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BY E-MAIL AND WEB POSTING

June 13, 2013

To: All Licensed Electricity Distributors
All participants in Consultation EB-2010-0249
All Other Interested Parties

Re: Notice of Amendments to the Electricity Reporting and Record Keeping Requirements

Phase 2 – Initiative to Develop Electricity Distribution System Reliability Standards

Board File No.: EB-2010-0249

A. Background

Electricity distributors are required to report and maintain records of information relating to system reliability indices as described in section 2.1.4.2 of the Board's Electricity Reporting and Record Keeping Requirements (the "RRRs").

On March 20, 2013, the Board issued a Notice (the "March 20th Notice") that initiated a consultation on proposed amendments to the system reliability sections of the RRRs (the "Proposed Amendments"). The objective of the Proposed Amendments is to improve the consistency of the annual reporting of reliability data by distributors, which is essential for the successful monitoring of distributor performance by the Board.

The Board received written comments in response to the Proposed Amendments from 4 stakeholders, including representatives of electricity distributors and the Power Worker's

Union. These comments are available for viewing on the Board's website at [System Reliability Consultation](#).

(<http://www.ontarioenergyboard.ca/OEB/Industry/Regulatory%20Proceedings/Policy%20Initiatives%20and%20Consultations/System%20Reliability%20Standards>)

B. Adoption of Amendments with Revisions

The Board has considered the comments received in response to the Proposed Amendments, and has determined that no material changes are required. The Board has therefore adopted the Proposed Amendments, with the revisions discussed below (the "Final Amendments").

The Final Amendments to the system reliability provisions in the RRRs, as adopted by the Board are set out in Attachment A of this Notice. Attachment B sets out, for informational purposes, a comparison version of the Final Amendments relative to the Proposed Amendments.

The section below provides a high level summary of the more significant comments received on the Proposed Amendments. It also identifies the revisions to the Proposed Amendments that the Board has adopted as part of the Final Amendments.

C. Summary of Comments and Identification of Revisions

1. General

In the March 20th Notice, the Board stated its expectation that Board staff would consult with the Reliability Data Working Group (the "Working Group") to develop examples and proper direction on how to categorize outage events into the appropriate codes for the Cause of Interruptions set out in section 2.1.4.2.5 of the RRRs. The Board also directed Board staff to consult with the Working Group on the development of example outage scenarios, and the appropriate way to report such scenarios. Both the Electricity Distributors Association ("EDA") and the Coalition of Large Distributors ("CLD") supported continuing discussions between Board staff and the Working Group.

2. Improving Definitions

The Proposed Amendments included a change to the definition of “Loss of Supply” to include interruptions due to problems associated with assets owned and/or operated by another party, and/or the bulk electricity supply system. The CLD noted that the same definition should be used in the description of Code 2 under the Causes of Interruption set out in section 2.1.2.4.5¹. The Board agrees with this change.

The CLD recommended that the proposed definition of “Interruption” be revised from being a loss of voltage for a duration “of more than one minute”, to a duration of “one minute or more”. The Board agrees with this suggestion as it clarifies that an outage of exactly one minute should be included in outage statistics.

The Proposed Amendments included a definition of “Start Time” that sets out two options for when distributor should start counting the duration of an interruption. These are either, the time the distributor receives a call from a customer, or the time when the distributor otherwise determines the interruption began. The CLD stated its view that the definition was adequate, but was concerned about the existence of the two options, and the subsequent ability to compare distributor performance. To mitigate this risk, the CLD has suggested that it is necessary to identify which distributors rely primarily on which option. The Board agrees and will introduce an additional reporting requirement (section 2.1.4.2.7) for distributors to indicate whether the start time of the majority of their outages was identified through customer communication or through alternative methods.

3. Measuring Practices

In the March 20th Notice, the Board stated its expectation that distributors will continually work to develop best practices that ensure the highest possible degree of data accuracy in the collection of reliability data, whether these are automated or manual.

