

May 1, 2018

**VIA HAND DELIVERY & ELECTRONIC MAIL**

Luly E. Massaro, Commission Clerk  
Rhode Island Public Utilities Commission  
89 Jefferson Boulevard  
Warwick, RI 02888

**RE: Docket 3628 - 2017 Annual Service Quality Report, Electric Operations**

Dear Ms. Massaro:

I have enclosed 10 copies of National Grid's<sup>1</sup> performance results for calendar year 2017 under its 2016 Amended Electric Service Quality Plan (Plan), as established in Docket 3628. Based on actual performance results, the Company does not have any penalties for calendar year 2017.

The Company's Plan is described in Attachment 1 of the Company's Settlement Agreement with the Rhode Island Division of Public Utilities and Carriers dated January 4, 2016, filed with the Rhode Island Public Utilities Commission (PUC) on January 8, 2016, and approved by the PUC in Docket 3628. The Plan provides for penalties and offsets relating to performance standards in the areas of reliability and customer service. The service quality standards under the Plan became effective as of January 1, 2016.

This report is organized as follows:

- Section 1: This section provides a summary of each performance standard in the areas of reliability and customer service. Specifically, Section 1 includes descriptions of each of the performance standards, the targeted performance levels for 2017 with their related dollar values, and the actual 2017 results with the applicable annual penalty or offset.
- Section 2: This section provides a summary calculation of the Company's annual penalty or offset for each of the performance standards for 2017. As shown in Column (i), there is no annual penalty for calendar year 2017.
- Section 3: The Plan requires the Company to report on additional aspects of service quality, including: (1) worst performing circuits; (2) trouble, non-outage calls received; (3) annual meter reading performance; and (4) information on Major Event Days. Section 3 summarizes the results of these reporting requirements.

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<sup>1</sup> The Narragansett Electric Company d/b/a National Grid (the Company or National Grid).

Luly E. Massaro, Commission Clerk  
Docket 3628 - 2017 Service Quality Report  
May 1, 2018  
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Thank you for your attention to this filing. If you have any questions concerning this report, please call me at 401-784-7288.

Very truly yours,



Jennifer Brooks Hutchinson

Enclosures

cc: Docket 3628 Service List  
Leo Wold, Esq.  
John Bell, Division

The Narragansett Electric Company  
d/b/a National Grid

# **2017 Service Quality Report**

May 1, 2018

Submitted to:

Rhode Island Public Utilities Commission  
RIPUC Docket No. 3628

Submitted by:

**nationalgrid**

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**RELIABILITY PERFORMANCE STANDARDS**

**Interruption Frequency and Duration**

Under the Service Quality Plan, an interruption is defined as the loss of electric service to more than one customer for more than one minute. The interruption duration is defined as the period of time, measured in minutes, from the initial notification of the interruption event to the time when service has been restored to the customers. Interruptions are tracked using System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI). SAIFI is calculated by dividing the total number of customers interrupted by the total number of customers served. SAIFI measures the number of times per year the average customer experienced an interruption. This is an average, so in any given year some customers will experience no interruptions, and some will experience several interruptions. SAIDI measures the length of interruption time that the average customer experienced for the year. It is calculated by dividing the total customer minutes of interruption by the total number of customers served.

Certain events are defined as Major Event Days and are excluded from the calculation of reliability performance standards for the purpose of penalty and offset assessment. There were four Major Event Days that occurred during 2017. The Major Event Days are 02/09/2017, 10/29/2017-10/31/2017

<u>2017 Frequency (SAIFI) Standard</u>		<u>2017 Frequency (SAIFI) Results</u>	
<u>Frequency of Interruptions per Customer</u>	<u>(Penalty) Offset</u>	<u>Frequency of Interruptions per Customer</u>	<u>Annual (Penalty) Offset</u>
Greater than 1.18	(\$916,000)		
1.06-1.18	linear interpolation		
0.84-1.05	\$0		
0.75-0.83	linear interpolation	0.775	\$164,695
Less than 0.75	\$229,000		

<u>2017 Duration (SAIDI) Standard</u>		<u>2017 Duration (SAIDI) Results</u>	
<u>Duration of Interruptions (minutes)</u>	<u>(Penalty) Offset</u>	<u>Duration of Interruptions (minutes)</u>	<u>Annual (Penalty) Offset</u>
Greater than 89.9	(\$916,000)		
72.0-89.9	linear interpolation		
45.9-71.9	\$0	59.10	\$0
36.7-45.8	linear interpolation		
Less than 36.7	\$229,000		

## **CUSTOMER SERVICE PERFORMANCE STANDARDS**

### **Customer Contact Survey**

The customer contact survey results are based on responses from National Grid’s Rhode Island customers from a survey performed by an independent third-party consultant, Praxis Research Partners. Praxis surveys a random sample of customers who have contacted National Grid recently in order to determine their level of satisfaction with their most recent contact with the Company regarding any call reason. Overall survey results are based on a composite measure of two questions from National Grid’s internal contactor survey: (1) Overall, on a scale from 1 to 10, where 1 means “dissatisfied”, and 10 means “satisfied”, how satisfied are you with the services provided by National Grid? (2) Overall on a scale from 1 to 10, where 1 means “dissatisfied”, and 10 means “satisfied”, how satisfied are you with the quality of service provided by the telephone representative? The individual score for each question is the percentage of respondents who provided a rating of “8”, “9”, or “10” on a 10-point scale, where 1 means “dissatisfied”, and 10 means “satisfied”. The “percent satisfied” composite score is a simple arithmetic average of the satisfaction score from each question.

