

# Major Events RESPONSE REPORT



**Issue:** November 01<sup>st</sup> to November 03<sup>rd</sup>, 2019 §2.1.4.2 Major Events Response Report

**Date Issued:** December 20<sup>th</sup>, 2019

**Prepared for:** Publication and Electronic Filing with the Ontario Energy Board (“OEB”)

## **Summary:**

Multiple severe wind storms passed through several regions of Ontario from November 1<sup>st</sup> to 3<sup>rd</sup>, 2019: A Westerly wind gusts to 90 km/h caused damages in the Lake Huron and Georgian Bay areas. A Southwesterly gusts of 100-110 km/h impacted the Niagara Peninsula and the Prince Edward County areas. Another wind gusts of 90-100 km/h passed through the northern shores of Lake Ontario and others southeastern Ontario to the St. Lawrence River Valley. These storm events caused significant damages to Ontario’s distribution system and impacted approximately 233,000 (or 17%) of Hydro One customers.

This is the 2<sup>nd</sup> Major Event in 2019.

## **A. Prior to the Major Event**

1) Did the distributor have any prior warning that the Major Event would occur?

*Yes. We began monitoring the weather event on Monday October 28<sup>th</sup> through our weather service provider, Environment Canada and other weather forecasters.*

*The outage prediction tool as of 3pm on Tuesday October 29<sup>th</sup> was predicting 714 weather impact outages for the province.*

2) If the distributor did have prior warning, did the distributor arrange to have extra employees on duty or on standby prior to the Major Event beginning? If so, please give a brief description of arrangements.

*Additional staff was scheduled by the Distribution System Control in preparation for this event and conference calls was also setup to discuss proactive activities in key operational areas on Wednesday October 30<sup>th</sup> and Thursday October 31<sup>st</sup>.*

- 3) If the distributor did have prior warning, did the distributor issue any media announcements to the public warning of possible outages resulting from the pending Major Event? If so, through what channels?

*Yes, Hydro One used various channels to simultaneously provide public warning of possible outages from the pending storm. They were as follows:*

- *A press release was sent out to advise the public of the impending storm. Top media were also involved to increase public awareness on October 31<sup>st</sup>,*
- *A homepage banner was posted on HydroOne.com to advise all readers along with a banner on the Outage Map,*
- *Social media posts were also shared across various channels.*

- 4) Did the distributor train its staff on the response plans for a Major Event? If so, please give a brief description of the training process.

*Yes, in preparation for the event, all related materials were reviewed by the management staff prior to the storm.*

*Specific response plans for a Major Event are reviewed once a year with the Distribution dispatchers. The work instruction for storm management is posted on the DOMC internal website for quick reference during storm events.*

*In addition, a Storm Team visits various operation centers throughout the year to go over response plans for major events, simulate past major events to gain experience and implement best practices.*

- 5) Did the distributor have third party mutual assistance agreements in place prior to the Major Event? If so, who were the third parties (i.e., other distributors, private contractors)?

*Yes, third party mutual assistance agreements were in place prior to the Major Event. Alectra, PUC, Ottawa River Power and Lakefront Utilities provided mutual assistance during the storm.*

## **B. During the Major Event**

- 1) Please explain why this event was considered by the distributor to be a Major Event.

*Hydro One categorizes a Major Event as one that impacts 10 per cent or more of its customers. This event impacted approximately 233,000 customers, or about 17 percent.*

- 2) Was the IEEE Standard 1366 used to identify the scope of the Major Event? If not, why not?

*No. Hydro One used the fixed percentage method to identify the scope of a Major Event. Hydro One categorizes a Major Event as one that impacts 10 per cent or more of its*

customers. Hydro One does not use the IEEE 1366 method because Hydro One's interruption data does not follow log-normal distribution as required by the IEEE 1366 method.

- 3) Please identify the Cause of Interruption for the Major Event as per the table in section 2.1.4.2.5.

Date Range: 2019-11-01 to 2019-11-03

<b>PRIMARY CAUSE CODE</b>	<b>Number of Interruptions</b>	<b>Customer Interruptions</b>	<b>Customer Hours of Interruption</b>
0. Unknown/Other Customer interruptions with no apparent cause that contributed to the outage.	64	23,282	107,679.3
1. Schedule Outage Customer interruptions due to the disconnection at a selected time for the purpose of construction or preventive maintenance.	23	7,465	30,794.0
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.	4	14,009	83,663.6
3. Tree Contacts Customer interruptions caused by faults resulting from tree contact with energized circuits.	1,106	111,480	1,132,629.1
4. Lightning Customer interruptions due to lightning striking the distribution system, resulting in an insulation breakdown and/or flash-overs.	0	0	0
5. Defective Equipment Customer interruptions resulting from distributor equipment failures due to deterioration from age, incorrect maintenance, or imminent failures detected by maintenance.	476	72,093	538,394.6