The CLD agreed that variances in data can occur between actual outage statistics and those recorded by the distributor, but in its view, eliminating those variances may be cost-prohibitive relative to any benefit received. The CLD does support establishing a

¹ This section was improperly numbered in the Proposed Amendments. It should be section 2.1.4.2.5. A correction to this numbering will be made in the Final Amendments.

reasonable minimum standard of automation as part of the future development of performance benchmarks. Entegrus Powerlines suggested that a minimum standard for measurement practices be phased in over a 5 to 7 year period. The Board expects that issues related to setting a minimum standard for measurement practices and/or automation will be considered as part of the next phase of this initiative.

The Proposed Amendments introduced a requirement for distributors to report whether any new reliability measuring and reporting practices, or the introduction of any new technologies, impacted the ability to compare performance results from year to year. The CLD raised the fact that new technology is rolled out over multiple years. Therefore the improvements made during implementation would not reflect the full impact on performance until implementation is complete. As a result, the CLD recommended that the new reporting requirement should account for both transitional and end-state improvements. In other words, any system performance impacts reported during a transitional period should be identified as such.

The Board will revise proposed section 2.1.2.4.6² to require identification of any new measurement practices or technologies, and their impact on performance results, during the transitional/implementation period.

4. Normalization of Data

In the Proposed Amendments, the Board decided not to require the reporting of normalized data, with the exclusion of major events. Instead, the Board proposed a requirement for distributors to report details on the cause of interruptions. Entegrus Powerlines suggested that the Board should adopt an approach to normalize data, preferably using the IEEE methodology. Entegrus PowerLines believes that simply because a standardization approach contains flaws, does not mean that such an approach should not be utilized at all. For the reasons outlined in the March 20th Notice, the Board will not introduce a methodology for reporting normalized data. However, the Board wishes to clarify that this decision is not meant to discourage distributors, who wish to track normalized data for their own purposes, from continuing to do so.

² This section was improperly numbered in the Proposed Amendments. It should be section 2.1.4.2.6. A correction to this numbering will be made in the Final Amendments

5. Customer Specific Measures

In the March 20th Notice, the Board indicated that it intends to consult on the development and implementation of customer specific reliability measures as part of the next phase of this initiative. The CLD agreed with concept of measuring reliability at a customer level, provided that the implementation costs and associated benefits are justifiable. Entegrus Powerlines expressed the view that customer specific reporting would be onerous and excessive and could possibly result in privacy concerns. The Board expects that issues related to setting customer specific measures will be considered as part of the next phase of this initiative.

6. Eliminating Current RRR Provisions

The Proposed Amendments included the removal of the reporting requirements related to the Customer Average Interruption Duration Index (“CAIDI”) and the Momentary Average Interruption Frequency Index (“MAIFI”).

Entegrus Powerlines agreed with the proposal to eliminate CAIDI, but recommended that the Board continue to require the reporting of MAIFI. Entegrus recommended that MAIFI be kept, as it is a key indicator of power quality, which is important to industrial customers and because it is valuable in analyzing the investment decisions made by distributors. The PWU stated that it understood the Board’s desire to streamline reporting, but submitted that momentary outages remain a concern of customers. The PWU therefore suggested that the reporting of MAIFI be revisited when smart grid technology is implemented.

The Board wishes to clarify that the removal of the requirements to report CAIDI and MAIFI from the RRRs was not meant to discourage distributors, who wish to monitor either or both metrics for their own purposes, from doing so.

It is the Board’s view that monitoring and reporting on system wide occurrences of momentary outages may not provide the most relevant insight into a distributor’s performance. Rather, a greater concern is the impact of momentary outages on those customers who are the most affected by these types of outages. As a result, the Board believes it is more beneficial to encourage distributors to focus on momentary outage performance where it is critical to customers.

To that end, the Board expects that a distributor's management of momentary outages will be an issue considered as part of the Board's review of customer specific reliability measures in the next phase of this initiative.