2017 Customer Contact Standard

<u>Percent Satisfied</u>	<u>(Penalty) Offset</u>
Less than 74.4%	(\$184,000)
74.4%-78.7%	linear interpolation
78.8%-87.6%	\$0
87.7%-92.0%	linear interpolation
More than 92.0%	\$46,000

2017 Customer Contact Results

<u>Percent Satisfied</u>	<u>Annual (Penalty) Offset</u>
83.7%	\$0

**Telephone Calls Answered Within 20 Seconds**

The calls answered performance standard reflects the annual average of calls answered within 20 seconds. “Calls answered” include calls answered by a customer service representative (CSR) and calls completed within the Voice Response Unit (VRU). The time to answer is measured once the customer makes a selection to either speak with a CSR or use the VRU.

2017 Calls Answered Standard

<u>% Answered Within 20 Seconds</u>	<u>(Penalty) Offset</u>
Less than 53.5%	(\$184,000)
53.5%-65.7%	linear interpolation
65.8%-90.4%	\$0
90.5%-100.0%	linear interpolation, to a maximum of \$46,000

2017 Calls Answered Results

<u>% Answered Within 20 Seconds</u>	<u>Annual (Penalty) Offset</u>
79.84%	\$0

**National Grid**  
2017 Results of Service Quality Plan  
Calculation of Penalty/Offset

Performance Standard	Potential Penalty (a)	Potential Offset (b)	2017 Results (c)	Maximum Penalty (d)	One Std Dev. Worse Than Mean (e)	Mean (f)	One Std Dev. Better Than Mean (g)	Maximum Offset (h)	Annual (Penalty)/Offset (i)
Reliability - Frequency	\$ 916,000	\$ 229,000	0.775	1.18	1.05	0.94	0.84	0.75	\$164,695
Reliability - Duration	\$ 916,000	\$ 229,000	59.1	89.9	71.9	57.5	45.9	36.7	\$0
Customer Service - Customer Contact Survey	\$ 184,000	\$ 46,000	83.7%	74.4%	78.8%	83.2%	87.6%	92.0%	\$0
Customer Service - Telephone Calls Answered	\$ 184,000	\$ 46,000	79.84%	53.5%	65.8%	78.1%	90.4%	100.0%	\$0
Total Penalty/Offset	\$ 2,200,000	\$ 550,000							\$164,695

**Notes:**

Columns (a), (b), and (d)-(h) are per the Amended Electric Service Quality Plan, RIPUC Docket No. 3628.

Column (c) represents the actual 2017 annual results for the performance standards listed in the first column.

Column (i) is calculated as follows:

- For Reliability Standards:

If Column (c) is between Column (g) and Column (e): \$0

If Column (c) is between Column (h) and Column (g):  $[\text{Column (g) - Column (c)}] \div [\text{Column (g) - Column (h)}] \times \text{Column (b)}$

If Column (c) is between Column (e) and Column (d):  $[\text{Column (c) - Column (e)}] \div [\text{Column (d) - Column (e)}] \times \text{Column (a)}$

If Column (c) is greater than Column (d): 100% of Column (a)

If Column (c) is less than Column (h): 100% of Column (b)

- For Customer Service Standards:

If Column (c) is between Column (e) and Column (g): \$0

If Column (c) is between Column (g) and Column (h):  $[\text{Column (c) - Column (g)}] \div [\text{Column (e) - Column (d)}] \times \text{Column (b)}$

If Column (c) is between Column (d) and Column (e):  $[\text{Column (e) - Column (c)}] \div [\text{Column (e) - Column (d)}] \times \text{Column (a)}$

If Column (c) is less than Column (d): 100% of Column (a)

If Column (c) is greater than Column (h): 100% of Column (b)

### **ADDITIONAL REPORTING CRITERIA**

Under the Company's Service Quality Plan, the following additional reporting criteria are required to be filed with the PUC.

1. **Reporting Requirement:** Each quarter, the Company will file a report of 5% of all circuits designated as worst performing on the basis of customer frequency.

Included in the report will be:

1. The circuit id and location.
2. The number of customers served.
3. The towns served.
4. The number of events.
5. The average duration.
6. The total customer minutes.
7. A discussion of the cause or causes of events.
8. A discussion of the action plan for improvements including timing.

**Results:**

The Company filed its first quarter 2017 feeder ranking results on June 30, 2017, the second quarter results on September 20, 2017, third quarter and fourth quarter results on April 12, 2018.

2. **Reporting Requirement:** The Company will track and report monthly the number of calls it receives in the category of Trouble, Non-Outage. This includes inquiries about dim lights, low voltage, half-power, flickering lights, reduced TV picture size, high voltage, frequently burned-out bulbs, motor running problems, damaged appliances and equipment, computer operation problems, and other non-interruptions related inquiries.

**Results:** The Company filed the required Trouble, Non-Outage reports during 2017, with the final report for the 13 months ended December 2017 filed on April 20, 2018.

3. **Reporting Requirement:** The Company will report its annual meter reading performance as an average of monthly percentage of meters read.

**Results:** During 2017, the Company’s annual meter reading performance (as an average of monthly percentage of meters read) was 97.43%, compared to 98.48% during 2016, and 98.60% during 2015. The following table details the percentage of meters read per month for 2017, 2016, and 2015.

