

January 31, 2023

All our energy.

Island Regulatory & Appeals Commission PO Box 577 Charlottetown PE C1A 7L1

Dear Commissioners:

Review and Report on Hurricane Fiona and Restoration

Please find enclosed 5 copies of Maritime Electric's Review and Report on the Hurricane Fiona and Restoration.

If you have any questions, please do not hesitate to contact the undersigned at 902-629-3641.

Yours truly,

MARITIME ELECTRIC

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GCC02 Enclosure



Hurricane Fiona Post-Mortem Report

January 31, 2023





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1.0 EXECUTIVE OVERVIEW

Late on Friday, September 23, 2022, Hurricane Fiona ("Fiona") passed by the east point of Prince Edward Island ("PEI"), impacting Maritime Electric customers Island-wide. The storm lasted approximately 12 hours with peak winds exceeding 130 km/h Island-wide, and reaching 150 km/h at East Point. Rainfall amounts exceeded 60 mm Island-wide with 117 mm reported in Murray Harbour. The storm combined with a high tide and a storm surge of 2.0 metres along the north shore between 6 to 9 a.m. Saturday, September 24, 2022. The large waves combined with high water conditions severely damaged much of the Island's coastlines. The central pressure for Fiona was the lowest recorded barometric pressure to make landfall in Canadian history at 932.7 hPa.

Restoration efforts started when it was safe to do so at daybreak on Saturday, September 24, for the approximately 83,200 customers without power. At that time, the majority of the transmission and distribution system was out of service including the interconnection at Richmond Cove. The transmission system was energized west to Alberton on September 26 and east to Souris on September 27. Within four days power was restored to approximately 50 per cent of customers. All substation main circuits were energized by October 2 with power restored to approximately 78 per cent of customers. Restoration efforts continued until the end of Friday, October 14, when the last of the customers that could have power restored were restored. There remained a number of customers with broken masts and access issues that had power restored over the next several days. This was the largest storm response in Maritime Electric's history utilizing 205 line crews, 59 vegetation management crews and other supporting resources such as Canadian Armed Forces personnel, damage assessors, field supervisors, and traffic control personnel at the height of the restoration effort.

The transmission system was affected by tree contacts, but suffered minimal structural damages. Redundancies in the transmission system allowed for reconfiguration to re-route power and reduce the impact on customer outages. The transmission lines associated with wind farms were also impacted by tree contacts.





The resulting damage on the distribution system, caused mainly by approximately 40,000 fallen trees and large branches, required the replacement of 1,275 distribution poles, 445 transformers and 140 km of conductor.

Customer Service responded to over 72,000 customer interactions in the Contact Centre. These included phone calls, emails, web chat as well as social media interactions via Facebook, Messenger and Twitter.

Pre-planning by all departments played a key role in the success of the storm response. The Company was well prepared and implemented best practices learned from previous weather events including post-tropical storm Dorian in 2019.

The cost of restoration was approximately \$34.6 million. The average outage for customers as a result of the storm was 156.58 hours.

2.0 BACKGROUND

The Company obtains weather forecasts and models prepared by accredited Meteorologists and Atmospheric Scientists (i.e., Environment and Climate Change Canada ("ECCC")) and uses the information to plan and prepare for storm events.

The Company's Energy Control Center ("ECC") is a control room that operates 24 hours per day, which takes the lead to obtain and forward relevant weather forecasts and models to the pertinent departments within the Company. These forecasts and models are forwarded to an internal email distribution list containing more than 50 key employees responsible for decision making relating to storm events. Members of the distribution list forward information to direct reports as required.

One of the main forecast reports the Company uses is prepared and issued by ECCC, and this weather briefing is provided as guidance for Emergency Management, Transportation, Utilities and other provincial agencies.

Prior to Fiona's onset, the Company was monitoring the path of this storm and was aware of the devastation caused in the Caribbean. On Wednesday, September 21, 2022, the Company reached out to ECCC by email and asked when they would receive a weather briefing package





for Fiona, a notification was received from ECCC indicating that they were working on a report to be issued that morning.