D. Coming into Effect

These amendments will come into effect on January 1, 2014, and be applicable to the reporting period beginning on or after January 1, 2014.

E. Cost Awards

No parties requested costs for participating in this consultation.

If you have any questions regarding the amendments to the RRRs described in this Notice, please contact Paul Gasparatto at paul.gasparatto@ontarioenergyboard.ca or at 416-440-7724. The Board's toll free number is 1-888-632-6273.

DATED at Toronto, June 13, 2013

ONTARIO ENERGY BOARD

Original signed by

Kirsten Walli
Board Secretary

Attachment A: Final Amendments (Clean Version)
Attachment B: Final Amendments (Track Changes Version)

ATTACHMENT A

- 1) The entire section 2.1.4.2 as it exists in the current RRR will be replaced with the following:

2.1.4.2 Reporting on System Reliability Indicators

The following definitions apply for the purposes of monitoring and reporting on each of the system reliability indicators set out below.

Definitions

- 1) *The “Average Number of Customers Served” by a distributor is the average number of customers served in the distributor’s licensed service area during the month, calculated by adding the total number of customers served on the first day of the month and the total number of customers served on the last day of the month and dividing by two.*

Bulk metered buildings with individual smart sub-metering installations shall be counted as a single customer, provided that any suite metering system is not operated by the distributor and that such customers are not billed by the distributor.

Unmetered load customers should not be included in the customer count.

- 2) *A “Customer” means a metered service for which an active account is established at a specific premise.*
- 3) *An “Interruption” means the loss of electrical power, being a complete loss of voltage, of a duration of one minute or more, to one or more customers, including planned interruptions scheduled by the distributor but excluding part power situations, outages scheduled by a customer, interruptions by order of emergency services, disconnections for non-payment or power quality issues such as sags, swells, impulses or harmonics.*
- 4) *In calculating the duration of an interruption the start of the interruption shall be considered to have occurred on the earlier of:*
 - a) *The time at which the distributor received a communication from a customer reporting the interruption; or*
 - b) *The time at which the distributor otherwise determined that the interruption began.*

- 5) *In calculating the duration of an interruption, the end of the interruption shall be considered to have occurred when service has been restored to the customer demarcation point. This time may be determined by either the time the restoring crew reports the restoration was complete or the time at which the distributor otherwise determined the restoration was complete.*

The process of restoration may require restoring service in stages to small sections of the system until service has been restored to all customers. Each of these individual stages should be tracked, collecting the start time, end time and number of customers interrupted and restored for each stage. Any temporary restoration of supply which does not exceed 3 minutes shall be ignored and the interruption must be treated as continuous.

- 6) *“Loss of Supply” means an interruption due to problems associated with assets owned and/or operated by another party, and/or the bulk electricity supply system.*

2.1.4.2.1 System Average Interruption Duration Index (SAIDI)

SAIDI is an index of system reliability that expresses the average amount of time, per reporting period, supply to a customer is interrupted. It is determined by dividing the total monthly duration of all interruptions experienced by all customers, in hours, by the average number of customers served.

SAIDI is expressed as follows:

$$\text{SAIDI} = \frac{\text{Total Customer Hours of Interruptions}}{\text{Average Number of Customers Served}}$$

A distributor is required to monitor this index monthly and to report to the Board the following information for each month of the calendar year:

- a) Total customer-hours of interruptions in each month;*
- b) Average number of customers served in each month; and*
- c) SAIDI, being (a)/ (b).*

2.1.4.2.2 SAIDI (Loss of Supply)

This index adjusts SAIDI for the effects of interruptions caused by Loss of Supply and is calculated in the same way as described in section 2.1.4.2.1, except that the total customer-hours of interruptions caused by Loss of Supply events is deducted from the total customer-hours of interruptions.