**The Narragansett Electric Company  
Monthly Percentage of Meters Read**

	2017	2016	2015
January	98.50%	98.57%	98.40%
February	98.34%	98.63%	98.20%
March	98.32%	98.68%	98.50%
April	98.60%	98.74%	98.90%
May	98.92%	98.56%	98.90%
June	98.94%	98.43%	98.90%
July	98.96%	98.27%	98.80%
August	98.96%	98.41%	98.60%
September	98.95%	98.36%	98.70%
October	98.92%	98.38%	98.30%
November	82.62%	98.29%	98.60%
December	98.94%	98.39%	98.60%
YTD Average	97.43%	98.48%	98.60%

4. **Reporting Requirement:** For each event defined as a Major Event Day, the Company will prepare a report, which will be filed annually as part of the annual SQ filing, detailing the following information:
1. Start date/Time of event.
  2. Number/Location of crews on duty (both internal and external crews).
  3. Number of crews assigned to restoration efforts.
  4. The first instance of mutual aid coordination.
  5. First contact with material suppliers.
  6. Inventory levels: pre-event/daily/post-event.
  7. Date/Time of request for external crews.
  8. Date/Time of external crew assignment.
  9. # of customers out of service by hour.
  10. Impacted area.
  11. Cause.
  12. Weather impact on restoration.
  13. Analysis of protective device operation.
  14. Summary of customers impacted.

**Results:**

**Major Event Days:**

IEEE Std. 1366-2003 identifies reliability performance during both day-to-day operations and Major Event Days. Major Event Days represent those few days during the year on which the energy delivery system experienced stresses beyond that normally expected, such as severe weather. A day is considered a Major Event Day if the daily SAIDI exceeds a threshold value, calculated using the IEEE methodology. For 2017 the  $T_{MED}$  value was 4.58 minutes of SAIDI (using IEEE Std. 1366-2003 methodology). There were four days during two separate storms that exceeded this threshold in 2017. These two storms, which occurred on February 9, 2017 and October 29 to October 31, 2017 are described below.

**February Winter Storm Niko**

1. Start Date and Time of event:

The storm began in the late morning on Thursday, February 9, 2017 with scattered interruptions starting at approximately 10:00 a.m. and peaked around 2:00 p.m. The peak reached 20,183 customers interrupted.

2. Number/Location of crews on duty (both internal and external crews):

The Company had a contingent of internal Rhode Island distribution line crews working overnight on Thursday, February 9, 2017 and into the morning of Friday, February 10. Approximately 42 internal distribution line crews and 16 troubleshooters were available for restoration on February 9, and the Company secured a total of 44 external distribution line crews, 20 of which were pre-deployed to Rhode Island before the Storm commenced. Later in the event, all 44 external distribution line crews deployed to Rhode Island. The Company also pre-deployed 36 external tree crews to Rhode Island before the Storm commenced.

3. Number of crews assigned to restoration efforts:

At peak the Company had the following crews performing restoration activities throughout the impacted areas in the State.

Location	Crew Type	# Crews
Rhode Island	Internal crew	202 crews total
	External crew	94 crews total

The peak crew count includes transmission and distribution line, vegetation management, wire down, substation and underground personnel.

4. The first instance of mutual aid coordination:

The Company did not call for mutual aid coordination for this event

5. The first contact with material suppliers:

The first contact with material suppliers was February 8, 2017.

6. Inventory levels: pre-event/daily/post-event

Inventory levels and issues are summarized in the table below. Balances represent actual day-end totals. The balances do not include "no cost", precapitalized items, such as transformers; these items are not reported as inventory on the balance sheet.

The inventory positions indicate those inventories held in Rhode Island and those allocated to RI stored in National Grid' Central Warehouse located in Whitinsville, MA.

<u>Date</u>	<u>RI Inventory Locations</u>	<u>NEDC Total</u>	<u>RIELEC %</u>	<u>Allocated NEDC Inventory</u>	<u>Total Narragansett Electric Inventory</u>
2/9/2017	\$1,283,130.21	\$35,360,402.72	17.50%	\$6,187,666.81	\$7,470,797.02

7. Date/Time of request for external Crews:

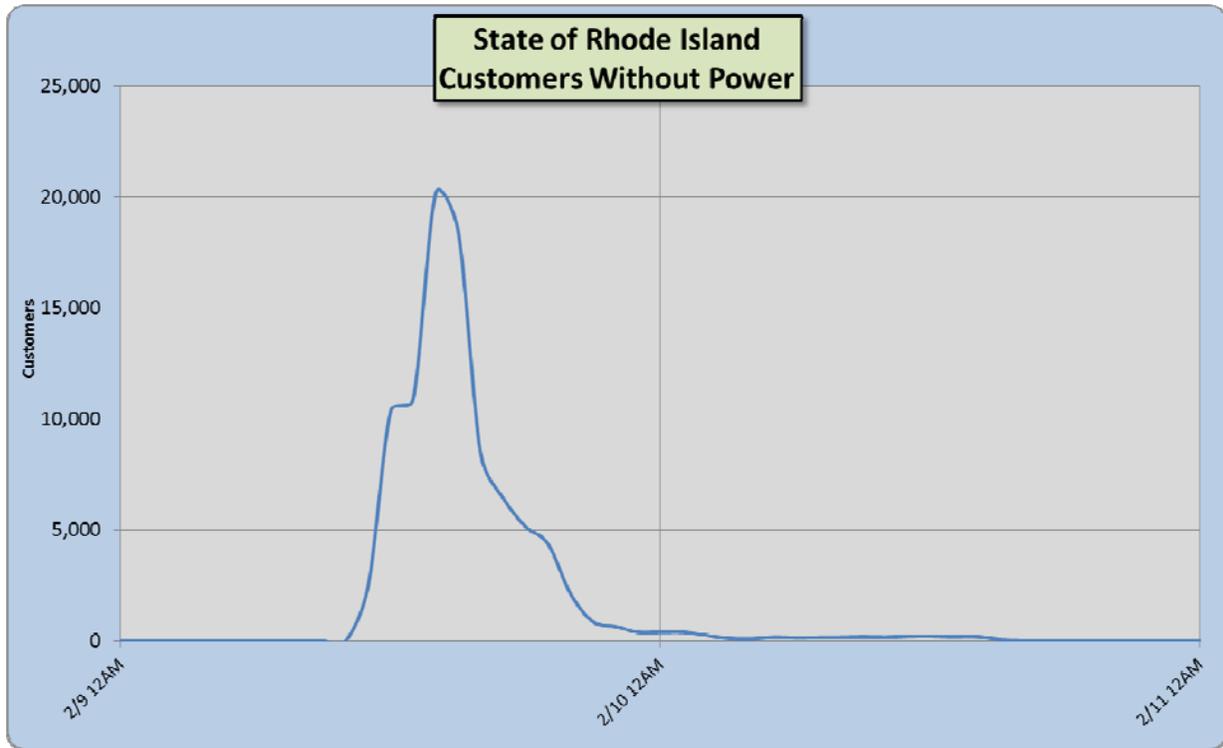
Given the potential magnitude of Winter Storm Niko, the Company secured supplemental contractor crews and strategically placed them throughout New England before February 9, 2018. This deployment plan allowed for the greatest degree of flexibility to move the resources to where they were needed, especially if the storm track or intensity changed. Pre-staging crews and equipment in key locations throughout the region enabled the Company to restore service to customers as quickly and safely as possible. The Company secured a total of 44 external distribution line crews, 20 of which were pre-deployed to Rhode Island before the Storm commenced. Later in the event, all 44 external distribution line crews deployed to Rhode Island.

