

Major Events

RESPONSE REPORT



Issue: April 7th to 9th, 2017 §2.1.4.2 Major Events Response Report

Date Issued: April 18th, 2018

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

Summary

Overnight gusty winds range 50-60 km/h, from April 7th to 9th, 2017, blew across Southern Ontario, with wind gust as high as 70-85 km/h. Strong winds also affected Central and Eastern Ontario. In addition, heavy wet snow (between 20 and 40cm) were reported in North Central Ontario. These combined events impacted ~156,000 (or about 11%) of Hydro One's customers.

This is the third Major Event in 2017.

1. Prior to the Major Event

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

Weather warnings were started on April 5th to advise the possible of strong winds and heavy wet snow across the majority of 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.

Extra staff was called in to assist, starting on Wednesday, April 6th, at the Distribution Operations Management Centre (DOMC) and continued to call in extra staff to assist during the major event.

- 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?

Media announcements were made through Hydro One's "Media Notifications". Email notices were sent out to the media outlets and local government officials. We also issued advanced notification solutions through Hydro One's Storm Centre Outage website and social media channels. In the future, Hydro One's Storm Centre Outage website will include an alert banner to provide information of a pending Major Event as well as our proactive preparations.

- 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, the response plan for a Major Event is 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 centres 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)?

Hydro One’s response to the Major Event consisted of regular staff and staff from Hydro One’s Hiring Hall. Although the Company has mutual assistance agreements with other local distribution companies (LDCs) and contractors throughout the Province, those other parties were not called upon.

2. 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 156,000 (or about 11%) of Hydro One’s customers.

- 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 Major Events as one that impacts 10 per cent or more of its customers. The OEB provides guidance to utilities with three different methods to identifying a Major Event. The fixed percentage method is the one that Hydro One has selected. Hydro One does not use the IEEE1366 method because Hydro One’s interruption data does not follow log-normal distribution as required by the IEEE1366 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: | 2017-03-08 to 2017-03-09 | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------|---------------------------------------|
| PRIMARY CAUSE CODE | Number of Interruptions | Customer Interruptions | Customer Hours of Interruption |
| 0. Unknown/Other Customer interruptions with no apparent cause that contributed to the outage. | 59 | 10418 | 60899.8 |
| 1. Schedule Outage Customer interruptions due to the disconnection at a selected time for the purpose of construction or preventive maintenance. | 22 | 16047 | 23140.8 |
| 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. | 0 | 0 | 0.0 |
| 3. Tree Contacts Customer interruptions caused by faults resulting | 776 | 79740 | 898941.8 |

from tree contact with energized circuits.

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------|------------------|
| 4. Lightning | 0 | 0 | 0.0 |
| Customer interruptions due to lightning striking the distribution system, resulting in an insulation breakdown and/or flash-overs. | | | |
| 5. Defective Equipment | 340 | 49947 | 373113.4 |
| Customer interruptions resulting from distributor equipment failures due to deterioration from age, incorrect maintenance, or imminent failures detected by maintenance. | | | |
| 6. Adverse Weather | 0 | 0 | 0.0 |
| 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 | 0 | 0 | 0.0 |
| 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 | 2 | 86 | 360.0 |
| Customer interruptions due to the interface of distributor staff with the distribution system. | | | |
| 9. Foreign Interference | 18 | 208 | 838.8 |
| Customer interruptions beyond the control of the distributor, such as those caused by animals, vehicles, dig-ins, vandalism, sabotage, and foreign objects. | | | |
| Total | 1217 | 156446 | 1357294.7 |

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?

No.

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

The level 1 emergency was declared at 1:18 am on April 7th, 2017.

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

All Provincial Lines on-call staff was utilized along with regular staff stationed outside of the storm impacted areas.

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

Yes, through our Media Notifications.

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

Yes, the first ETR was sent on April 7th at 11:45am.

- 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. ETRs were updated and issued on April 7th at 16:30, April 7th at 21:30, April 8th at 11:20, April 8th at 16:50 and April 8th at 22:00.

- 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, the media notifications included the instruction below as well as a phone number for customers to call into Hydro One's Customer Care Centre.

For up-to-date power interruption information related to [Hydro One's Distribution System](#), please click on the following link, [Power Outage Viewer](#), or download the HydroOne 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, hold press conferences or send information to customers through social media notifications? What was the general content of this information?

Three press releases were issued along with numerous social media posts during this timeframe. The up-to-minute content included restoration efforts and safety tips.

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

67.1% IVR and 18.3% 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?

Power outage updates were provided every fifteen minutes on the Company's Storm Centre Outage website map.

- 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?

No.

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

156,446 customers, representing about 11% 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 4:48 pm on April 9th, the Coldwater DS was restored, energizing 1,191 customers. This restoration was the 90% threshold, after 64 hours and 48 minutes from the onset of the event.

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: 2016-07-08 to 2016-07-09

| PRIMARY CAUSE CODE | Number of Interruptions | Customer Interruptions | Customer Hours of Interruption |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------|--------------------------------|
| 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. | 0 | 0 | 0.0 |

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

No.

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

No.

3. 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)?

A pilot project (TWC Outage Prediction) will start in October. This web-based application will be used to forecast weather and predict potential impact on the distribution system.

Hydro One has also implemented a banner on the external Outage Map to provide customers with a high level overview of the major event that is taking place and up-to-date information.

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 develop better early response by field forces, utilizing weather models and outage prediction tools, so that we can provide better staff planning. Hydro One is also committed to improving ETR outage communications through the use of our Mobile Technology. In addition, we have piloted a project which will utilize forestry crews from those who have completed switching and grounding qualification on single phase conductors, to safely and efficiently deal with tree impacts to the distribution system.