A distributor is required to monitor this index monthly and to report to the Board the following information for each month of the calendar year:

- a) Total customer-hours of interruptions in each month;*
- b) Total customer-hours of interruptions in each month caused by Loss of Supply;*
- c) Average number of customers served in each month; and*
- d) Adjusted SAIDI, being ((a) - (b))/(c).*

2.1.4.2.3 System Average Interruption Frequency Index (SAIFI)

SAIFI is an index of system reliability that expresses the number of times per reporting period that the supply to a customer is interrupted. It is determined by dividing the total number of interruptions experienced by all customers, by the average number of customers served.

SAIFI is expressed as follows:

$$\text{SAIFI} = \frac{\text{Total Customer Interruptions}}{\text{Average Number of Customers Served}}$$

A distributor is required to monitor this index monthly and to report to the Board the following information for each month of the calendar year:

- a) Total number of interruptions in the month;*
- b) Average number of customers served in each month; and*
- c) SAIFI, being (a)/ (b).*

2.1.4.2.4 SAIFI (Loss of Supply)

This index adjusts SAIFI for the effects of interruptions caused by Loss of Supply, and is calculated in the same way as described in section 2.1.4.2.3, except that the total number of interruptions caused by Loss of Supply events is deducted from the total number of interruptions.

A distributor is required to monitor this index monthly and to report to the Board the following information for each month of the calendar year:

- a) Total number of customer interruptions in each month;*
- b) Total number of customer interruptions in each month caused by Loss of Supply;*
- c) Average number of customers served in each month; and*
- d) Adjusted SAIFI, being ((a) - (b))/(c).*

2.1.4.2.5 Reporting Cause Codes

For each Cause of Interruption as set out below, a distributor shall, for each month, report the following data:

- a) name of the Cause of Interruption;
- b) number of interruptions that occurred as a result of the Cause of Interruption;
- c) number of customer interruptions that occurred as a result of the Cause of Interruption; and
- d) number of customer-hours of interruptions that occurred as a result of the Cause of Interruption.

Code	Cause of Interruption
0	Unknown/Other Customer interruptions with no apparent cause that contributed to the outage.
1	Scheduled Outage Customer interruptions due to the disconnection at a selected time for the purpose of construction or preventive maintenance.
2	Loss of Supply Customer interruptions due to problems associated with assets owned and/or operated by another party, and/or in the bulk electricity supply system. For this purpose, the bulk electricity supply system is distinguished from the distributor's system based on ownership demarcation.
3	Tree Contacts Customer interruptions caused by faults resulting from tree contact with energized circuits.
4	Lightning Customer interruptions due to lightning striking the distribution system, resulting in an insulation breakdown and/or flash-overs.
5	Defective Equipment Customer interruptions resulting from distributor equipment failures due to deterioration from age, incorrect maintenance, or imminent failures detected by maintenance.
6	Adverse Weather Customer interruptions resulting from rain, ice storms, snow, winds, extreme temperatures, freezing rain, frost, or other extreme weather conditions (exclusive of Code 3 and Code 4 events).
7	Adverse Environment Customer interruptions due to distributor equipment being subject to abnormal environments, such as salt spray, industrial contamination, humidity, corrosion, vibration, fire, or flowing.

8	Human Element <i>Customer interruptions due to the interface of distributor staff with the distribution system.</i>
9	Foreign Interference <i>Customer interruptions beyond the control of the distributor, such as those caused by animals, vehicles, dig-ins, vandalism, sabotage, and foreign objects.</i>

2.1.4.2.6 Measuring and Reporting Practices

A distributor shall report to the Board if it has introduced, or is in the process of introducing, any new system reliability measuring and reporting practices or any new distribution system technologies that impacted its reported performance results for the current year in comparison to previous years.

This report shall describe the new practice or technology, the current status of the implementation of the new practice or technology, and the scope of the impact, including the percentage of change between the results reported in the previous year and the results reported in the current year.