8. Date/Time of external Crews assignment:

External distribution line crews were first assigned and began working on outages on February 9 at approximately 11:00 a.m.

9. Number of customers out graph (graphs following):

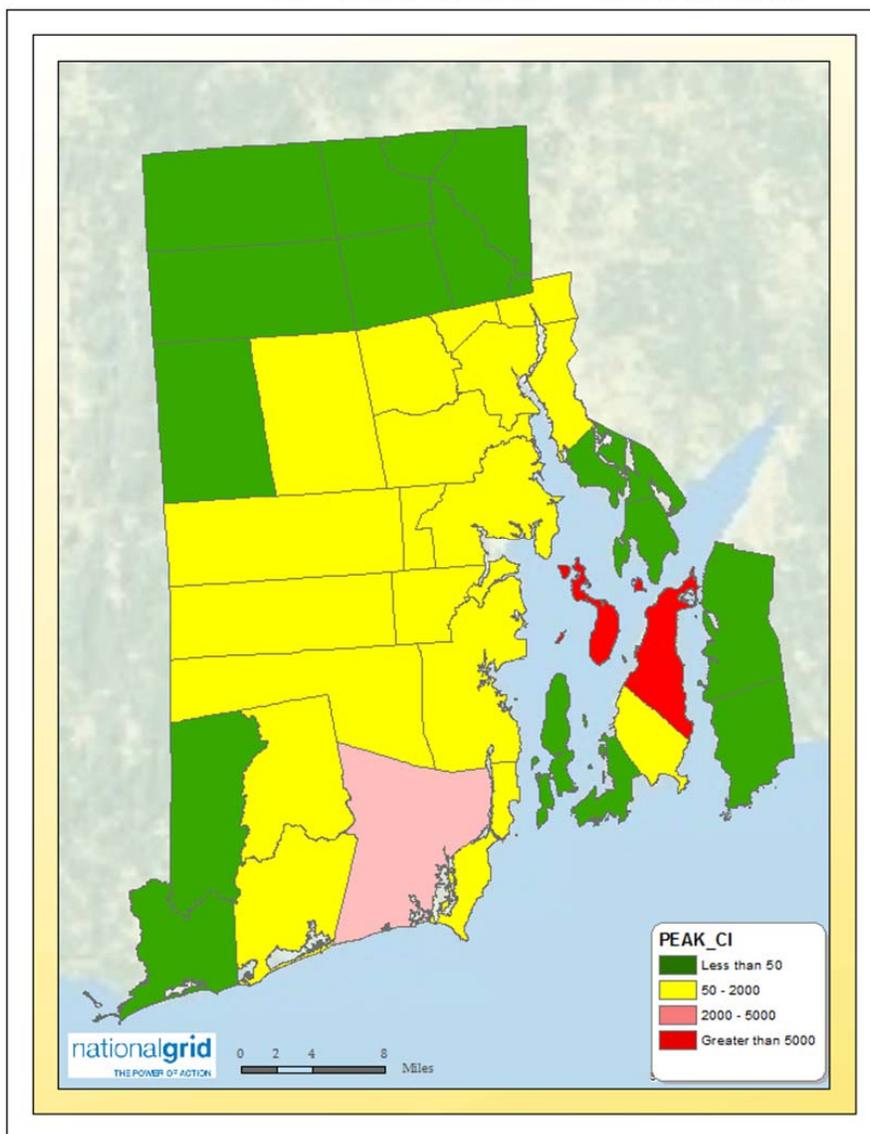
February 9, 2017



10. Impacted area:

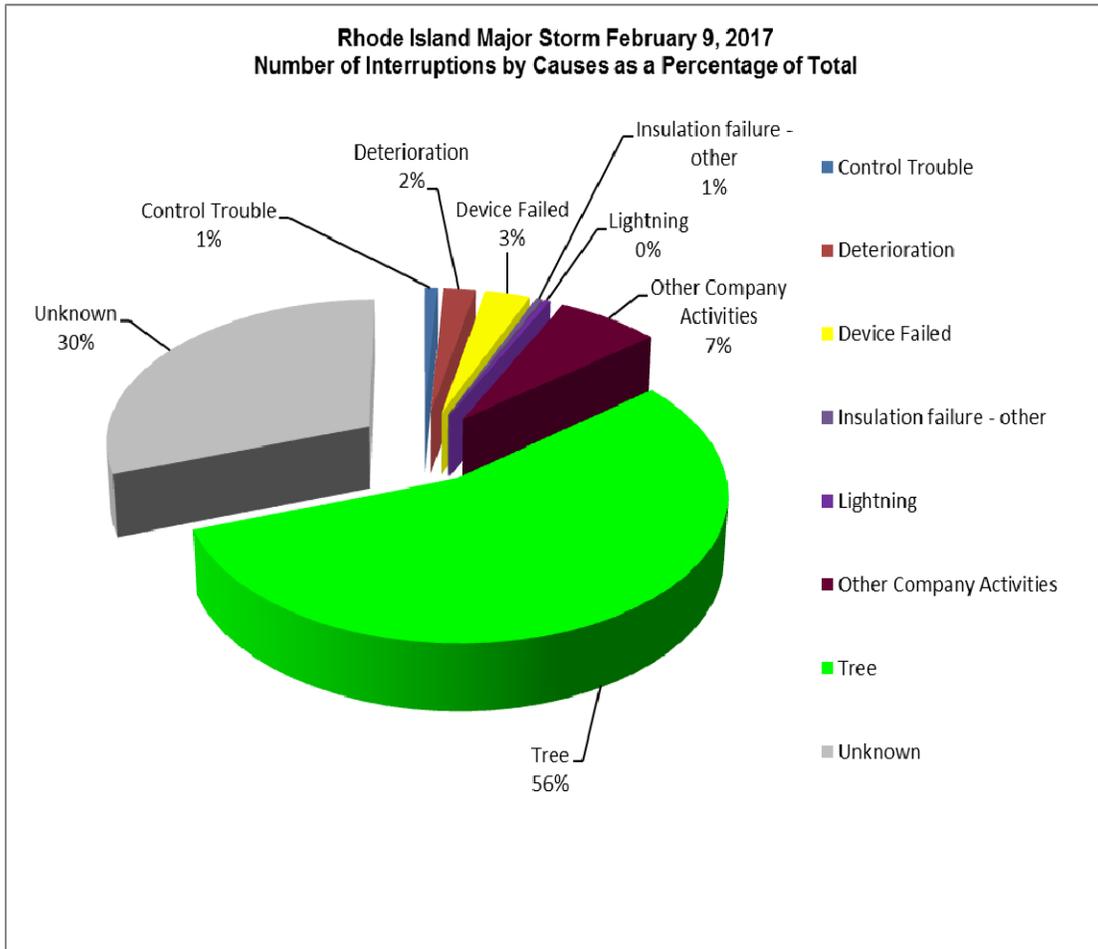
The following map shows the towns that were impacted by the storm and the customers interrupted during the storm.

**Customer Interrupted by Town at Company Peak  
RI 02/09/2017 - 02/10/2017**



11. Cause:

Winter storm Niko caused widespread destruction to Rhode Island's electric infrastructure resulting in interruptions to customers. The causes of interruptions are shown in the table below.



12. Weather impact on restoration:

Winter Storm Niko Storm brought heavy snow, blizzard conditions, and high winds to the area. Rhode Island was particularly affected, with approximately 12 inches of snow in the Providence area and upwards of 14 inches in northern parts of the state. A number of weather stations reported thunder-snow, as well as wind gusts of greater than 50 mph.

13. Analysis of Protective Device Operation:

National Grid maintains a wide array of protection and interrupting devices designed to separate faulted components from the electrical system while containing outages to the smallest area practicable. On the distribution system, those devices include fuse cutouts, reclosers, and circuit breakers of various designs. On the transmission system, interrupting devices include circuit

breakers, air-break switches, and circuit switchers. Protection relays are used to detect the faults and operate the interrupting device(s) to isolate a faulted component(s).