Date Range: 2019-11-01 to 2019-11-03

<b>PRIMARY CAUSE CODE</b>	<b>Number of Interruptions</b>	<b>Customer Interruptions</b>	<b>Customer Hours of Interruption</b>
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).	0	0	0
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 flooding.	1	1	2.2
8. Human Element Customer interruptions due to the interface of distributor staff with the distribution system.	0	0	0
9. Foreign Interference Customer interruptions beyond the control of the distributor, such as those caused by animals, vehicles, dig-ins, vandalism, sabotage, and foreign objects.	35	4,246	19,858.0
<b>Total</b>	<b>1,709</b>	<b>232,576</b>	<b>1,913,020.7</b>

Note: Majority of the interruptions from this Major Event are due to the huge impact of this large storm. The usage of the above cause codes adds the level of granularity needed for Hydro One to take only corresponding actions.

4) Were there any declarations by government authorities, regulators or the grid operator of an emergency state of operation in relation to the Major Event?

*A Level 2 emergency event for Distribution was declared.*

5) When did the Major Event begin (date and time)?

*The Level 1 emergency was declared at 01:46:26 AM on November 1<sup>st</sup>, 2019.*

*The Level 2 emergency was declared at 06:01:00 AM on November 1<sup>st</sup>, 2019.*

- 6) What percentage of on-call distributor staff was available at the start of the Major Event and utilized during the Major Event?

*100% of on-call staff was available at the start of the event.*

- 7) Did the distributor issue any estimated times of restoration (ETR) to the public during the Major Event? If so, through what channels?

*Yes, Hydro One provided ETR updates through the following channels: "Auto Dialer Notification" tool, "Outage Website" map, App and "Outage Alerts" for those customers who had signed up for the notification.*

- 8) If the distributor did issue ETRs, at what date and time did the distributor issue its first ETR to the public?

*Friday Nov 1<sup>st</sup> at 11:32am.*

- 9) Did the distributor issue any updated ETRs to the public? If so, how many and at what dates and times were they issued?

*Yes, Hydro One provided three daily updates, which were aligned with Hydro One's incident Command Centre, started on November 1<sup>st</sup> at 11:30AM, 3:45PM and 9PM when the weather condition entered the Level 2 Emergency posture. Additionally, regular ETR updates were also provided to customers during the event as the ETRs changed via Proactive ETR messaging, Auto Dialer Notifications and Outage Map.*

- 10) Did the distributor inform customers about the options for contacting the distributor to receive more details about outage/restoration efforts? If so, please describe how this was achieved.

*Yes, IVR notification system advised interrupted customers of the outage areas and directed them to Hydro One's outage map website for up-to-date power interruption information of the Hydro One's Distribution System, Power Outage Viewer, or download the Hydro One Mobile App.*

- 11) Did the distributor issue press releases, hold press conferences or send information to customers through social media notifications? If so, how many times did the distributor issue press releases?

*A press release was sent out on November 1<sup>st</sup>, led the media outlets to actively provided warning in the affected areas during the duration of the event. Social media was also used to up-date customers along with the homepage banner and the Outage Map banner.*

- 12) What percentage of customer calls were dealt with by the distributor's IVR system (if available) versus a live representative?

*83.2% IVR, 16.8% CSR*

- 13) Did the distributor provide information about the Major Event on its website? If so, how many times during the Major Event was the website updated?

*Yes, the website was updated 12 times.*

- 14) Was there any point in time when the website was inaccessible? If so, what percentage of the total outage time was the website inaccessible?

*Our online Outage Map was down on Nov 1<sup>st</sup> from 12:05pm to 4:13pm. Our Outage Alerts Notification tool was down on Nov 1<sup>st</sup> from 7:17pm to 7:32pm. These two website inaccessible incidents combined the total times to approximately 5.5% of the total outage time.*

- 15) How many customers were interrupted during the Major Event? What percentage of the distributor's total customer base did the interrupted customers represent?

*232,576 customers, representing ~17% of Hydro One's total customer base, were interrupted during the Major Event.*

- 16) How many hours did it take to restore 90% of the customers who were interrupted?

*At 10:45 AM on November 3<sup>rd</sup>, after 58 hours and 45 minutes from the onset of the event, a switch on the Ivy Lea DS F3 feeder was restored energizing 5 customers. This restoration brought the total number of customers restored up to 209,126, which was about the 90% threshold.*

- 17) Was any distributed generation used to supply load during the Major Event?