ECCC's first weather briefing package for Fiona was sent to Maritime Electric on Wednesday, September 21, 2022 at 10:07 a.m. with a confidence level of moderate-high. The Company's ECC forwarded the detailed report from ECCC, and also included forecasts from The Weather Network and Windfinder.com to the Company's storm warning email distribution list. Maritime Electric began internal notifications and storm response preparations prior to this time as the Company received news of Fiona's impact on the Caribbean islands, and observed the predicted track of the storm.

ECCC issued weather briefing packages on September 22, 23, and 24. This information, plus additional forecasts and commentary on the potential impacts of this storm, were forwarded to the Company's storm warning email distribution list.

On Friday, September 23, the storm arrived in the region at nightfall bringing strong winds and heavy rainfall. The intensity of the storm increased through the early morning hours on Saturday, September 24 with the highest winds lasting between 10 and 12 hours, throughout most of the day. The strongest storm conditions occurred in the early morning hours of Saturday, September 24.

Fiona was officially re-classified from a hurricane to a post-tropical storm by the time it reached the Island; however, the storm picked up energy as it combined with a low-pressure system moving in from the west. The result was destructive hurricane strength winds combined with heavy rainfall. All areas of the Island experienced winds exceeding 130 km/h and a significant amount of rainfall. Figure 1 is a map, originally broadcast by CBC, which shows the peak storm conditions experienced during the storm and cumulative precipitation across the Island.





The heavy rains created wet conditions, softening the ground. The combination of high winds and soft ground caused trees to move and/or uproot, creating numerous contacts with energized lines. A significant number of trees fell to the ground, breaking conductor, poles and transformers. By daylight on the morning of Saturday, September 24, the full impact of this storm was evident, with approximately 40,000 fallen trees and large branches having caused widespread power outages.

Following the arrival of Fiona, ECCC continued to support Maritime Electric by sending weather briefings on September 25, 26, 27, 28, 29, and also on October 13, when a trough with high winds and rain was forecast to pass over the Island on October 14.

3.0 STORM PREPARATIONS

Several days before the storm arrived, planning for a storm response began. Various departments reviewed outage readiness information and pre-storm checklists in the Company's Business Continuity and Disaster Recovery Plan. Supervisors confirmed key storm response positions, the availability of workers, contractor resources and storm center supplies. Satellite phones were tested and hard copies of essential information were printed or copied to local computers.





Refresher training sessions were held for the Outage Management System users as well as for personnel assigned to assist Operations during restoration.

ECC staff reviewed the system for abnormal conditions, monitored the storm track and provided regular updates.

Engineering staff inspected the substations and construction sites, which included checking for danger trees around each substation. Propane tanks required to operate generators at each substation were tested and refueled.

IT staff reviewed a plan to disable second factor authentication, if required for access to cloud services. They also reviewed a guide on connecting Customer Service Representatives to the Rogers virtual call center via phone only. Staffing plans and schedules were established for support in various departments.

Customer Service and Corporate Communications staff confirmed on-call storm supervisors, staffing levels and arranged pre-storm messages to inform customers of the impending weather forecast and provide advice on what they could do to prepare. The virtual contact center was tested and confirmed for remote access. Refresher training was provided for employees handling social media inquiries. Customer script information was prepared for call takers.

Operations staff held pre-storm meetings every day starting on Wednesday, September 21, to review preparations for an effective storm response. Operations staff had 49 line crews and 17 vegetation crews available as the storm approached, similar to the resources required during the peak of the post-tropical storm Dorian restoration. The Company anticipated the need for off-Island contractor resources, checked the availability of accommodations and prepared for contractor safety orientations. Material stock was topped up in the district service centers, vehicle supplies were checked and ready.

4.0 SYSTEM IMPACTS AND RESTORATION

On Friday, September 23, the first distribution outages occurred at 21:39 hours and transmission outages started on September 24 at 2:42 hours. At 14:00 hours Saturday, September 24, after



the peak of the storm had passed, there were approximately 83,200 customers without power. As shown in Figure 2, all transmission lines and substations were out of service with the exception of the Borden Cable Riser Station, Bedeque Switching Station, transmission lines Y-107 and T- 3. The Company used the Business Continuity and Disaster Recovery Plan to guide power restoration activities.