For the distribution system, design standards exist that indicate how protection devices are to be deployed and coordinated with other devices. Distribution engineers evaluate such devices under normal and fault conditions. Where recent performance may indicate a need for improvement, National Grid performs engineering studies and makes improvements. During a major storm like this event, outages in the distribution system may be far too extensive to assess the function and coordination of individual protection devices in detail, as the focus of storm response is on service restoration. A meaningful analysis would be difficult to perform unless there were specific indications of protection equipment mis-operation.

Protection standards, guides and practices also exist and are followed in the design of the National Grid's transmission system. Post event analysis of all interruptions in the National Grid Bulk Electric System (BES) is performed to confirm proper operation of protection systems. If an improper operation is identified, further analysis is conducted to identify the cause, propose and implement a solution. In addition, National Grid undertakes analysis of transmission and substation protection devices and coordination where there is evidence of a mis-operation. The Company had no mis-operations at the Transmission and substation level in Massachusetts during this event

#### 14. Summary of Customers Impacted:

##### **February 9, 2017**

During this storm, on February 9, 2017 Rhode Island experienced a total of 125 interruptions that affected 31,638 customers and 5,507,754 customer minutes of interruption. On average these interruptions resulted in 0.064 SAIFI, 11.20 minutes of SAIDI, and 174 minutes of interruption of customers affected. Since a SAIDI value of 11.20 minutes exceeded the threshold value of 4.58 minutes, February, 2017 qualified as a Major Event Day under the IEEE methodology.

## October Storm

### 1. Start Date and Time of event:

The storm began in the late evening on Sunday, October 29 at round 10:00 pm with approximately 126,000 customers interrupted in Rhode Island by 01:00 a.m. on October 30. The Storm impacted approximately 144,144 customers at its peak, which occurred on Monday, October 30 at approximately 9:20 a.m.