*No.*

- 18) Were there any outages associated with Loss of Supply during the Major Event? If so, please report on the duration and frequency of Loss of Supply outages.

Date Range: 2019-11-01 to 2019-11-03

PRIMARY CAUSE CODE	Number of Interruptions	Customer Interruptions	Customer Hours of Interruption
2. Loss of Supply	14	93863	670539.8

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.

- 19) In responding to the Major Event, did the distributor utilize assistance through a third party mutual assistance agreement?

*Yes, Alectra, PUC, Ottawa River Power and Lakefront Utilities provided mutual assistance during the storm.*

- 20) Did the distributor run out of any needed equipment or materials during the Major Event? If so, please describe the shortages.

*No equipment or materials ran out during the event.*

### **C. After the Major Event**

- 1) What steps, if any, are being taken to be prepared for or mitigate such Major Events in the future (i.e., staff training, process improvements, system upgrades)?

*Hydro One has purchased the outage prediction tool and is now customizing to enhance the demographic features. This web-based application provides the ability to forecast weather and predict potential impact on the distribution system, which contains the necessary information to align crews and resources to the expected impacted areas of a storm.*

*Hydro One has continued to broadcast customer facing banner messaging on the external Outage Map website to provide customers with a high level overview of a major event that is taking place and the up-to-date information.*

*Conference calls with key operations groups will continue to be held in advance to prepare for resources and equipment.*

- 2) What lessons did the distributor learn in responding to the Major Event that will be useful in responding to the next Major Event?

*Hydro One continues to proactively prepare for each Major Event by conducting briefings throughout the event, and lessons learned sessions. These efforts provide valuable insight in what specific tactics can be developed to address areas of improvement, such as the improvement of damage assessment, ETR accuracy and customer satisfaction.*

- 3) Did the distributor survey its customers after the Major Event to determine the customers' opinions of how effective the distributor was in responding?

*Yes, Hydro One completed a post storm survey from those customers who were affected by the Major Event.*

APPENDIX

During the Major Event - Supporting Information

- 11) Did the distributor issue press releases, hold press conferences or send information to customers through social media notifications? If so, how many times did the distributor issue press releases, hold press conferences or send information to customers through social media notifications? What was the general content of this information?

Links to press releases:

<http://hydroone.mediaroom.com/2019-10-31-Hydro-One-crews-prepare-for-potential-outages-from-Halloween-wind-storm>

<http://hydroone.mediaroom.com/2019-11-01-Hydro-One-gets-power-back-on-for-more-than-195-000-customers-and-continues-restoration-efforts-across-Ontario>

<http://hydroone.mediaroom.com/2019-11-06-Hydro-One-crews-restore-power-to-more-than-250-000-customers-after-wind-storm>



**Hydro One** @HydroOne · Nov 1

Last night's high winds have caused outages for over 98,000 customers. As the winds move east today, we expect to see additional damage and outages. Crews are responding to calls as quickly and safely as possible. Visit our map for updates: [ow.ly/8vfm50wZ8NN](https://ow.ly/8vfm50wZ8NN). **#ONstorm**

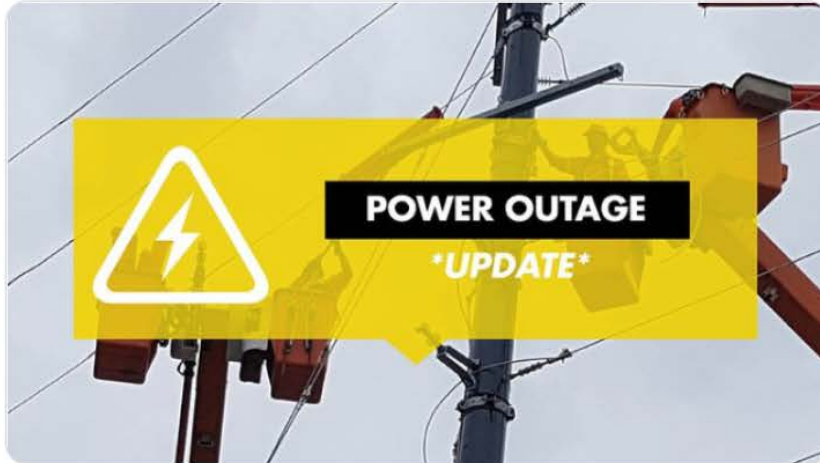






**Hydro One** @HydroOne · Nov 1

UPDATE: Crews are making progress restoring power to customers across the province. High winds are causing a large number of outages in eastern Ontario, & we are mobilizing additional resources to the hardest hit areas. Sign up for outage alerts: [ow.ly/jvF130pOO4R](https://ow.ly/jvF130pOO4R) #ONStorm