4.1 Damage Assessment

The process of damage assessment for storm response is coordinated by the Operations Support Department. The general process of damage assessment involves dispatching a team of designated spotters and patrollers to collect and record information in the field, and communicate information back to a designated damage assessment coordinator or dispatcher. Damage assessors are trained and designated in accordance with the Maritime Electric spotting and





patrolling Guidelines for Storm Restoration. The role of the damage assessor is to evaluate field conditions, analyze the damage and estimate the material loss and work required for restoration. The information gathered includes: road conditions for accessibility, outage cause identification, line fuse outages, damaged equipment, trees into lines, pole requirements, replacement transformer requirements, and oil spills. The damage assessor will safeguard and report downed equipment, confirm lines and premises restored, and report if a customer problem requires an electrician prior to repair or reconnection.

Maritime Electric line crews and damage assessors were promptly dispatched in the late morning of Saturday, September 24, to evaluate the damage with a focus on the transmission system and some mainline distribution. Damage assessors were assigned to substation feeders and instructed to report information back to the appropriate district service centre where field crew dispatch was being conducted. Winds were quite strong at this time and road access was compromised. A helicopter inspection of the transmission system was performed across the Island on September 25 as soon as the weather permitted.

A significant number of trees on the affected transmission lines were observed Island wide; however, this resulted in only 10 pole replacements.

The entire distribution system was significantly impacted by trees, which resulted in the failure of 1,275 distribution poles, 445 transformers and 140 km of conductor. Many customers also experienced damage to their individual electrical services including approximately 2,037 damaged masts. An assessment of the damage determined that broken poles, transformers and conductor were as a result of approximately 40,000 fallen trees and large branches. Appendix C shows some photos of the damage caused by these fallen trees.

The majority of customer outages resulted from the sustained and gusting wind speeds that created high pressure forces on trees causing contact with conductor. The damage included trees bending and contacting energized lines causing faults and burning conductor. Many of the trees broke near their base or uprooted and fell to the ground often taking down infrastructure, damaging wires, transformers, poles and other line assets. The distribution system is designed to exceed CSA standards to account for the higher wind gusts that were experienced. As a result, only 12 poles failed due to the wind impact alone (i.e., no tree contact).

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4.2 Operational Response

On-Island contractors were mobilized on September 24 to assist with the system restoration. The Company also reached out to off-Island contractors and other Fortis companies to assist with the system restoration. As off-Island contractors and Fortis crews arrived, they were immediately provided a safety orientation and dispatched to the field. A breakdown of the total number of crews working each day is provided in Figure 3. Resources dispatched across the Island were comprised of 205 line crews, 59 vegetation management crews, 49 field supervisors, 28 damage assessors, the Department of Forestry, the Canadian Armed Forces, several traffic control companies and other support personnel.



To ensure repairs to the electrical system were completed safely and efficiently, the Company initiated a 16-hour work day to maximize the use of daylight hours. Additional traffic control resources were obtained from the Province and a contractor in New Brunswick. The Company reached out to Fortis utilities to solicit additional field supervision and support to assist in organizing the approximately 700 resources working to restore power.





Storm response was managed from the West Royalty Service Centre including damage assessment, planning, logistics, operations, public information, safety, finance and administration. Restoration work was organized and dispatched to crews from Roseneath, Charlottetown, and Sherbrooke service centres. Field supervisors were assigned substation territories and reported to their respective service centre locations. Materials were staged at various locations in each district.

4.3 Transmission System Restoration

Restoration of the transmission system was a priority and the majority of the transmission lines were energized within the first three days. The helicopter inspection of the transmission lines expedited the restoration. The transmission lines that provided redundancy to the transmission system were the last to be repaired as the weather was favourable and the Company concentrated efforts on restoring power to customers.

Island wind farms were off-line during the storm, as wind turbines typically reach a cut-out speed during very high winds and shut down to prevent strain on the rotor. Transmission systems that feed North Cape, Norway, WEICAN and Aeolus wind farms were back in service on September 27, with transmission line Y-115 feeding West Cape wind farm restored on October 3. Eastern Kings and Hermanville wind farms were back in service on October 13, as Hermanville sustained damage on the collector system that delayed their operation. Refer to Appendix A, Timeline of Transmission Outage Events, for specific details of when transmission lines tripped out and reenergized.