### 2. Number/Location of crews on duty (both internal and external crews):

Outages were dispatched out of the Providence Storm Room beginning on Sunday, October 29, 2017 at approximately 6:00 p.m. through the end of the event. The Company activated police and fire coordinators for the event. These employees reported to the Storm Room leads and were responsible for communicating the estimated times for restoration on all police and fire calls, with a standby condition noted. The Company also activated and coordinated Task Force teams, in accordance with the Emergency Response Plan, consisting of company and municipal personnel who are utilized to clear roads during emergencies. On Monday, October 30 at 7:00 a.m., the Company also mobilized the Providence wires down room, with approximately 131 crews available (including wires-down appraisers and cut and clear restoration crews) and 23 office-based support personnel.

### 3. Number of crews assigned to restoration efforts:

At peak the Company had the following crews performing restoration activities throughout the impacted areas in the State.

<u>Location</u>	<u>Crew Type</u>	<u># Crews</u>
Rhode Island	Internal crew	455 crews total
	External crew	362 crews total

The peak crew count includes transmission and distribution line, vegetation management, wire down, substation and underground personnel.

### 4. The first instance of mutual aid coordination:

At approximately 1:00 a.m., on Monday, October 30, the State Incident Commander elevated the response to a National Grid Type 3 event as he monitored the impacts of the Storm, by 4:00 a.m., he initiated a mutual assistance request for a total of 500 line crews and 210 forestry crews for all of National Grid's New England response to the Storm.

5. The first contact with material suppliers:

The first contact with material suppliers was October 27, 2017.

6. Inventory levels: pre-event/daily/post-event

Inventory levels and issues are summarized in the table below. Balances represent actual day-end totals. The balances do not include "no cost", precapitalized items, such as transformers; these items are not reported as inventory on the balance sheet.

The inventory positions indicate those inventories held in Rhode Island and those allocated to RI stored in National Grid' Central Warehouse located in Whitinsville, MA.

<u>Date</u>	<u>RI Inventory Locations</u>	<u>NEDC Total</u>	<u>RIELEC %</u>	<u>Allocated NEDC Inventory</u>	<u>Total Narragansett Electric Inventory</u>
10/29/2017	\$1,995,326.40	\$33,415,735.12	16.94%	\$5,659,891.16	\$7,655,217.56
10/30/2017	\$1,995,326.40	\$33,634,997.02	16.94%	\$5,697,029.31	\$7,692,355.71
10/31/2017	\$1,995,326.40	\$33,151,740.95	16.94%	\$5,615,176.35	\$7,610,502.75

7. Date/Time of request for external Crews:

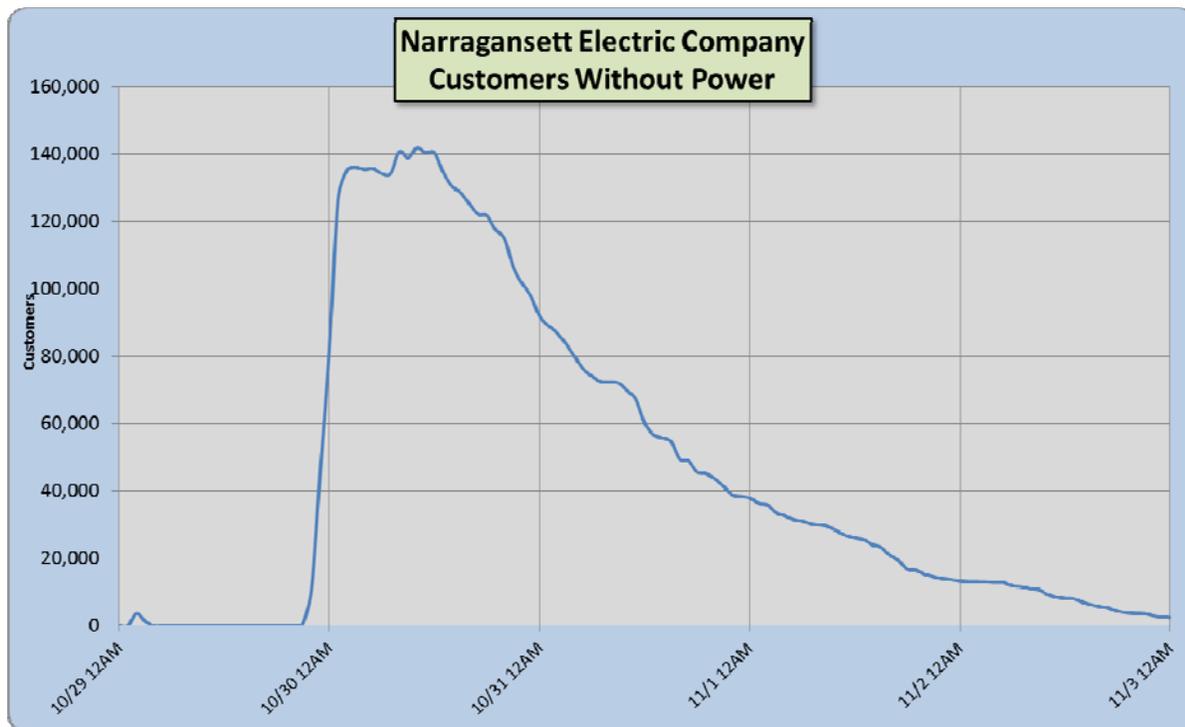
Given the potential magnitude of the Storm and forecast of hazardous winds and heavy rain, the Company secured crews in advance from its contractors of choice and other outside contractors to support restoration efforts for all of New England as part of its regional preparation for the Storm. The Company planned for contractors of choice crews and external contractor crews to be on property at 6:00 a.m. the next day, October 30, to assist with restoration.

8. Date/Time of external Crews assignment:

External distribution line crews were assigned and began working 6:00 am on October 30, 2017.

