

May 1, 2012

VIA HAND DELIVERY & ELECTRONIC MAIL

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

RE: Docket 3628 - 2011 Annual Service Quality Report, Electric Operations

Dear Ms. Massaro:

Enclosed are ten (10) copies of National Grid's¹ performance results for 2011 under its Service Quality Plan ("Plan") as established in the above-captioned docket. Based on actual performance results, the Company has calculated a net penalty of \$184,000 for calendar year 2011 related to the customer contact survey. There were no penalties related to reliability or to the other customer service category.

The Company's Plan is described in Attachment 1 to the Company's Agreement to Modify Performance Benchmarks ("Agreement") filed on March 14, 2007, and approved by the Commission 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, 2007.

This report is organized as follows:

- Section 1: Provides a summary of each performance standard in the areas of reliability and customer service. Section 1 contains descriptions of each of the performance standards, the targeted performance levels for 2011 with their related dollar values, and the actual 2011 results with the applicable annual penalty or offset.
- Section 2: Provides a summary calculation of the Company's annual penalty or offset for each of the performance standards for 2011. An annual net penalty for 2011 of \$184,000, is shown in Column (i) and is related to customer satisfaction survey rating.

¹ Submitted on behalf of The Narragansett Electric Company, d/b/a National Grid ("Company").

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- 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.

Thank you for your attention to this filing. If you have any questions concerning this report, please do not hesitate to call me at (401) 784-7667.

Very truly yours,



Thomas R. Teehan

Enclosures

cc: Docket 3628 Service List
Leo Wold, Esq.
Steve Scialabba, Division

The Narragansett Electric Company,
d/b/a National Grid

2011 Service Quality Report

May 1, 2012

Submitted to:
Rhode Island Public Utilities Commission
RIPUC Docket 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 ten days in 2011 that qualified as Major Event Days: January 12, June 9, August 28 –September 1, 2011, October 23, and October 29 – October 30, 2011.

2011 Frequency (SAIFI) Standard

<u>Frequency of Interruptions per Customer</u>	<u>(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
Less than 0.75	\$229,000

2011 Frequency (SAIFI) Results

<u>Frequency of Interruptions per Customer</u>	<u>Annual (Penalty) Offset</u>
0.86	\$0

2011 Duration (SAIDI) Standard

Duration of Interruptions (minutes)	(Penalty) Offset
Greater than 89.9	(\$916,000)
72.0-89.9	linear interpolation
45.9-71.9	\$0
36.7-45.8	linear interpolation
Less than 36.7	\$229,000

2011 Duration (SAIDI) Results

Duration of Interruptions (minutes)	Annual (Penalty) Offset
60.7	\$0

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 (Opinion Dynamics Corporation). ODC surveys samples of customers who have contacted the call center quarterly in order to determine their overall level of satisfaction with their contact. Eight types of transactions are included in the survey, and the overall results are weighted based on the number of these transactions actually performed at the call center during the calendar year. The percent satisfied represents respondents who gave a Top-2 rating on a seven-point scale, where 1 means extremely dissatisfied and 7 means extremely satisfied.

2011 Customer Contact Standard

Percent Satisfied	(Penalty) Offset
Less than 74.5%	(\$184,000)
74.5%-76.7%	linear interpolation
76.8%-81.4%	\$0
81.5%-83.7%	linear interpolation
Greater than 83.7%	\$46,000

2011 Customer Contact Results

Percent Satisfied	Annual (Penalty) Offset
72.6%	(\$184,000)

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.

2011 Calls Answered Standard

2011 Calls Answered Results

<u>% Answered Within 20 Seconds</u>	<u>(Penalty) Offset</u>	<u>% Answered Within 20 Seconds</u>	<u>Annual (Penalty) Offset</u>
Less than 53.5%	(\$184,000)		
53.5%-65.7%	linear interpolation		
65.8%-90.4%	\$0	83.0%	\$0
90.5%-100.0%	linear interpolation, to a maximum of \$46,000		

National Grid
2011 Results of Service Quality Plan
Calculation of Penalty/Offset

<u>Performance Standard</u>	<u>Potential Penalty (a)</u>	<u>Potential Offset (b)</u>	<u>2011 Results (c)</u>	<u>Maximum Penalty (d)</u>	<u>One Std Dev. Worse Than Mean (e)</u>	<u>Mean (f)</u>	<u>One Std Dev. Better Than Mean (g)</u>	<u>Maximum Offset (h)</u>	<u>Annual (Penalty)/ Offset (i)</u>
Reliability - Frequency	\$ 916,000	\$ 229,000	0.86	1.18	1.05	0.94	0.84	0.75	\$0
Reliability - Duration	\$ 916,000	\$ 229,000	60.7	89.9	71.9	57.5	45.9	36.7	\$0
Customer Service - Customer Contact Survey	\$ 184,000	\$ 46,000	72.6%	74.5%	76.8%	79.1%	81.4%	83.7%	(\$184,000)
Customer Service - Telephone Calls Answered	\$ 184,000	\$ 46,000	83.0%	53.5%	65.8%	78.1%	90.4%	100.0%	\$0
Total Penalty/Offset	\$ 2,200,000	\$ 550,000							(\$184,000)

Notes:

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

Column (c) represents the actual 2011 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):	$[\text{Column (g)} - \text{Column (c)}] \div [\text{Column (g)} - \text{Column (h)}] \times \text{Column (b)}$
If Column (c) is between Column (e) and Column (d):	$[\text{Column (c)} - \text{Column (e)}] \div [\text{Column (d)} - \text{Column (e)}] \times \text{Column (a)}$
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):	$[\text{Column (c)} - \text{Column (g)}] \div [\text{Column (e)} - \text{Column (d)}] \times \text{Column (b)}$
If Column (c) is between Column (d) and Column (e):	$[\text{Column (e)} - \text{Column (c)}] \div [\text{Column (e)} - \text{Column (d)}] \times \text{Column (a)}$
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 Commission.

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 2011 feeder ranking results on April 29, 2011, the second quarter results on July 19, 2011, the third quarter results on November 30, 2011, and the fourth quarter results on January 25, 2012.

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 on a monthly basis during 2011, with the final report filed on January 23, 2012.

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

Results: During 2011, the Company's annual meter reading performance (as an average of monthly percentage of meters read) was 97.4%, compared to 98.9% during 2010 and 98.7% during 2009. The following table details the percentage of meters read per month for 2011, 2010, and 2009.

