the Board. These impacts appropriately warrant a one-year, penalty-exempt transition period, particularly given the Company will have little to no preparation time between the performance regime ordered by the Board and implementation of the standards.

[NSPI Rebuttal Submission, pp. 2-3,]

[163] The Industrial Group and the SBA opposed a penalty free transitional year.

The SBA suggested the Board should adopt a flexible approach to compliance in the transition to the new performance standards:

The SBA does not support the 1 year phase in period as it does not reflect the intent of the legislation to encourage and promote improvements to NSPI's performance. The Board has full discretion to determine whether any failures to achieve the performance standards set in the first year should be subject to a penalty. If NSPI is able to satisfy the Board that the failure to achieve the standards is as a result of changes, training or adjustments to their processes and reporting, then the Board does not have to impose a penalty.

However, if the failure to achieve the standards cannot be attributed to the transition to the new standards then a penalty may be justified and the Board should have the ability to impose it. ... [Emphasis added]

[SBA Closing Submission, p. 1]

[164] In its Closing Submission, the Province also dismissed NSPI's suggestion of a penalty-exempt transition year. It submitted that the amendments to the *Act*, made pursuant to the *EPIA*, provide the Board with the authority to set performance standards and to impose compliance measures.

### **Findings**

[165] First, as noted by the Province, there is nothing in the *Act* or the *EPIA* that would suggest a transitional one year period respecting the application of compliance measures by the Board.

[166] Second, the Board observes that most of the proposed performance standards will be implemented in the first year at levels that are consistent with NSPI's performance, based on recent historical data.

[167] The Board considers the SBA's recommended approach as a very reasonable one. If the occasion arises following the first year that NSPI fails to meet a performance standard, then the Board can consider submissions from NSPI and Intervenors respecting the Utility's challenges during the transitional period. The Board adopts this recommendation.

#### **(iv) Proclamation of s. 52D(5) of the Act**

[168] On October 13, 2016, after the hearing, but before the completion of submissions, the Board wrote to the parties to note that during its review it had observed that all relevant provisions in s. 31 of the *Electricity Plan Implementation (2015) Act* had

been proclaimed and were now incorporated into the *Public Utilities Act* except for s. 52D(5), which relates to the remedial measures (administrative penalties/compliance plan) respecting customer service standards.

[169] In summary, s. 52D(4), relating to standards for reliability and storm response, was in force. However, s. 52D(5) respecting compliance measures for customer service standards had not been proclaimed.

[170] In a submission dated October 19th, the Province advised the Board of its intention to move forward with the proclamation of s. 52D(5).

[171] On November 15, 2016, OIC 2016-280 was approved by the Governor in Council, effecting the proclamation of this subsection. Accordingly, s. 52D(5) is now in force.

#### **8. When should the performance standards be reviewed?**

[172] In page 64 of its Report, LEI noted that in its consultation all stakeholders believed “that performance standards should be reviewed and revised sufficiently to ensure the effectiveness and relevance of the standard”.

[173] NSPI suggested that a review should occur on a five-year interval, starting after the initial transition year:

NS Power recommends that, after the one-year transition period is over, performance standards be made subject to review by the Board on a five-year interval, and the years in the ten-year reliability average be reviewed at this time as well. This five-year time period will be sufficient for the Company and stakeholders to assess how the standards are working and to minimize costs and administrative complexities associated with such a (sic) reviews.

[Exhibit N-8, p. 50]

[174] In its Reply Evidence, LEI indicated its agreement with NSPI respecting the review interval:

Periodic review and revision of benchmarks in place for each of the applicable metrics every 5 years to ensure that they are consistent with current utility capabilities;

{Exhibit N-13, p. 2}

[175] Counsel for the Industrial Group concurred with the five-year interval, subject to one condition:

LEI and NSPI agree that the performance standards should be reviewed every five years. The Industrial Group recognizes that there would be an undue regulatory burden should reviews take place too frequently; at the same time, the period should not be too long so that the standards no longer represent financial reality. NSPI should be held to standards consistent with what is being paid for in rates. To that extent, performance and rates are tied.

The selection of five years is a question of judgment; it could equally have been three years or six years. The Industrial Group would concur with a default five year review period but with a trigger to reopen and review, in the event that NSPI's revenues have increased materially.

What is to be avoided are increases that flow exclusively to shareholders and not to improvements in system reliability and customer service. LEI indicated in response to Undertaking U-2 that a reasonable threshold to trigger a review would be an increase of 10% or more in any given year from the historical 5-year rolling average of each of capital expenditures ("capex") and operating expenditures ("opex"), assessed individually. LEI suggests that any such requested increase would place the burden on NSPI to "file a report" to demonstrate why the performance benchmarks should not be adjusted.

The Industrial Group concurs with the 10% materiality threshold, assessed individually for capex and opex. It is recommended that the Board direct NSPI to file such statistical analysis along with its evidence. The issue of an adjustment to the performance benchmarks would be an issue for determination in the relevant hearing (whether ACE or a GRA). [Emphasis added]

[Industrial Group Closing Submission, p. 3]

[176] In its Reply Submission, NSPI requested that the consideration of a "materiality threshold" be deferred to the first five-year review.

## Findings

[177] There is general consensus that there should be a review of the performance standards on a five-year interval. The Board considers this appropriate to ensure the standards remain relevant and effective. The Board so directs.