9. Number of customers out graph (graphs following):

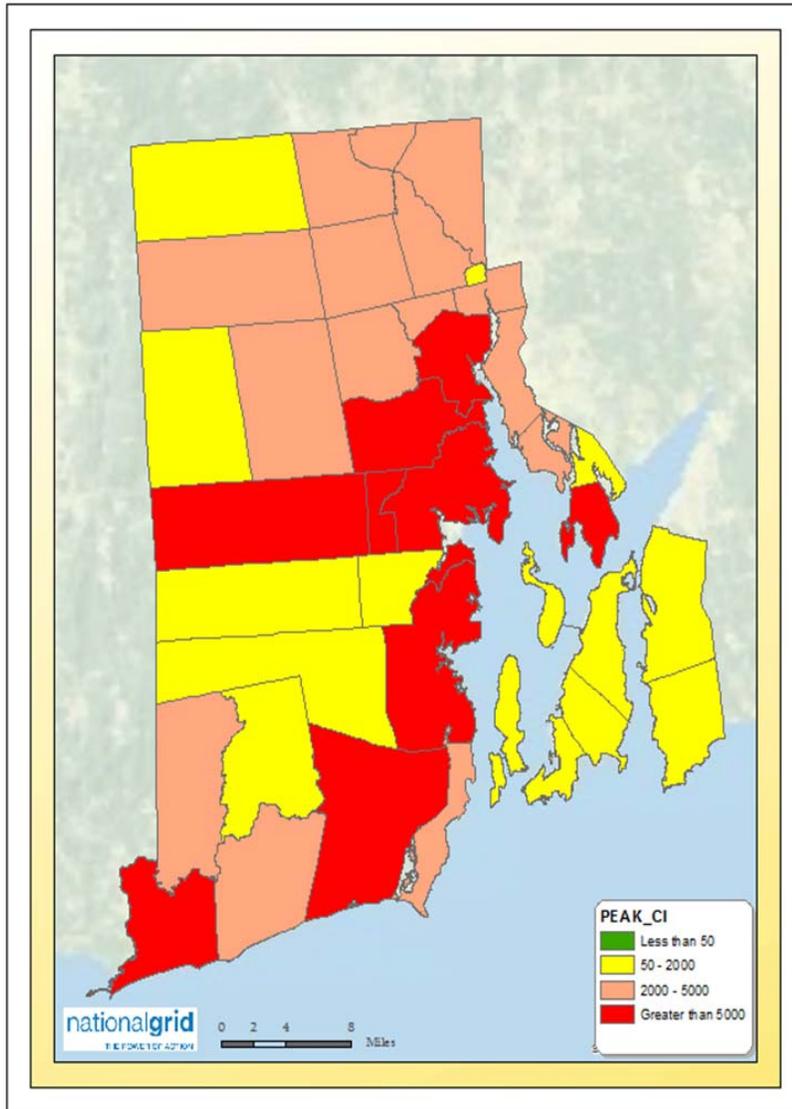
**October 29, 2017 – November 3, 2017**



10. Impacted area:

The following map shows the towns that were impacted by the storm and the customers interrupted during the storm.

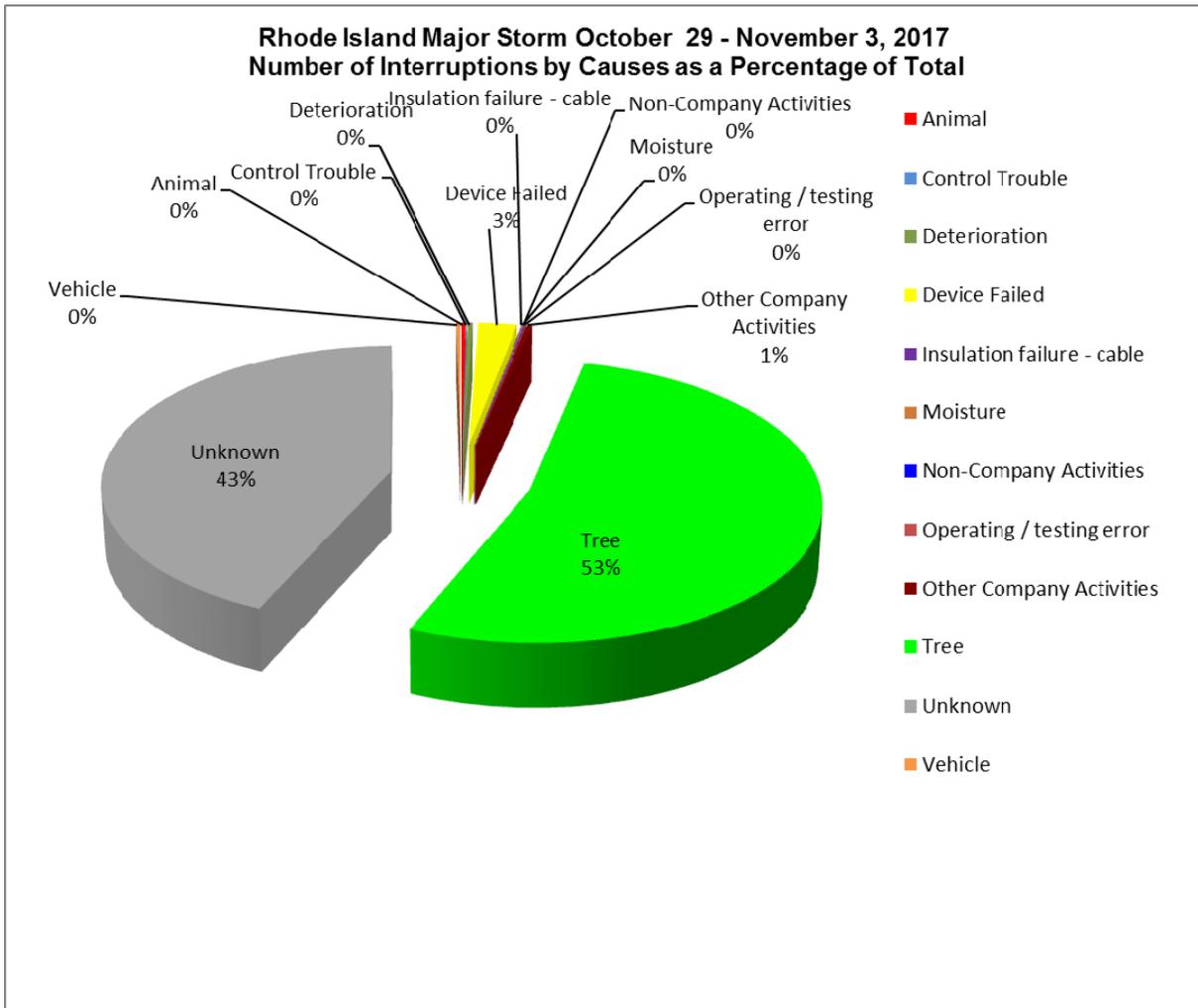
**Customer Interrupted by Town at Company Peak**  
**RI 10/29/2017 - 11/4/2017**