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

	<u>2011</u>	<u>2010</u>	<u>2009</u>
January	97.4%	98.8%	98.8%
February	98.7%	98.9%	98.9%
March	99.0%	98.9%	98.8%
April	99.1%	98.8%	98.9%
May	99.2%	98.9%	98.8%
June	99.2%	99.0%	98.7%
July	99.1%	99.0%	98.7%
August	98.7%	99.0%	98.7%
September	82.0%	99.1%	98.4%
October	99.0%	99.0%	98.7%
November	98.9%	99.0%	98.8%
December	98.9%	98.6%	98.7%
YTD Average	97.4%	98.9%	98.7%

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 2011 the T_{MED} value was 4.43 minutes of SAIDI (using IEEE Std. 1366-2003 methodology). There were five storms over ten days that exceeded this threshold in 2011. These five storms, which occurred on January 12, 2011, June 9, 2011, August 28 –September 1, 2011, October 23, 2011 and October 29 – October 30, 2011 are described below.

January 12, 2011 Snowstorm

1. Start Date and Time of event:

This high wind and snow storm event in Rhode Island Started early Wednesday Morning January 14th, 2011 at approximately 4:00 a.m. EST.

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

Location	Crew Type	# Crews (x2 headcount)
Rhode Island	Internal Overhead Line	65 crews total
	Transmission line worker	5 crews total
	Internal Wire Down	65 crews total
	Contractor Tree	10 crews total

Note: The crews in Question 2 are the counts assigned on the January 12, 2011 on day shift.

3. Number of crews assigned to restoration efforts:

Location	Crew Type	# Crews (x2 headcount)
Rhode Island	Internal Overhead Line	131 crews total
	Transmission line worker	15 crews total
	Internal Wire Down	134 crews total
	Contractor Tree	77 crews total

Note: The crews in Question 3 are the total counts assigned during the storm restoration activities.

4. The first instance of mutual aid coordination:

Rhode Island was impacted by the snowstorm throughout the day on Wednesday. No mutual aid crews were required.

5. The first contact with material suppliers

Contact with material suppliers was not required during this storm event.

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; these items are not reported as inventory on the balance sheet, such as transformers.

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

Date	RI Inventory Locations	Allocated NEDC Inventory	Total Narrangansett Electric Inventory
01/11/2011	1,519,819.86	3,479,673.63	4,999,493.49
01/12/2011	1,519,819.86	3,453,705.53	4,973,525.39
01/13/2011	1,519,819.86	3,480,758.88	5,000,578.74

7. Date/Time of request for external Crews:

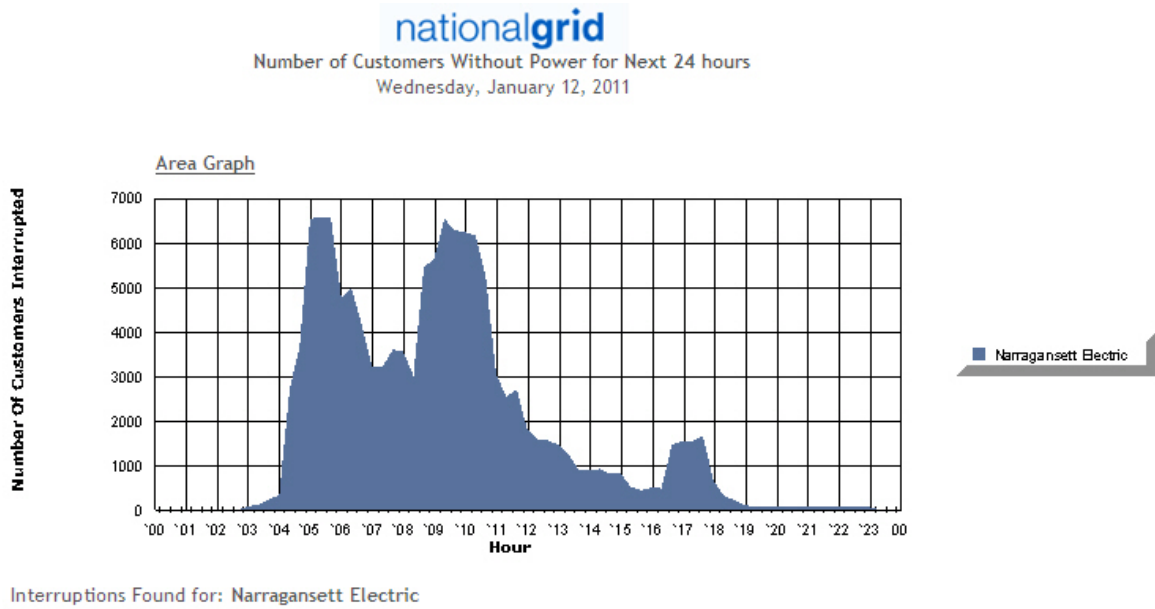
No external crew were required, and the restoration event was managed by internal and contracted crews

8. Date/Time of request for external Crews assignment

No external crew were required, and the restoration event was managed by internal and contracted crews