[178] NSPI and LEI suggested the first five-year interval should commence after the initial transition year. As noted earlier in this Decision, the Board has not accepted the submission that there be a transition year. Accordingly, the first five-year interval will begin with the implementation of the performance standards on January 1, 2017. The first review will be scheduled for implementation in 2022.

[179] With respect to the Industrial Group's submission that there be a "10% materiality threshold" that would trigger a review at any time before the expiry of the five-year interval, the Board does not consider that appropriate at this point.

[180] First, the Board notes that the suggestion of a materiality threshold was initially raised during the hearing (during Ms. Rubin's cross-examination of LEI), and was not canvassed in any pre-filed evidence. Second, while the Board does not dismiss the merit of a materiality threshold, it considers discussion of such a trigger to be premature at this juncture. The performance standard regime is in its initial stages in this Province, commencing January 1, 2017.

[181] In the circumstances, it is appropriate to allow the first five-year interval to run its course and to revisit the concept of a materiality threshold during the first review, when it has been the subject of consideration in evidentiary filings. Finally, it is noted that the issue of NSPI's performance in relation to existing levels of CAPEX or OPEX are matters that are not immune from comment by stakeholders in general rate or annual capital expenditure applications.

## **5.0 COMPLIANCE FILING**

[182] The Board approves the adoption of the performance standards, as amended in this Decision.

[183] NSPI is directed to provide any required information to LEI no later than December 2, 2016. LEI will file the final form of performance standards approved by the Board, in a Compliance Filing, no later than December 9, 2016.

[184] For the 2016 year, performance during the ten months ended October 31, should be used to calculate the standards. For subsequent years, NSPI is requested to provide separate comments at the time of the Compliance Filing on the recommended approach for the yearly recalibration of the numerical values for each standard, and the timing for such filings.

[185] The Compliance Filing should include a description of the standards and any quantitative benchmarks. Interested parties may comment by December 15, and any reply by NSPI by December 19.

## **6.0 DECISION SUMMARY**

[186] On December 18, 2015, the Provincial Government enacted legislation requiring the Board to establish performance standards for NSPI regarding electricity system reliability, response to adverse weather conditions and customer service. The Board engaged the services of London Economics International LLC (“LEI”) to explore and present options for the Board to consider. LEI filed a report on May 17, 2016, which was the subject of a formal public hearing in this matter. Activities prior to the hearing included an exchange of Information Requests by various parties, as well as filing of evidence by expert witnesses on behalf of Formal Intervenors. The hearing was held on

September 19, 2016, and was followed by filing of Closing Submissions and Reply Submissions by participants.

[187] In its Decision, the Board has determined that performance metrics for reliability are to include:

- SAIFI - System Average Interruption Frequency Index;
- SAIDI - System Average Interruption Duration Index;
- CKAIFI - Circuit Average Interruption Frequency Index; and
- CKAIDI - Circuit Average Interruption Duration Index.

[188] Explanations of these metrics and the methodology that is to be used to calculate the annual numerical performance targets can be found in the body of this Decision.

[189] Regarding response to adverse weather conditions, the Board has determined that the following metrics are to be used to measure performance:

- Percent of customers restored within 48 hours of a Major Event or an Extreme Event must be equal to or less than the historical average minus one standard deviation;
- Using various communications media, notify customers within 4 hours of NSPI's decision to open its Emergency Operations Centre;
- Answer a minimum of 85% of telephone calls within 45 seconds at NSPI's Customer Care Centre during severe outage events;
- Polite disconnect calls throughout the year do not exceed 10%; and
- Provide customers with updates on Estimated Time to Restore ("ETR") as soon as new restoration time estimates are known.

[190] Regarding customer service standards, the Board has determined that the following metrics are to be used to measure performance:

- 70% of calls to NSPI's Customer Care Centre during the year must be answered within 30 seconds;
- No more than 2% of all customer bills issued throughout the year are to be estimated bills;
- NSPI's live website outage map is to provide notification of all current customer outages; and



- Connection times for new service installations during normal weather conditions are to be established for the following categories based on historical averages:
  - No poles required;
  - Pole or transformer required;
  - Temporary service converted to Permanent service;
  - Line extension less than 10 poles; and
  - Line extension equal to or greater than 10 poles.

[191] Certain numerical benchmarks for these performance metrics will be updated each year based on a 5-year rolling average, but new targets cannot be worse than targets for the prior year. The methodology for calculating targets will be reviewed following the initial 5-year period of 2017 to 2021 so that any amendments can be applied in 2022. Also, the Board has rejected NSPI's request for a one-year penalty-free transition year. Compliance with the standards will apply effective January 1, 2017.

[192] In keeping with the legislation, NSPI must file an annual report within 90 days of the calendar year-end, providing details required for the Board to determine compliance with the performance targets. The Board may also request additional reports following any significant outage event.

[193] Should the Board determine that NSPI has failed to meet its performance targets, the Board may apply an administrative penalty up to an annual maximum of \$1 million, which cannot be recovered from ratepayers.

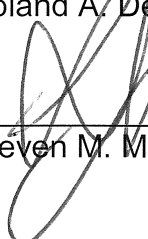
**DATED** at Halifax, Nova Scotia, this 28<sup>th</sup> day of November, 2016.



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Peter W. Gurnham



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Roland A. Deveau



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Steven M. Murphy