- 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 surveys customers twice a year for Major Events.

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?

Three press releases were issued along with numerous social media posts during this timeframe. Content was updated on restoration efforts, and Hydro One also provided safety tips.

Twitter

Hydro One @HydroOne · Apr 9
News release: Hydro One storm response team quickly restores power to 141,000 customers hydroone.mediaroom.com/index.php?s=24...
1 3 3

Hydro One @HydroOne · Apr 8
Thank you for your patience as Hydro One works to restore power to 6,000 customers still affected by outages from the snow storm. #ONstorm
1 1 6

Hydro One @HydroOne · Apr 8
Crews continue to respond to 262 outages affecting over 15,000 customers. Visit our map for updated ETRs ow.ly/z6f830aFxnH #ONstorm
1 2

Hydro One @HydroOne · Apr 7
News release: Hydro One restores power to more than 106,000 customers; 18,000 remain without power hydroone.mediaroom.com/index.php?s=24...
3 2

Hydro One @HydroOne · Apr 7
Crews continue efforts on 386 outages affecting 30,702 customers. Visit our map for updates & report outages or hazards to 1-800-434-1235
1 1

Hydro One @HydroOne · Apr 7
Crews are responding to 434 outages affecting over 56,000 customers. Visit our map for updated ETRs ow.ly/z6f830aFxnH #ONstorm
2 2

-  **Hydro One** @HydroOne · Apr 7
Safety message: Please be sure to stay clear of areas where crews are working to restore power #ONstorm

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-  **Hydro One** @HydroOne · Apr 7
Thanks for your patience! Crews are doing their absolute best to get power back on as quickly & as safely possible. #springsnowstormindeed

William Dam Seeds @DamSeeds
@HydroOne thanks for getting the power back on ahead of schedule!
#springsnowstorms

🗨️ ↻ 1 ❤️ 4 📺
-  **Hydro One** @HydroOne · Apr 7
News Release: High winds and heavy snow affecting 51,000 Hydro One customers ow.ly/XzPU30aFIHW #ONstorm

🗨️ ↻ 3 ❤️ 1 📺
-  **Hydro One** @HydroOne · Apr 7
Report downed trees or lines to 1-800-434-1235. Keep 10 metres away from downed lines even if they don't appear to be live #ONstorm #safety



-  **Hydro One** @HydroOne · Apr 7
Crews continue to respond to 336 outages affecting 53,279 customers. Please visit our map for updates ow.ly/5Ydh30aF7yT #ONstorm

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-  **Hydro One** @HydroOne · Apr 7
Thanks for your support! Our crews are working as quickly and as safely possible to restore power.





Ashley @bookworm84
Thank you to @HydroOne for battling the elements to restore power this morning! Your hard work is appreciated!


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-  **Hydro One** @HydroOne · Apr 7
Not seeing your outage reported on our map? Please report it to 1-800-434-1235. We need to know you're out of power in order to send a crew.





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 **Hydro One** @HydroOne · Apr 7
Great advice to keep you safe!





William R. Hunter @ChiefBillHunter
Over 44000 customers without power...@HydroOne reporting 207 outages across Ontario.
Assume all downed wires are live & stay clear. #onstorm

  5  1 

 **Hydro One** @HydroOne · Apr 7
Crews responding to 207 outages affecting over 44,800 customers in south and central Ontario. Check our outage map or app for latest ETRs.

 1  17  4 

 **Hydro One** @HydroOne · Apr 7
High winds and heavy snow have caused 322 outages affecting over 30,400 customers across south and central Ontario. Check our app for ETRs.

 9  24  6 

Facebook

 **Hydro One** ...
Published by Social On-Call Team [?] · April 7 · 🌐

Crews are responding to 233 outages affecting over 50,200 customers in south and central Ontario. Check our outage map or mobile app for the latest estimated times of restoration at <http://www.hydroone.com/stormcenter3/>. If you don't see your outage on the map, please report it to 1-800-434-1235. We need to know you're without power in order to dispatch our crews. Here's a shot from the field taken this morning in the Cobden area:





Published by Social On-Call Team [?] · April 7 ·

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There are currently 348 outages affecting approximately 51,560 customers across the province with full restoration efforts underway. Our priority is to restore power as quickly and as safely possible to our customers. For local outage updates, including current estimated restoration times and crew status, please visit our outage map at <http://ow.ly/RCyY307TKKF>, or you can download our mobile outage app. To report a power outage or hazard such as a fallen tree, please call 1-800-434-1235 and remember to stay away from any downed trees or power lines, even if a power line does not appear to be live.



Published by Social On-Call Team [?] · April 7 ·

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Full restoration efforts are underway on 428 active outages affecting 52,761 customers across the province. Our crews' priority is to restore power as quickly and as safely possible to our customers during an outage. For local outage updates, including current estimated restoration times and crew status, please visit our outage map at <http://ow.ly/vk0k307GgRI>, or download our mobile outage app.





Hydro One

Published by Social On-Call Team [?] · April 7 · 🌐

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A spring snow storm brought power outages to customers across southern and central Ontario. Since the start of the storm, crews have restored power to more than 106,000 customers and we expect 11,000 will remain without power overnight. We are also mobilizing crews from parts of the province where there is no storm damage to support restoration efforts.

For current ETRs and updates, please visit our outage map:

<http://www.hydroone.com/stormcenter3/>. Customers can also call 1-800-434-1235 for updates and to report outages or hazards. Remember to keep at least 10 metres away from any downed line even if it does not appear to be live.