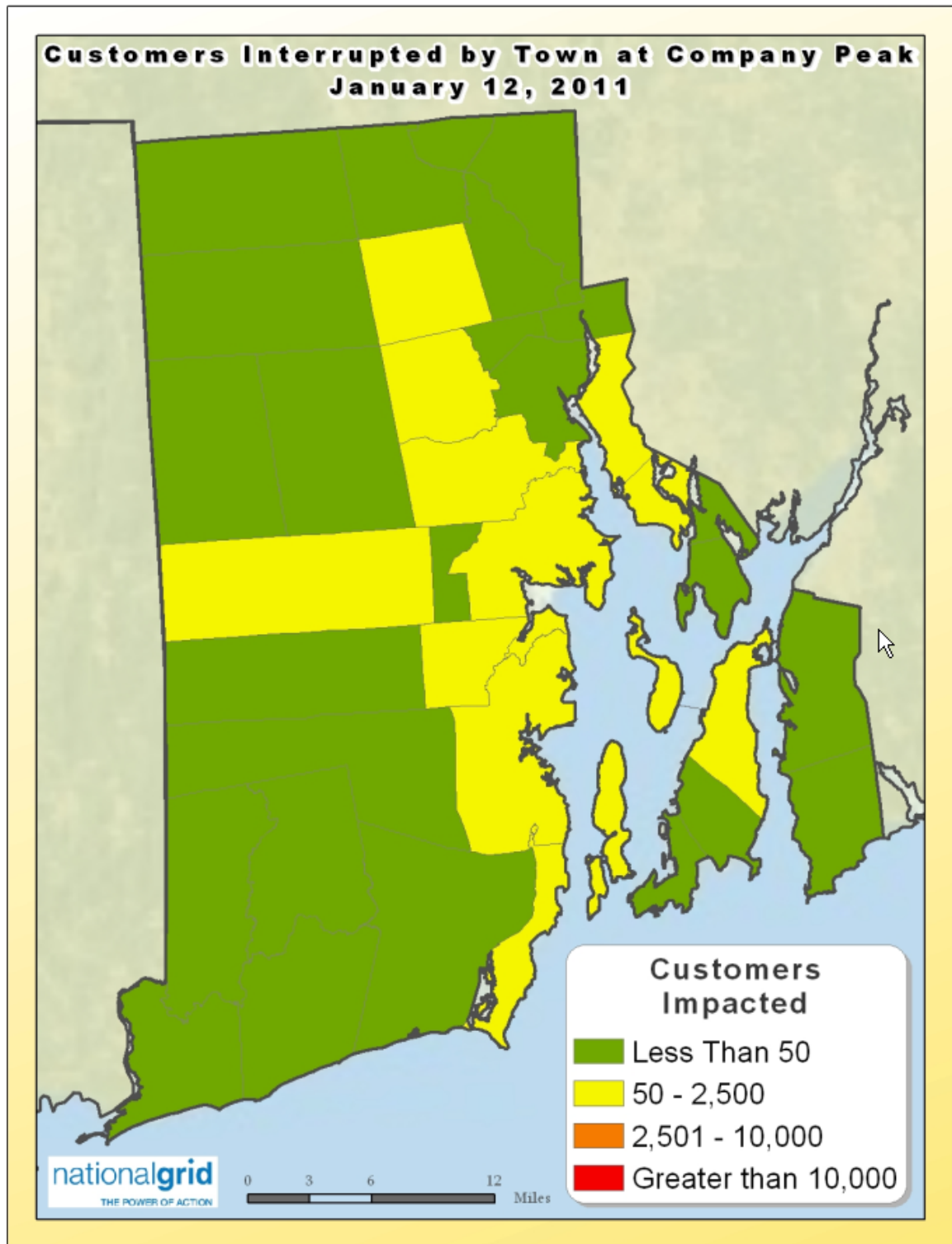
9. # of customers out by hour

January 12, 2011 (Wednesday)



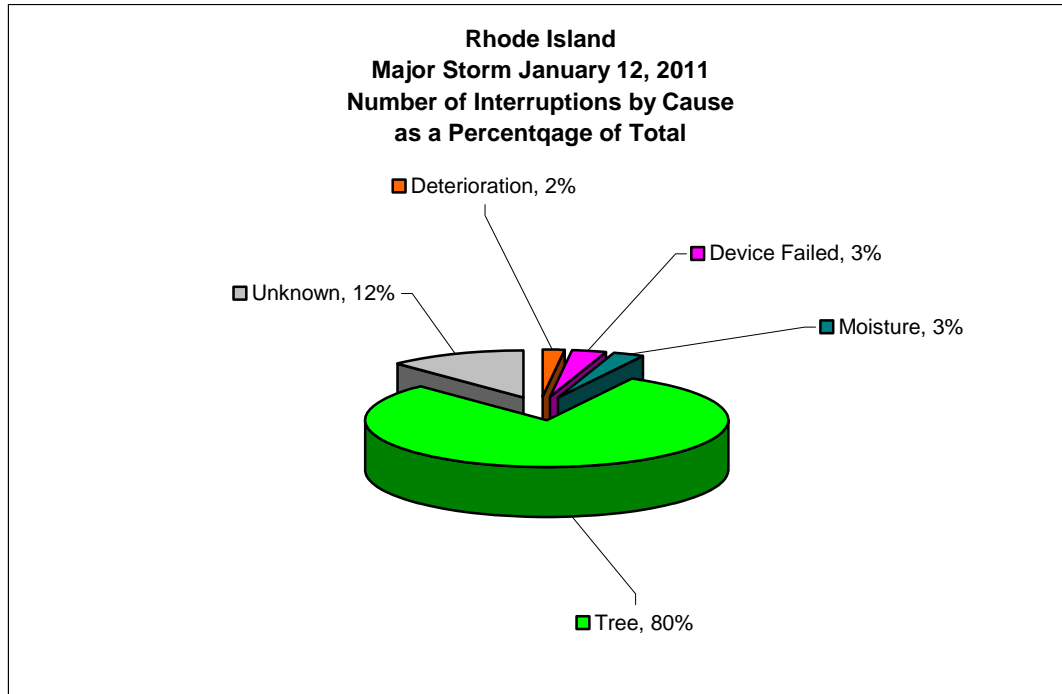
10. Impacted area

The following map shows the towns that were impacted by the storm and the number of customers interrupted by impacted area.



11. Cause

The following chart shows the breakdown of the number of interruptions by cause as a percentage of total interruptions during the storm.



12. Weather impact on restoration

High winds, bringing down trees and branches, and snowstorm resulted in multiple power outages in Rhode Island. Sustained winds of 23 mph with gusts up to 42 mph were reported in the area. These strong winds translated to widespread wind damage in the form of numerous downed trees, and broken limbs.

13. Analysis of Protective Device Operation:

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

For the distribution system, design standards exist that indicate how protection devices are to be deployed and coordinated with other devices. Distribution engineers continually monitor the performance of such devices under normal and fault conditions. Where

recent performance may indicate a need for improvement, National Grid performs engineering studies and makes improvements. In addition, National Grid undertakes an analysis of protection devices and coordination thereof following incidents of equipment mis-operation and circuit changes.

14. Summary of Customers Impacted:

During this storm, Rhode Island experienced a total of 158 interruptions that affected 16,904 customers for 2,270,282 customer minutes of interruption. On average these interruptions resulted in 0.04 SAIFI, and 4.71 minutes of SAIDI, and 134 minutes of interruption of customers affected. Since a SAIDI value of 4.71 minutes exceeded the threshold value of 4.43 minutes, January 12, 2011 qualified as a Major Event Day under the IEEE methodology.

June 9, 2011 rain and thunderstorm

1. Start Date and Time of event:

This rain and thunderstorm event in Rhode Island Started early Tuesday morning June 6, 2011 at approximately 2:00 a.m., and continued thru 9:00 pm .