4.4 Distribution System Restoration

The Company responded to distribution system outages immediately by concentrating on main lines feeding essential services such as fuel supply, health facilities and food services. The majority of the distribution system did not become energized until after the transmission system was restored. Refer to Appendix B, Timeline of Distribution Outage Events, for specific details regarding when circuits in each of the substations were energized. The restoration approach involved repairing the main feeders from substations followed by secondary feeders and then individual customer outages. This methodical restoration approach results in a safe and higher rate of power restoration. Power to nonessential services and vacant (i.e., non-primary) residences were the last to be restored.



Damage to customer-owned service components (e.g., masts) delayed power restoration for many customers. These customers had to engage electricians to complete the repairs prior to being reconnected to the system. Approximately 2,037 damaged customer masts required reconnection.

Figure 4 illustrates the customer outage timeline for Fiona.



5.0 CUSTOMER SERVICE AND CORPORATE COMMUNICATIONS RESPONSE

The Company's main methods of communicating with customers included the website, social media (i.e., Facebook and Twitter), and media interviews. The Company posted on social media with 66 posts on Facebook and 77 posts on Twitter, which resulted in a total of 1,755,711



impressions across both platforms and 80,593 engagements. Social media posts included weather warnings prior to the storm, outage updates, photos of the damage and restoration work from the field, safety messages, links to reception centres, and information regarding the service mast repair process.

The Company's website includes an outage map that updates data every 15 minutes providing live outage information for customers. Customer feedback prompted changes to the map to make it easier to view. Restoration times for communities were added to the outage map on October 3 and updates were provided every day until power was restored. The map included a link to information regarding warming centers. Fiona resulted in approximately 1.7 million page views on the Company website.

Customer Service and Corporate Communications responded to over 72,000 customer interactions in the Contact Centre, including phone calls, emails, web chat, and social media. The average speed of response to phone calls was 14 minutes and 4 seconds with the call lasting on average 3 minutes and 9 seconds. The largest frequency of phone interactions occurred between 8:00 and 15:00 each day. Over 150 media interviews and updates were held during the storm and restoration period with broadcast media (i.e., radio and television) reaching over 54 million viewers. The media was an important tool in communicating information to customers, especially during the storm and immediately after when internet and cellular connection was challenging due to telecommunications damage from the storm.

The Company collaborated with Emergency Measures Organization ("EMO") levels of government and key partners sharing information as it became available. Seven live EMO updates were broadcast on Facebook and YouTube, including opportunities for media questions.

6.0 SAFETY ISSUES

Over 400 field workers from off-Island received a safety orientation prior to starting restoration work. On day 14 and 15 of the restoration effort, employees and contractors observed a mandatory and staggered 8-hour stand down period. The 8-hour stand down allowed for a full 16-hour rest period. Effective communication and planning among field crews, the ECC and the

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Dispatch Centres contributed to a safe and successful response. Table 1 lists the incidents that occurred during restoration.

TABLE 1 Safety Statistics					
Incident Type Maritime Electric Contractor					
Good Catch	5	1			
Near Miss	2	3			
Motor Vehicle Incidents	1	3			
First Aid	-	1			
Medical Aid	1	4			
Lost Time Injury	-	1			

7.0 IMPACT ON RELIABILITY

The System Average Interruption Duration Index ("SAIDI") is commonly used as a reliability indicator by electric utilities, including Maritime Electric. SAIDI is the average outage duration for each customer served. The SAIDI impact related to recent tropical cyclones that impacted PEI is shown in Table 2. Fiona's SAIDI was significantly higher than both post-tropical storm Dorian and hurricane Juan.

TABLE 2			
SAIDI Impact of recent tropical cyclones impacting PEI			
Storm SAIDI Impact (hours)			
Hurricane Fiona, September 23 to October 14, 2022	156.58		
Post-tropical storm Dorian, September 7 to 16, 2019	35.82		
Hurricane Juan, September 2003	12.57		

There are two SAIDI indices tracked by the Company: SAIDI (All in) which measures reliability performance using outage data collected under all operating conditions; and SAIDI (Major Event Day) which normalizes the outage data by removing significant outage events to reflect reliability performance under normal operating conditions referred to as "blue sky" conditions. Table 3 shows the SAIDI values for both indices for 2016 to 2022.