2.1.4.2.7 Identifying Outage Start Time

A distributor shall report to the Board whether the greatest number of its outage start times were a) the time at which the distributor received a communication from a customer reporting the interruption; or b) the time at which the distributor otherwise determined that the interruption began.

- 2) The Board is proposing to delete the record keeping requirements under section 2.3.12 and replace the current wording with phrase "Intentionally Left Blank".

ATTACHMENT B

- 1) The entire section 2.1.4.2 as it exists in the current RRR will be replaced with the following:

2.1.4.2 Reporting on System Reliability Indicators

The following definitions apply for the purposes of monitoring and reporting on each of the system reliability indicators set out below.

Definitions

- 1) *The “Average Number of Customers Served” by a distributor is the average number of customers served in the distributor’s licensed service area during the month, calculated by adding the total number of customers served on the first day of the month and the total number of customers served on the last day of the month and dividing by two.*

Bulk metered buildings with individual smart sub-metering installations shall be counted as a single customer, provided that any suite metering system is not operated by the distributor and that such customers are not billed by the distributor.

Unmetered load customers should not be included in the customer count.

- 2) *A “Customer” means a metered service for which an active account is established at a specific premise.*
- 3) *An “Interruption” means the loss of electrical power, being a complete loss of voltage, of a duration of one minute or more ~~more than one minute~~, to one or more customers, including planned interruptions scheduled by the distributor but excluding part power situations, outages scheduled by a customer, interruptions by order of emergency services, disconnections for non-payment or power quality issues such as sags, swells, impulses or harmonics.*
- 4) *In calculating the duration of an interruption the start of the interruption shall be considered to have occurred on the earlier of:*
 - a) *The time at which the distributor received a communication from a customer reporting the interruption; or*
 - b) *The time at which the distributor otherwise determined that the interruption began.*

- 5) *In calculating the duration of an interruption, the end of the interruption shall be considered to have occurred when service has been restored to the customer demarcation point. This time may be determined by either the time the restoring crew reports the restoration was complete or the time at which the distributor otherwise determined the restoration was complete.*

The process of restoration may require restoring service in stages to small sections of the system until service has been restored to all customers. Each of these individual stages should be tracked, collecting the start time, end time and number of customers interrupted and restored for each stage. Any temporary restoration of supply which does not exceed 3 minutes shall be ignored and the interruption must be treated as continuous.

- 6) *“Loss of Supply” means an interruption due to problems associated with assets owned and/or operated by another party, and/or the bulk electricity supply system.*

2.1.4.2.1 System Average Interruption Duration Index (SAIDI)

SAIDI is an index of system reliability that expresses the average amount of time, per reporting period, supply to a customer is interrupted. It is determined by dividing the total monthly duration of all interruptions experienced by all customers, in hours, by the average number of customers served.

SAIDI is expressed as follows:

$$\text{SAIDI} = \frac{\text{Total Customer Hours of Interruptions}}{\text{Average Number of Customers Served}}$$

A distributor is required to monitor this index monthly and to report to the Board the following information for each month of the calendar year:

- d) Total customer-hours of interruptions in each month;*
- e) Average number of customers served in each month; and*
- f) SAIDI, being (a)/ (b).*

2.1.4.2.2 SAIDI (Loss of Supply)

This index adjusts SAIDI for the effects of interruptions caused by Loss of Supply and is calculated in the same way as described in section 2.1.4.2.1, except that the total customer-hours of interruptions caused by Loss of Supply events is deducted from the total customer-hours of interruptions.

A distributor is required to monitor this index monthly and to report to the Board the following information for each month of the calendar year:

- e) Total customer-hours of interruptions in each month;*
- f) Total customer-hours of interruptions in each month caused by Loss of Supply;*
- g) Average number of customers served in each month; and*
- h) Adjusted SAIDI, being ((a) - (b))/(c).*

2.1.4.2.3 System Average Interruption Frequency Index (SAIFI)

SAIFI is an index of system reliability that expresses the number of times per reporting period that the supply to a customer is interrupted. It is determined by dividing the total number of interruptions experienced by all customers, by the average number of customers served.