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

Location	Crew Type	# Crews (x2 headcount)
Rhode Island	Internal Overhead Line	19 crews total
	Internal Wire Down	0 crews total
	Contracted Overhead Line	10 crews total
	Contractor Tree	21 crews total

Note: The crews in Question 2 are the counts assigned on the June 9, 2011 on day shift. Additional crews were assigned following June 9, 2011 as the company begun other restoration activities.

3. Number of crews assigned to restoration efforts:

Crew Type	# Crews (x2 headcount)
Internal Overhead Line	44.5 crews total
Internal Wire Down	20 crews total
Contracted Overhead Line	10 crews total
Contractor Tree	45 crews total

Note: Question 3 the majority of the customers were restored by local crews on duty within the 2 day period. The counts are total of crew during the two day restoration period.

4. The first instance of mutual aid coordination:

No mutual aid crews were required, the restoration event was managed by internal and contracted.

5. The first contact with material suppliers

One vendor contacted for a storm item and no other special contact with material suppliers was required during this storm event.

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; these items are not reported as inventory on the balance sheet, such as transformers.

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

Date	RI Inventory Locations	Allocated NEDC Inventory	Total Narrangansett Electric Inventory
06/08/2011	1,423,444.23	3,954,540.51	5,377,984.74
06/09/2011	1,423,444.23	3,954,219.08	5,377,663.31
06/10/2011	1,423,444.23	3,950,230.77	5,373,675.00

7. Date/Time of request for external Crews:

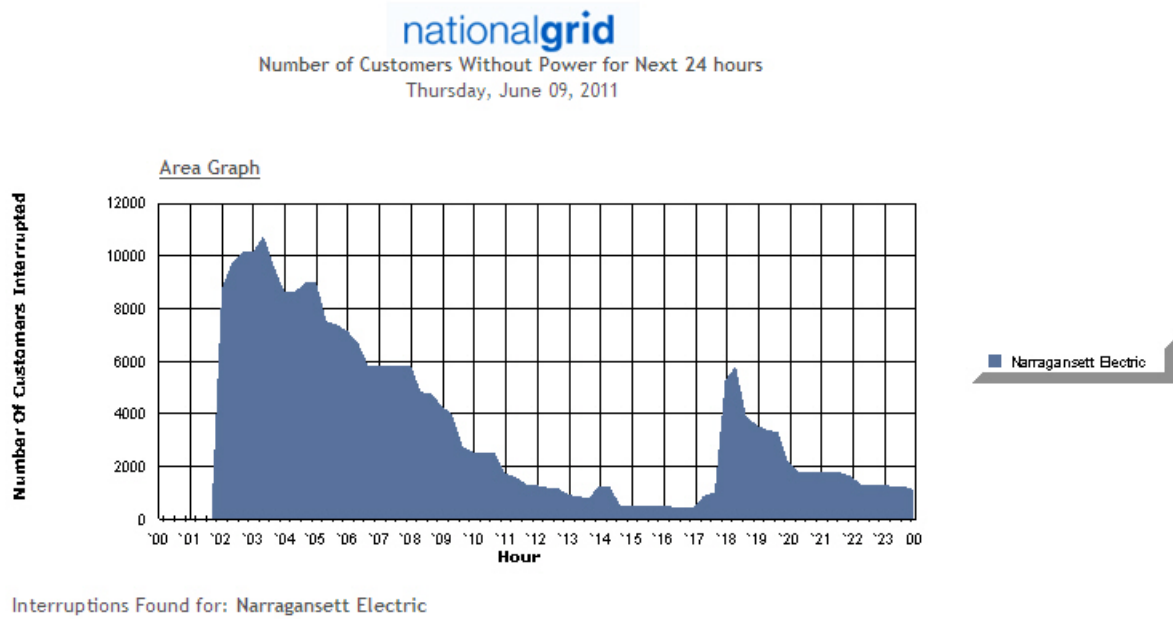
No external crews were required, the restoration event was managed by internal and contracted.

8. Date/Time of request for external Crews assignment

No external crews were required, the restoration event was managed by internal and contracted.