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TABLE 3 Historical SAIDI Values (hours)					
Year	SAIDI (Excluding Major Events)	SAIDI (All in)			
2016	2.46	11.13			
2017	2.25	3.96			
2018	3.25	23.73			
2019	2.98	40.19			
2020	2.57	4.98			
2021	3.04	4.20			
2022	3.40	167.62			

Major events include ice storms, wind storms, lightning, vehicle accidents involving transmission supply, and outages caused by significant equipment failures. Previous ice storms in 2018 and post-tropical storm Dorian in 2019 resulted in significant increases in SAIDI (All In); however, when comparing SAIDI values for Fiona to recent years, Fiona is already an exceptional occurrence.

8.0 ESTIMATED TOTAL COSTS

Fiona required the largest storm response in the Company's history, involving Maritime Electric staff, contractors and support personnel. The work period spanned 21 days including extended hours, and working during multiple weekends and statutory holidays. Additional supplies were obtained from Newfoundland Power, FortisAlberta, FortisBC, and NB Power, as material requirements for the storm response depleted inventory levels. Materials were also obtained using the Hubbell Emergency Action Team Program that gave the Company priority over other utilities for longer delivery items. All the necessary materials were sourced as needed and did not delay the restoration process.

The financial impact of the storm was significant with the largest cost component being internal and external labour. Table 4 provides a breakdown of the total cost of the storm restoration. The nature of the damage from this storm was such that a significant amount of the effort was spent removing fallen trees and repairing existing conductor, which is classified as operating costs. As such, approximately 44.2 per cent of total costs were operating expenses. Costs of rebuilding

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lines to replace the poles, transformers and conductor broken during the storm account for the remainder of the costs and resulted in 55.8 per cent assessed as capital costs.

TABLE 4 Hurricane Fiona Restoration Costs			
(\$ millions)			
Maritime Electric Labour and Transportation	3.6		
Materials	3.7		
Accommodations, Meals, Travel, etc.	2.8		
Third-Party Contractors:			
Holland Power Services	4.9		
Locke's Electrical	2.2		
NB Power	2.3		
H-Line Enterprises	2.0		
Ontario Line Clearing	1.8		
Newfoundland Power	1.4		
Hydro One	1.1		
Atlantic Reach	1.0		
GSD Utility Services	1.0		
Asplundh	1.0		
Go With The Flow Traffic Control	1.0		
Central Hudson	0.9		
T&T Line Construction	0.9		
Connect Atlantic Utility Services	0.7		
FortisAlberta	0.6		
Saint John Energy	0.5		
FortisBC	0.4		
FortisOntario	0.4		
Various Contractors	0.4		
AVL Construction	0.3		
Nightingale Tree Service	0.2		
Safety First Traffic Control	0.2		
Third Party Revenue	(0.7)		
TOTAL ¹	34.6		

The total cost presented is net of approximately \$1.7 million in incremental vegetation and line maintenance costs expensed in the fourth quarter of 2022 that are attributable to Fiona-related system and vegetation maintenance activities.





9.0 PROACTIVE CAPITAL AND OPERATING INVESTMENTS

Each year, Maritime Electric undertakes capital and operating investments and activities aimed at improving the reliability performance of the electrical system and service provided to customers. Recent investments in the transmission and distribution system assisted in preventing more extended customer outages and expediated the restoration of power to customers after Fiona.

9.1 Transmission and Distribution System

The design of the transmission system, with built in redundancy and looped feeds, provided options to restore power to substations more quickly. The transmission system's robustness reflects the capital investment into inspection and rebuilding of lines in recent years. The main factor in the transmission and distribution outages during Fiona was trees contacting lines and not structural failures. The Company only suffered minimal damage to transmission assets.

Recent placements of transmission system roadside allowed for easy access and inspection compared to cross-country routes. Strategic installation of transmission switches allowed for feeding substations from different directions and isolating parts of a line to keep as many customers on as possible when faults occur. Recent distribution projects replaced aged infrastructure with upgraded infrastructure that improved reliability by reducing feeder lengths and reducing the number of customers on feeders. The distribution feeder system was re-configured with the addition of each new substation providing back-up opportunities for circuits and reducing the impact to customers from individual circuit outages.