**Hydro One** @HydroOne · Nov 1

UPDATE: Here's a look behind the scenes of our crews replacing a broken pole in #Beachville after last night's high speed winds. #ONStorm





**Hydro One** @HydroOne · Nov 1

UPDATE: Today, crews made significant progress restoring power to customers across the province. Currently, 30,000 customers remain without power. We expect some customers will be without power overnight. Check our outage map for updates: [ow.ly/LovE30pOXu6](https://ow.ly/LovE30pOXu6). #ONStorm



**Hydro One** @HydroOne · Nov 2

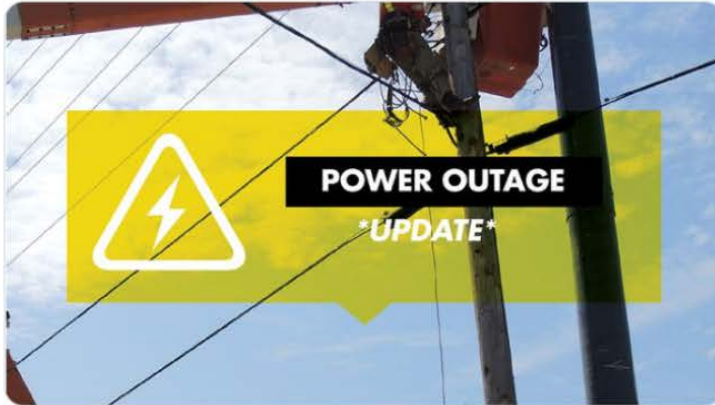
UPDATE: Crews made significant progress overnight and into this morning. We appreciate your patience as our crews work to restore the remaining 18,000 customers. Please visit our outage map for local updates: [ow.ly/w8U630pP40Y](https://ow.ly/w8U630pP40Y). #ONStorm





**Hydro One** @HydroOne · Nov 2

UPDATE: Crews are continuing restoration efforts. Additional resources have been mobilized to help restore power in the hardest hit areas of eastern Ontario, including [#Kingston](#), [#Brockville](#) and [#Picton](#). We thank you for your patience. [#ONStorm](#)



**Hydro One** @HydroOne · Nov 2

UPDATE: Additional crews and resources continue to be mobilized into eastern Ontario. Due to severe damage in some areas, we expect to have approximately 2100 customers without power overnight in [#Kingston](#), [#Brockville](#) and [#Picton](#). [#ONStorm](#)





**Hydro One** @HydroOne · Nov 3

UPDATE: Crews have restored power to over 240,000 customers across Ontario since Thursday night's winds. Today, they continue to clean up damage and restore power to the remaining customers. Visit our map for updates: [ow.ly/mtlF30pOURH](https://ow.ly/mtlF30pOURH). #ONstorm



**Hydro One** @HydroOne · Nov 3

UPDATE: Crews have restored power to the majority of customers affected by last week's high winds. Storm relief efforts continue as they clean up the remaining damage in areas that are difficult to access. Thank you to our customers for your patience and support. #ONstorm



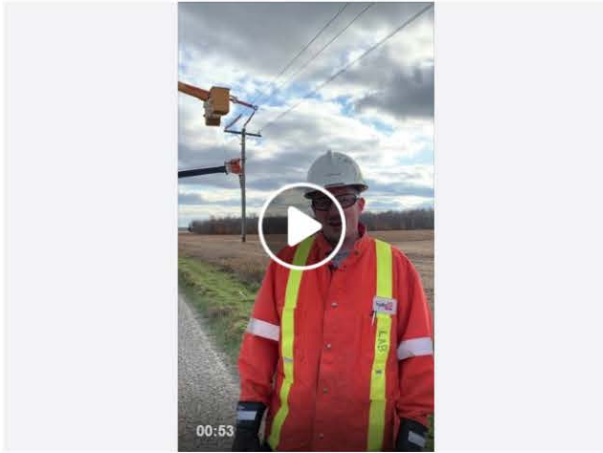


**Hydro One**

Published by Taylor Jordan [?] · November 1 · 🌐



STORM UPDATE: We're live with our crews in Beachville as they replace a broken pole following last night's high speed winds. Visit our outage map for updates: <http://ow.ly/mtlF30pOUrH>.



**Hydro One**

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STORM UPDATE: Crews are continuing restoration efforts after Thursday night's 90km winds. Additional resources have been mobilized to help restore power in the hardest hit areas of eastern Ontario, including Kingston, Tweed and Brockville. Some customers in the hardest hit areas should expect to be without power overnight. We thank you for your patience.





Hydro One

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The power is back on for the majority of our customers that were affected by last week's Halloween storm. Here's some of the damage crews faced in order to make repairs. Thank you to all of our customers for your patience and support.