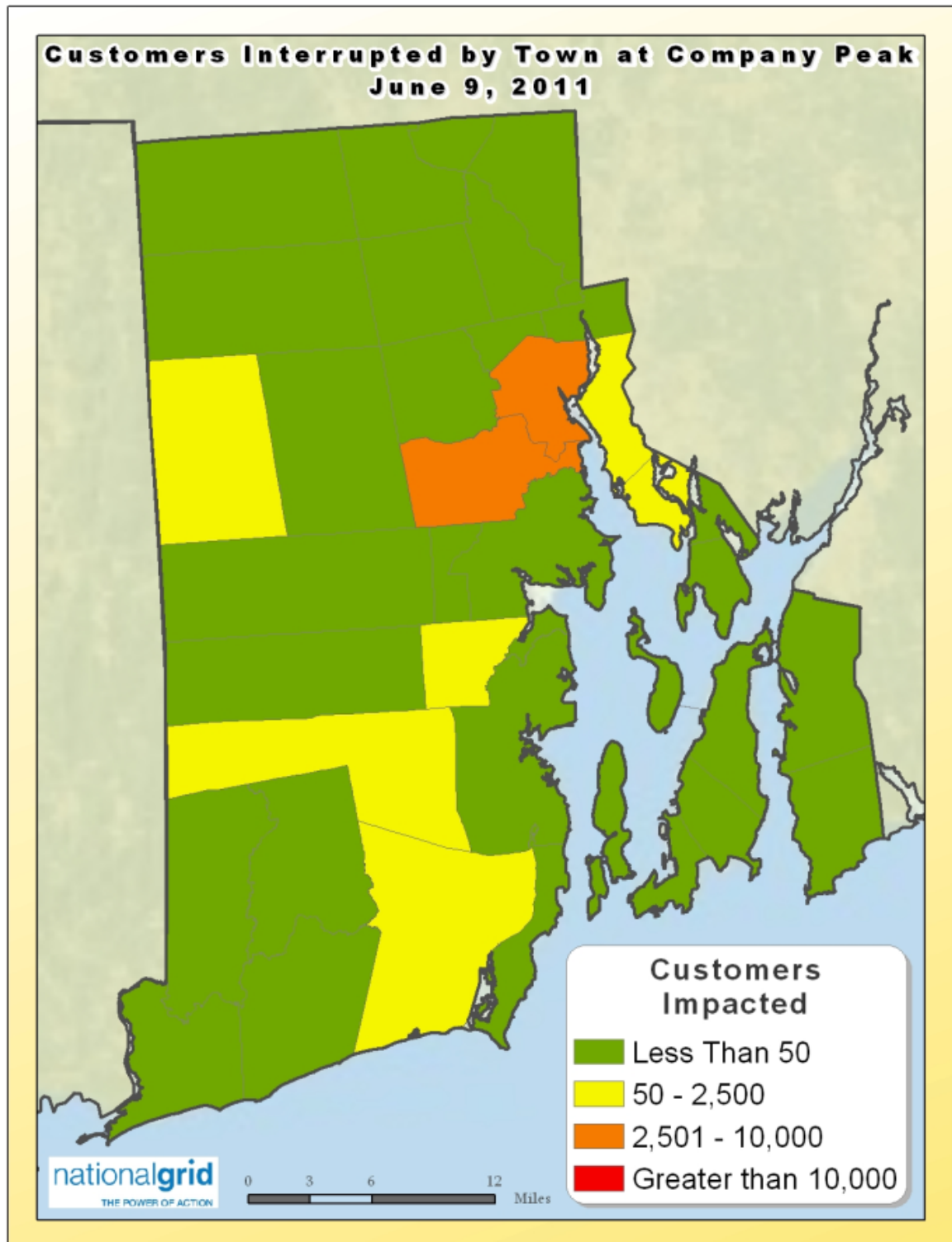
9. # of customers out by hour

June 9, 2011 (Thursday)



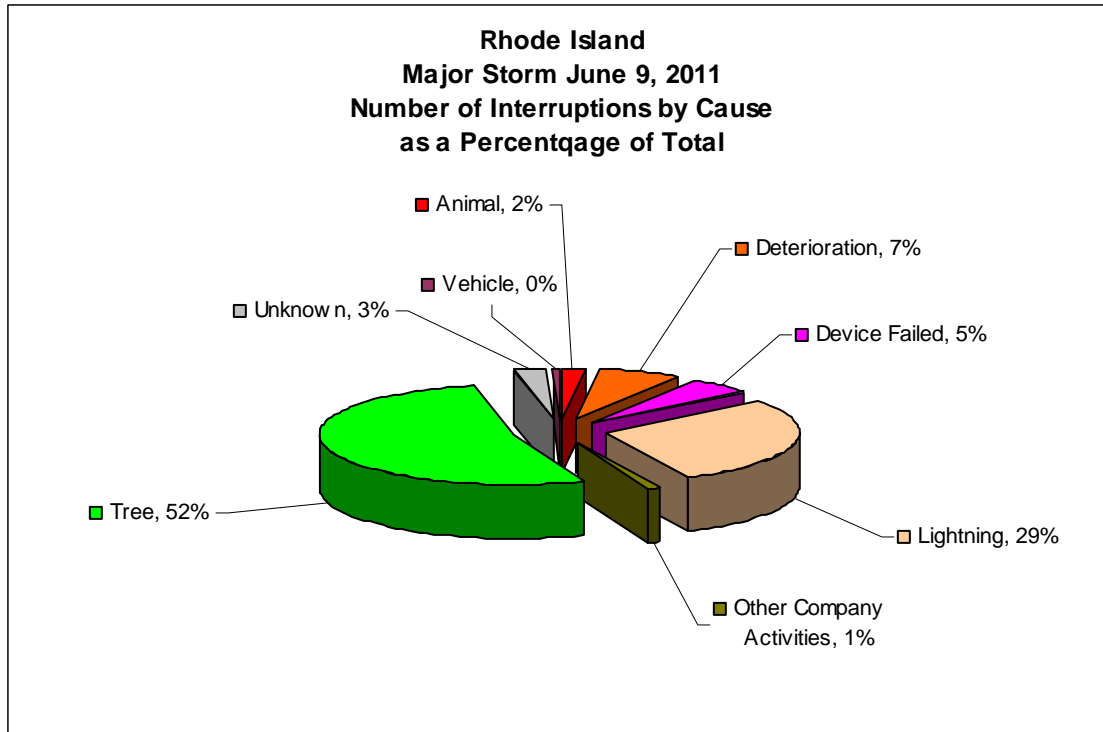
10. Impacted area

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



11. Cause

The following Chart shows the breakdown of the number of interruptions by cause as a percentage of total interruptions.



12. Weather impact on restoration

High winds, bringing down trees and branches. Rain and lightning resulted in multiple power outages in Rhode Island. Maximum winds of 33 mph with gusts up to 46 mph were reported in the area. These translated to widespread wind damage in the form of numerous downed trees, and broken limbs.

13. Analysis of Protective Device Operation:

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

For the distribution system, design standards exist that indicate how protection devices are to be deployed and coordinated with other devices. Distribution engineers continually monitor the performance of such devices under normal and fault conditions. Where recent performance may indicate a need for improvement, National Grid performs

engineering studies and makes improvements. In addition, National Grid undertakes an analysis of protection devices and coordination thereof following incidents of equipment mis-operation and circuit changes.

14. Summary of Customers Impacted:

During this thunderstorm, on June 9, 2011 Rhode Island experienced a total of 178 interruptions that affected 19,060 customers 4,792,417 customer minutes of interruption. On average these interruptions resulted in 0.04 SAIFI, and 9.92 minutes of SAIDI, and 251 minutes of interruption of customers affected. Since a SAIDI value of 9.92 minutes exceeded the threshold value of 4.43 minutes, June 9, 2011 qualified as a Major Event Day under the IEEE methodology.

August 28th – September 4th 2011 Tropical Storm Irene

1. Start Date and Time of event:

The storm started in the early morning hours of Sunday, August 28, with approximately 54,000 customers interrupted in Rhode Island by 8:00 AM. This number of reported outages increased to approximately 256,000 customers by noon and peaked at approximately 273,000 customers at 3:05 p.m. Sunday. The storm remained over New England throughout the day, with sustained winds of 37 mph and gusts up to 55 mph².

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

Location	Crew Type	# Crews (x2 headcount)	
Rhode Island	Company Line Personnel	61	crews total
	Company Wire Down	83	crews total
	Company Damage Appraiser	65	crews total
	Company Substation/Transmission	51	crews total
	Contractor Line Personnel	80	crews total
	Contractor Tree	143	crews total
	Company Substation/Transmission	141	crews total

Note: The crews in Question 2 are the counts assigned on 12:00 Shift on August 29, 2011. Additional crews were assigned in following days as other restoration activities began.