9.2 Vegetation Management

Recent enhancements to the Vegetation Management Program include the development of a vegetation management app and database that has improved efficiency, planning, execution, and reporting of the work. The Company has collaborated with the Provincial Government regarding right-of-way clearing to increase tree removal permissions. A fulltime Vegetation Management Field Services Coordinator position was created in 2015 to focus on prioritizing work, obtaining ground clearing and trimming permissions from customers. The Company continues to prioritize vegetation management activities on the transmission system, identifying it as a requirement to improve reliability during significant events. Over the past three years, the vegetation management spend on the transmission system was \$236,500, \$544,200 and \$1,092,200 in





2020, 2021 and 2022, respectively, which represents an increase of 665 per cent in 2022 from 2019 levels. In 2020, 2021 and 2022, the Company spent \$1,414,000, \$2,766,300 and \$3,223,600, respectively, for vegetation management on the distribution system, represents an increase of 102 per cent in 2022 from 2019 levels.

In the General Rate Application filed with the Commission in June 2022, the Company seeks to increase the annual operating budget for transmission and distribution vegetation management to \$4.0 million by 2025 to improve reliability for customers. The impact that Fiona had on the Company's distribution system confirms the Company's determination that more vegetation management is required to limit future outages associated with tree contacts, especially during significant wind events.

10.0 KEY LEARNINGS

Although restoration was completed in an efficient and safe manner, the Company recognizes that there are always lessons to learn and opportunities for improvement following a major storm response. The experience with Fiona was no exception and such information was collected throughout the post-mortem review process. This information is now being reviewed by the Company with some items already being acted upon and others planned for implementation prior to or during the next storm event. Some key takeaways includes:

- the need to improve communication of outage restoration times for customers;
- enhancing vegetation management practices by reducing the trimming cycle, focusing on obtaining ground cutting permissions, and expanding the right-of-way;
- exploring opportunities to make underground service options cost-effective for customers; and
- continuing to advocate for the implementation of advanced metering technology to improve outage information.



11.0 CONCLUSION

Fiona was an extraordinary system event and significantly greater than the most recent milestone, post-tropical storm Dorian in 2019, in terms of restoration time, effort and cost. Over a period of 21 days, from September 24 to October 14, 2022, the deployment of resources to restore power to over 83,200 customers was the largest storm response in the history of the Company. There were many challenges presented by the storm damage, including the need for significant supervision of resources, tree clearing and strict inspection protocols to systematically and safely energize circuits line by line. These, and other challenges resulting from the storm, were effectively addressed by the Company through pre-storm preparation, and a proven restoration process that included early damage assessment, focused communication and a strong contingent of internal and external resources.