SAIFI is expressed as follows:

$$\text{SAIFI} = \frac{\text{Total Customer Interruptions}}{\text{Average Number of Customers Served}}$$

A distributor is required to monitor this index monthly and to report to the Board the following information for each month of the calendar year:

- d) Total number of interruptions in the month;*
- e) Average number of customers served in each month; and*
- f) SAIFI, being (a)/ (b).*

2.1.4.2.4 SAIFI (Loss of Supply)

This index adjusts SAIFI for the effects of interruptions caused by Loss of Supply, and is calculated in the same way as described in section 2.1.4.2.3, except that the total number of interruptions caused by Loss of Supply events is deducted from the total number of interruptions.

A distributor is required to monitor this index monthly and to report to the Board the following information for each month of the calendar year:

- e) Total number of customer interruptions in each month;*
- f) Total number of customer interruptions in each month caused by Loss of Supply;*
- g) Average number of customers served in each month; and*
- h) Adjusted SAIFI, being ((a) - (b))/(c).*

2.1.42-24.5 Reporting Cause Codes

For each Cause of Interruption as set out below, a distributor shall, for each month, report the following data:

- e) name of the Cause of Interruption;
- f) number of interruptions that occurred as a result of the Cause of Interruption;
- g) number of customer interruptions that occurred as a result of the Cause of Interruption; and
- h) number of customer-hours of interruptions that occurred as a result of the Cause of Interruption.

Code	Cause of Interruption
0	Unknown/Other Customer interruptions with no apparent cause that contributed to the outage.
1	Scheduled Outage Customer interruptions due to the disconnection at a selected time for the purpose of construction or preventive maintenance.
2	Loss of Supply Customer interruptions due to problems <u>associated with assets owned and/or operated by another party, and/or</u> in the bulk electricity supply system. For this purpose, the bulk electricity supply system is distinguished from the distributor's system based on ownership demarcation.
3	Tree Contacts Customer interruptions caused by faults resulting from tree contact with energized circuits.
4	Lightning Customer interruptions due to lightning striking the distribution system, resulting in an insulation breakdown and/or flash-overs.
5	Defective Equipment Customer interruptions resulting from distributor equipment failures due to deterioration from age, incorrect maintenance, or imminent failures detected by maintenance.
6	Adverse Weather Customer interruptions resulting from rain, ice storms, snow, winds, extreme temperatures, freezing rain, frost, or other extreme weather conditions (exclusive of Code 3 and Code 4 events).
7	Adverse Environment Customer interruptions due to distributor equipment being subject to abnormal environments, such as salt spray, industrial contamination, humidity, corrosion, vibration, fire, or flowing.

8	Human Element <i>Customer interruptions due to the interface of distributor staff with the distribution system.</i>
9	Foreign Interference <i>Customer interruptions beyond the control of the distributor, such as those caused by animals, vehicles, dig-ins, vandalism, sabotage, and foreign objects.</i>

2.1.42.42.6 Measuring and Reporting Practices

A distributor shall report to the Board if it has introduced, or is in the process of introducing, any new system reliability measuring and reporting practices or any new distribution system technologies that impacted its reported performance results for the current year in comparison to previous years.

This report shall describe the new practice or technology, the current status of the implementation of the new practice or technology, and the scope of the impact, including the percentage of change between the results reported in the previous year and the results reported in the current year.

2.1.4.2.7 Identifying Outage Start Time

A distributor shall report to the Board whether the greatest number of its outage start times were a) the time at which the distributor received a communication from a customer reporting the interruption; or b) the time at which the distributor otherwise determined that the interruption began.

- 2) The Board is proposing to delete the record keeping requirements under section 2.3.12 and replace the current wording with phrase “Intentionally Left Blank”.