3. Number of crews assigned to restoration efforts:

Location	Crew Type	# Crews (x2 headcount)	
Rhode Island	Company Line Personnel	73	crews total
	Company Wire Down	298	crews total
	Company Damage Appraiser	52	crews total
	Company Substation/Transmission	95	crews total
	Contractor Line Personnel	149	crews total
	Contractor Tree	175	crews total
	Contractor Wire Down	34	crews total
	Contractor Damage Appraiser	45	crews total
	Company Substation/Transmission	213	crews total
	Out of State Mutual Aid Line Personnel	7	crews total

Note: The crew counts in Question 3 are at peak restoration number. Please refer to Docket 2509 -Tropical Irene Storm Report (PUC 11-22-11) for more crew staffing details.

4. The first instance of mutual aid coordination:

In preparation for Irene, National Grid participated the first conference call convened by Northeast Mutual Assistance Group on August 25 at 8:00 AM.

5. The first contact with material suppliers

Full outreach with material suppliers began on August 23, 2011 during this storm event.

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; these items are not reported as inventory on the balance sheet, such as transformers.

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

Date	RI Inventory Locations	Allocated NEDC Inventory	Total Narrangansett Electric Inventory
08/27/2011	1,474,479.87	4,065,932.23	5,540,412.10
08/28/2011	1,474,479.87	4,038,189.50	5,512,669.37
08/29/2011	1,461,120.40	4,018,636.27	5,479,756.67
08/30/2011	1,461,120.40	4,137,516.99	5,598,637.39
08/31/2011	1,461,120.40	4,128,124.06	5,589,244.46
09/01/2011	1,461,120.40	4,298,260.77	5,759,381.17
09/02/2011	1,461,120.40	4,285,652.98	5,746,773.38

7. Date/Time of request for external Crews:

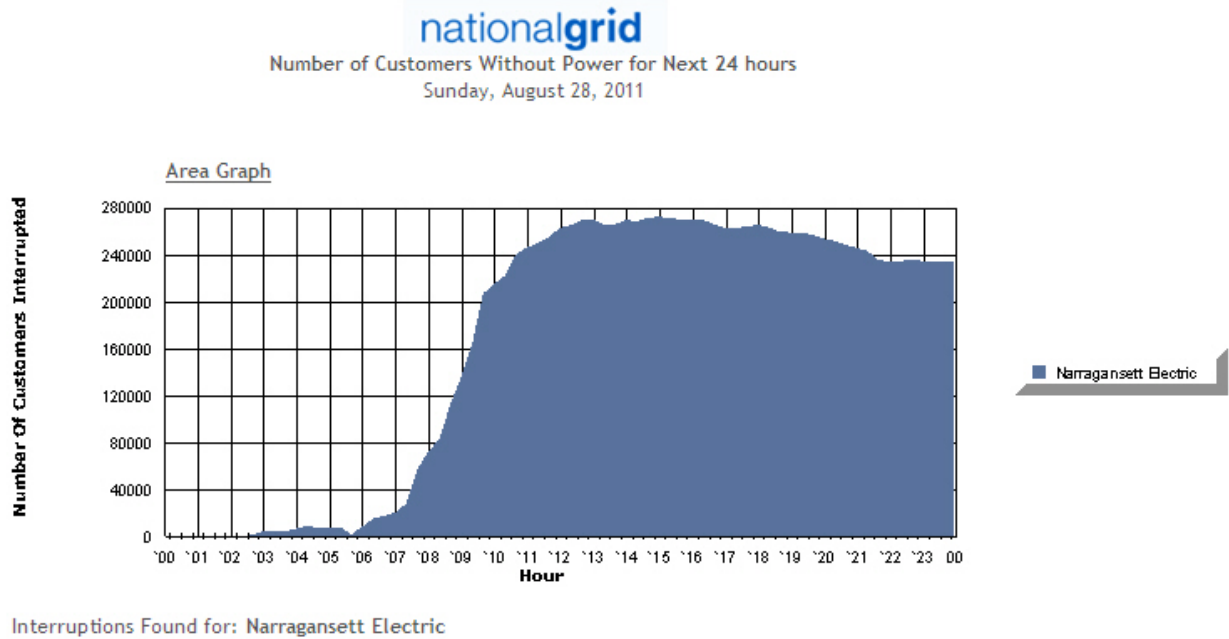
The Company strategically staged both its own crews and its outside resources along with necessary supplies, equipment, and vehicles, in advance of the storm at various locations prior to the storm reaching Rhode Island. We requested external utility crews at 8:00am on Sunday August 28, 2011

8. Date/Time of request for external Crews assignment

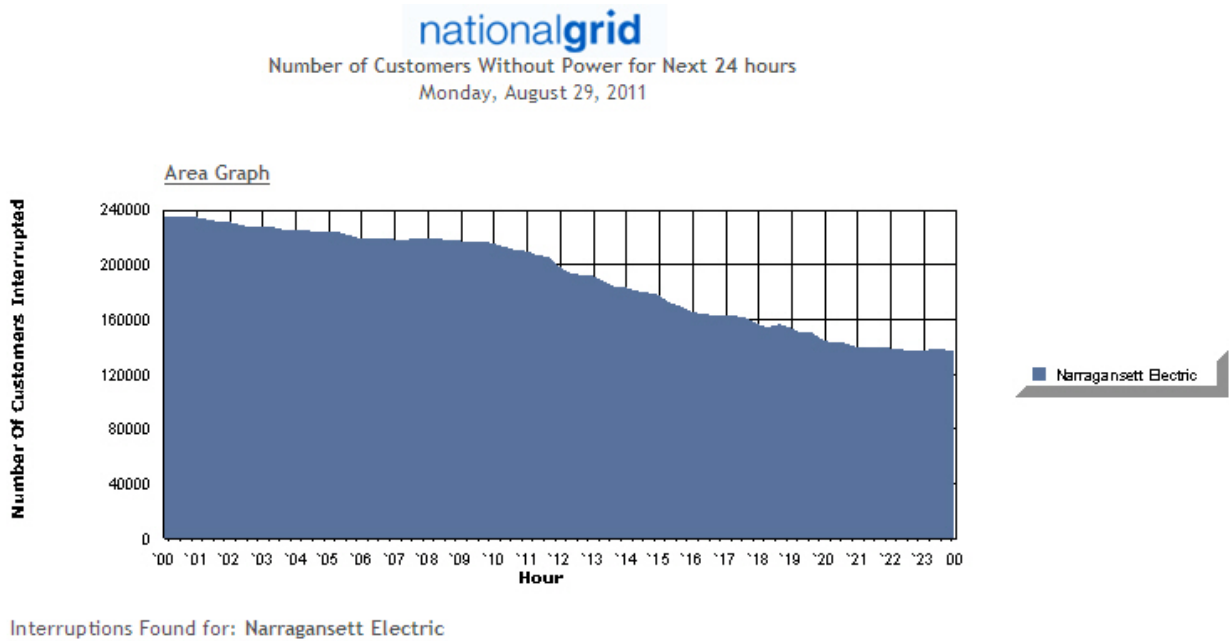
The answer to this one is the same as 7.