Timeline of Transmission Outage Events

Transmission Restoration Timeline					
Line	Time Off	Time On	Time Period Off	Time Period On	Substations On
CABLE 3	N/A	N/A	Remained on	Rema	ined on
CABLE 4	N/A	N/A	Remained on	Rema	ined on
T-3	N/A	N/A	Remained on	Rema	ined on
Y-107	N/A	N/A	Remained on	Rema	ined on
Y-105	9/24/22 2:42	9/25/22 10:35	Friday Sept 23 overnight	Sunday Sept 25 morning	Sherbrooke
T-11	9/24/22 2:47	9/25/22 11:46	Friday Sept 23 overnight	Sunday Sept 25 morning	Summerside
T-5	9/24/22 2:27	9/25/22 12:54	Friday Sept 23 overnight	Sunday Sept 25 afternoon	St. Eleanors and Wellington
T-21	9/24/22 2:27	9/25/22 12:57	Friday Sept 23 overnight	Sunday Sept 25 afternoon	O'Leary and Alberton
Y-109	9/24/22 4:48	9/25/22 13:38	Friday Sept 23 overnight	Sunday Sept 25 afternoon	Clyde River and West Royalty
T-15	9/24/22 4:33	9/25/22 15:51	Friday Sept 23 overnight	Sunday Sept 25 afternoon	Airport and Charlottetown Plant
T-13	9/24/22 1:54	9/25/22 17:20	Friday Sept 23 overnight	Sunday Sept 25 evening	UPEI
Y-104 (WR to WP)	9/24/22 12:40	9/25/22 17:51	Friday Sept 23 overnight	Sunday Sept 25 evening	West St. Peters
T-2	9/24/22 12:40	9/25/22 20:48	Friday Sept 23 overnight	Sunday Sept 25 evening	Crossroads and Mount Albion
T-10	9/24/22 12:40	9/25/22 21:20	Friday Sept 23 overnight	Sunday Sept 25 evening	Victoria Cross and Dover
T-8 (LV to SO)	9/24/22 12:25	9/26/22 19:41	Friday Sept 23 overnight	Monday Sept 26 evening	Georgetown and Dingwells Mills and Souris
T-1 (SH to KN)	9/24/22 12:06	9/26/22 21:41	Friday Sept 23 overnight	Monday Sept 26 evening	Kensington
T-1 (KN to RT)	9/24/22 1:07	9/27/22 11:34	Friday Sept 23 overnight	Tuesday Sept 27 morning	Rattenbury
T-23/T-25	9/24/22 2:25	9/27/22 17:32	Friday Sept 23 overnight	Tuesday Sept 27 evening	North cape area wind farms
Y-113	9/24/22 2:47	9/28/22 9:07	Friday Sept 23 overnight	Wednesday Sept 28 morning	No additional substations
T-1 (WR to BG)	9/24/22 1:07	9/28/22 10:51	Friday Sept 23 overnight	Wednesday Sept 28 morning	Hunter River and Bagnall Road
T-4	9/24/22 12:52	9/29/22 8:17	Friday Sept 23 overnight	Thursday Sept 29 morning	Scotchfort
Y-115	9/24/22 1:08	10/3/22 8:59	Friday Sept 23 overnight	Monday Oct 3 morning	West Cape
CABLE 1	9/24/22 2:39	10/7/22 12:06	Friday Sept 23 overnight	Friday Oct 7 afternoon	No additional substations
Y-101	9/24/22 2:39	10/7/22 12:06	Friday Sept 23 overnight	Friday Oct 7 afternoon	No additional substations





Transmission Restoration Timeline					
Line	Time Off	Time On	Time Period Off	Time Period On	Substations On
CABLE 2	9/24/22 3:10	10/7/22 12:50	Friday Sept 23 overnight	Friday Oct 7 afternoon	No additional substations
Y-103	9/24/22 3:10	10/7/22 12:50	Friday Sept 23 overnight	Friday Oct 7 afternoon	No additional substations
T-1 (BG to RT)	9/24/22 1:07	10/8/22 19:36	Friday Sept 23 overnight	Saturday Oct 8 evening	No additional substations, T1 loop restored
Y-111	9/24/22 3:20	10/9/22 7:52	Friday Sept 23 overnight	Sunday Oct 9 morning	No additional substations, redundant feed to West Royalty restored
T-8 (SO to CH)	9/24/22 12:25	10/10/22 10:35	Friday Sept 23 overnight	Monday Oct 10 evening	No additional substations, all of T8 in service
Y-104 (WP to CH)	9/24/22 12:40	10/12/22 12:23	Friday Sept 23 overnight	Wednesday Oct 12 afternoon	No additional substations, Y104 loop restored
Y-108	9/23/22 23:59	10/13/22 11:12	Friday Sept 23 overnight	Thursday Oct 13 morning	Hermanville
Y-112	9/23/22 23:59	10/13/22 11:12	Friday Sept 23	Thursday Oct 13 morning	East Kings