nationalgrid

11. Cause:

October storm caused widespread destruction to Rhode Island’s electric infrastructure resulting in interruptions to customers. The causes of interruptions are shown in the table below.



12. Weather impact on restoration:

Strong, hazardous wind gusts affected the majority of the Northeast during the night on Sunday, October 29, 2017 through Monday, October 30. The strongest wind gusts recorded occurred between 8:00 p.m. October 29 and 5:00 a.m. October 30, with gusts of 55 to 70 miles per hour (mph) experienced along the Eastern Atlantic Seaboard from Long Island,

New York and coastal Connecticut and up through coastal Maine, including in Rhode Island. The rest of the Northeast experienced wind gusts of 35 to 50 mph. Ultimately, by the morning of Monday, October 30, parts of the Rhode Island service territory experienced actual wind speeds over 70mph, which would be closer to a EEI Type 5 wind speed rating ( $\geq 70$  mph wind speed /  $\geq 75$ mph wind gusts). The forecasts had offered no percent chance of this possibility. A second period of wind gusts continued throughout the day on Monday, October 30, making this a prolonged hazardous wind event that downed trees and branches and caused numerous power outages.

### 13. Analysis of Protective Device Operation:

National Grid maintains a wide array of protection and interrupting devices designed to separate faulted components from the electrical system while containing outages to the smallest area practicable. On the distribution system, those devices include fuse cutouts, reclosers, and circuit breakers of various designs. On the transmission system, interrupting devices include circuit breakers, air-break switches, and circuit switchers. Protection relays are used to detect the faults and operate the interrupting device(s) to isolate a faulted component(s).

For the distribution system, design standards exist that indicate how protection devices are to be deployed and coordinated with other devices. Distribution engineers evaluate such devices under normal and fault conditions. Where recent performance may indicate a need for improvement, National Grid performs engineering studies and makes improvements. During a major storm like this event, outages in the distribution system may be far too extensive to assess the function and coordination of individual protection devices in detail, as the focus of storm response is on service restoration. A meaningful analysis would be difficult to perform unless there were specific indications of protection equipment mis-operation.

Protection standards, guides and practices also exist and are followed in the design of the National Grid's transmission system. Post event analysis of all interruptions in the National Grid Bulk Electric System (BES) is performed to confirm proper operation of protection systems. If an improper operation is identified, further analysis is conducted to identify the cause, propose and implement a solution. In addition, National Grid undertakes analysis of transmission and substation protection devices and coordination where there is evidence of a mis-operation. The Company had no mis-operations at the Transmission and substation level in Massachusetts during this event.

14. Summary of Customers Impacted:

**October 29, 2017**

During this storm, on October 29, 2017 Rhode Island experienced a total of 243 interruptions that affected 91,074 customers and 190,881,310 customer minutes of interruption. On average these interruptions resulted in 0.19 SAIFI, 389.17 minutes of SAIDI, and 2,096 minutes of interruption of customers affected. Since a SAIDI value of 389.17 minutes exceeded the threshold value of 4.58 minutes, October 29, 2017 qualified as a Major Event Day under the IEEE methodology.

**October 30, 2017**

On October 30, 2017 restoration activity in Rhode Island associated with the storm continued. Customers experienced a total of 551 interruptions that affected 76,921 customers and 131,566,473 customer minutes of interruption. On average these interruptions resulted in 0.16 SAIFI, 268.24 minutes of SAIDI, and 1,710 minutes of interruption of customers affected. Since a SAIDI value of 268.24 minutes exceeded the threshold value of 4.58 minutes, October 30, 2017 qualified as a Major Event Day under the IEEE methodology.

**October 31, 2017**

On October 31, 2017 restoration activity in Rhode Island associated with the tropical Storm continued. Customers experienced a total of 432 interruptions that affected 2,316 customers and 2,849,256 customer minutes of interruption. On average these interruptions resulted in 0.004 SAIFI, 5.81 minutes of SAIDI, and 1,230 minutes of interruption of customers affected. Since a SAIDI value of 5.81 minutes exceeded the threshold value of 4.58 minutes, October 31, 2017 qualified as a Major Event Day under the IEEE methodology.

**November 1, 2, 3, 2017**

On November 1, 2017 restoration activity in Rhode Island associated with the storm continued. Customers experienced a total of 294 interruptions that affected 514 customers and 918,172 customer minutes of interruption. On average these interruptions resulted in 0.001 SAIFI, 1.87 minutes of SAIDI, and 1786 minutes of interruption of customers affected. As reported in Docket No. 2509 NEMO Report filed, restoration activity continued through November 3. However, Major Event Day exemptions were not requested after October 31, 2017.