9. # of customers out by hour

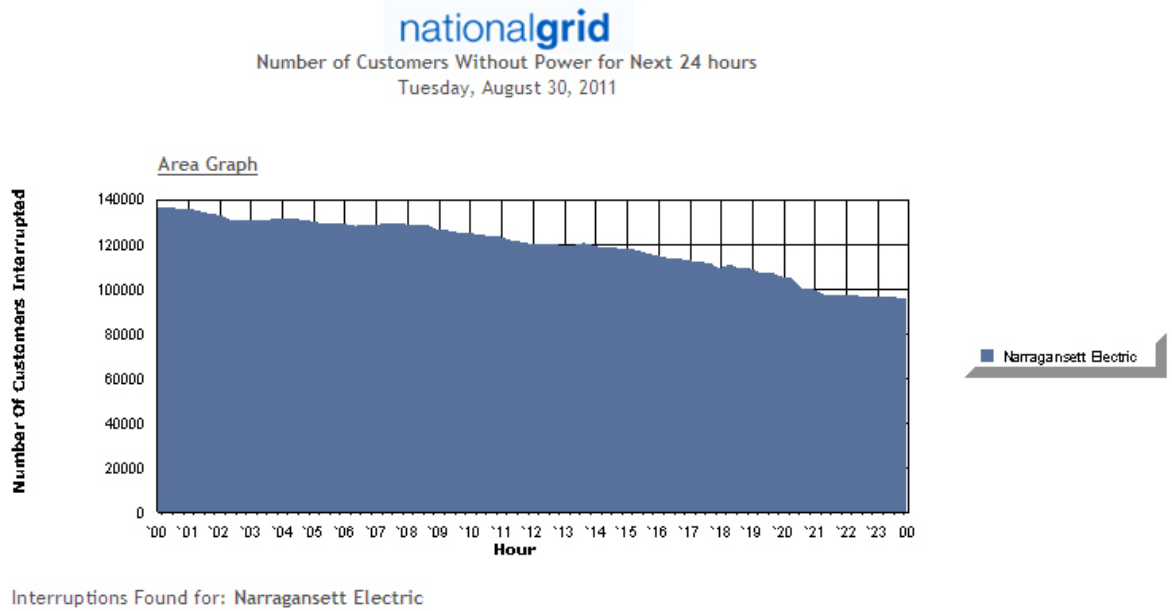
August 28, 2011 (Sunday)



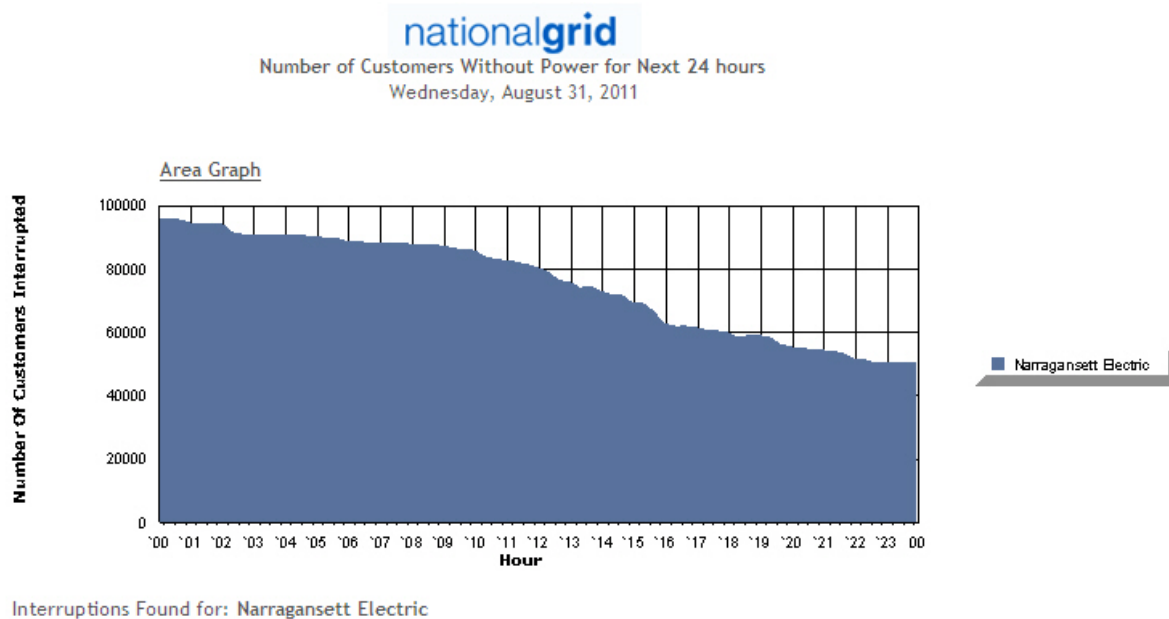
August 29, 2011 (Monday)