Timeline of Dist	tribution C	Dutage	Events
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Distribution Restoration Timeline					
District	Substation	Feeder	Time on		
West	Albany	Industrial Park	Remained on		
West	Albany	Bedeque	9/24/22 16:22		
West	O'Leary	Howlan Road	9/25/22 7:08		
West	Albany	Augustine Cove	9/25/22 13:03		
West	St Eleanors	Slemon Park	9/25/22 14:43		
West	O'Leary	Elmsdale	9/25/22 15:36		
Central	Charlottetown Plant	Riverside	9/25/22 15:52		
Central	Charlottetown Plant	Confederation	9/25/22 15:54		
Central	Charlottetown Plant	Prince St	9/25/22 16:00		
Central	Charlottetown Plant	King	9/25/22 17:55		
Central	Airport	Aviation Park	9/25/22 18:14		
Central	UPEI	UPEI	9/25/22 18:40		
West	Alberton	Tignish	9/25/22 18:53		
West	O'Leary	O'Leary	9/25/22 18:59		
Central	Airport	Covehead	9/25/22 20:31		
Central	Airport	Brackley	9/25/22 20:32		
West	Wellington	Wellington West	9/25/22 20:40		
West	St Eleanors	Sherbrooke	9/25/22 20:58		
East	Victoria Cross	Montague	9/25/22 21:45		
East	Victoria Cross	Valleyfield	9/25/22 21:45		
East	Victoria Cross	Commercial Road	9/26/22 12:55		
Central	Crossroads	Bunbury	9/26/22 7:03		
West	Alberton	Alberton	9/26/22 8:41		
West	Albany	Crapaud	9/26/22 9:26		
Central	Charlottetown Plant	Euston	9/26/22 10:41		
Central	UPEI	Charlottetown Mall	9/26/22 11:32		
West	St Eleanors	Miscouche	9/26/22 11:44		
East	West St Peters	Wymans	9/26/22 12:43		
Central	Scotchfort	Bedford	9/26/22 13:52		
Central	West Royalty	University	9/26/22 14:14		
Central	Mt Albion	Hazelbrook	9/26/22 14:32		
Central	West Royalty	Mt Edward	9/26/22 16:30		
Central	Crossroads	Pownal-Tea Hill	9/26/22 16:42		
East	Dover	Wood Islands	9/26/22 19:51		
East	Dover	Greek River	9/26/22 19:51		
West	Kensington	New Annan	9/26/22 22:09		



Distribution Restoration Timeline					
District	Substation	Feeder	Time On		
West	Kensington	Norboro	9/26/22 22:12		
West	Kensington	Irishtown	9/26/22 22:14		
Central	Clyde River	Cornwall	9/26/22 22:20		
East	Souris	Souris Town	9/27/22 7:05		
East	Souris	Food Park	9/27/22 7:11		
Central	Hunter River	Rennies Road	9/27/22 14:17		
Central	Mt Albion	Vernon River	9/27/22 14:52		
West	Wellington	St Nicholas	9/27/22 15:02		
East	Georgetown	Georgetown	9/27/22 16:43		
East	West St Peters	Morell	9/27/22 17:17		
West	Rattenbury	Summerfield	9/27/22 19:09		
Central	West Royalty	Queen's Arms	9/27/22 19:43		
Central	West Royalty	Milton	9/27/22 19:55		
East	Dingwell Mills	Souris	9/27/22 21:29		
Central	Clyde River	Rocky Point	9/27/22 21:56		
East	Victoria Cross	Eldon-Belfast	9/27/22 22:13		
Central	West Royalty	Inkerman	9/28/22 12:54		
Central	West Royalty	Business Park	9/28/22 13:48		
East	Dingwell Mills	St Peters	9/28/22 16:47		
Central	Bagnall Road	Cavendish	9/28/22 19:25		
West	Rattenbury	Stanley Bridge	9/28/22 19:33		
East	Dingwell Mills	Dundas	9/28/22 20:57		
Central	UPEI	Pine Dr	9/28/22 21:14		
Central	Bagnall Road	Bayview	9/28/22 21:20		
Central	West Royalty	Bonshaw	9/28/22 21:33		
East	Souris	East Point	9/28/22 23:40		
East	West St Peters	St Andrews	9/29/22 10:16		
Central	Scotchfort	Mount Stewart	9/29/22 13:51		
Central	Bagnall Road	Cymbria	9/29/22 14:01		
Central	Clyde River	Strathgartney	9/29/22 14:48		
Central	Hunter River	Malpeque	9/30/22 9:24		
Central	Mt Albion	Alexandra	9/30/22 15:03		
East	Georgetown	Poole's Corner	9/30/22 17:48		
Central	UPEI	Belvedere	10/2/22 20:16		





Images from Hurricane Fiona