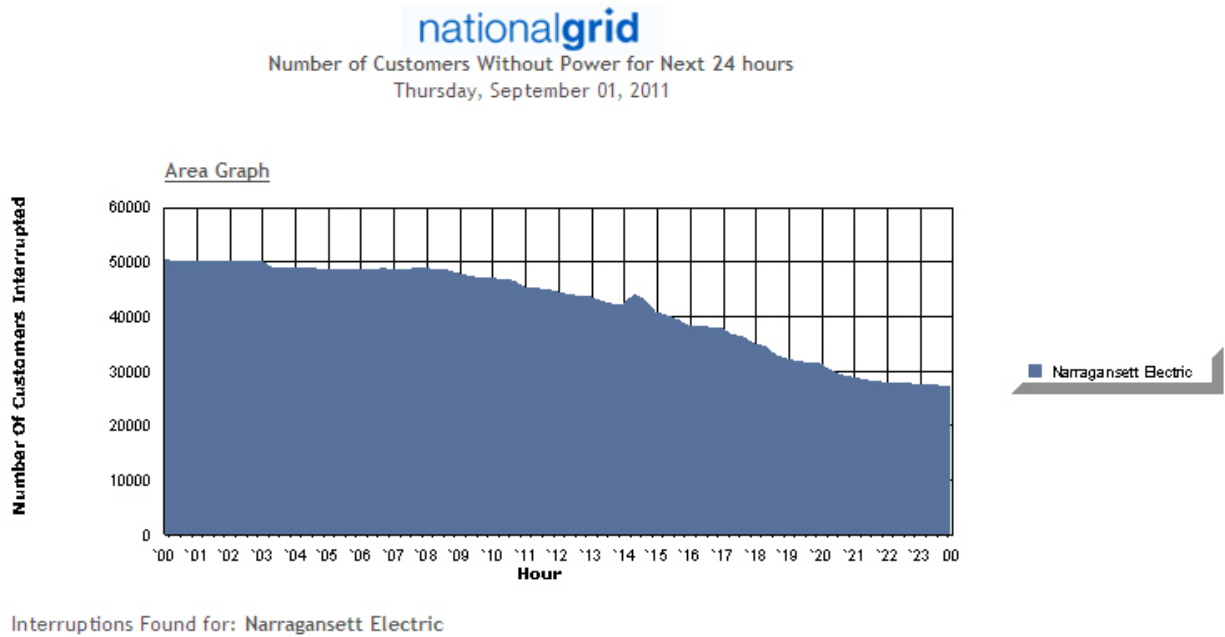
August 30, 2011 (Tuesday)



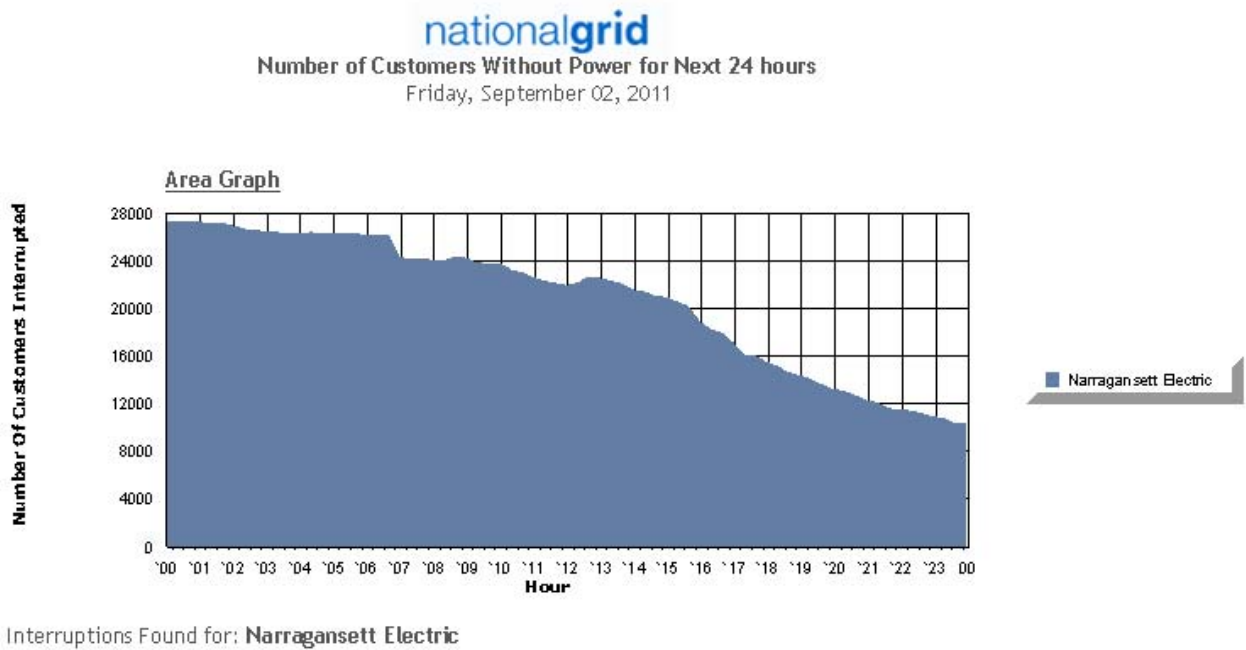
August 31, 2011 (Wednesday)



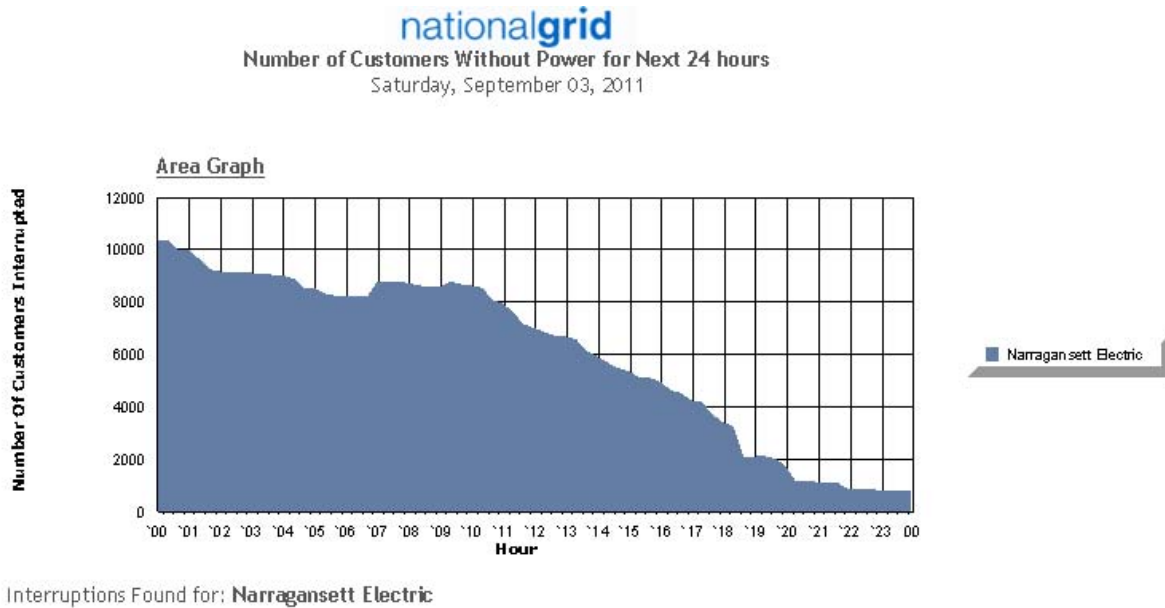
September 1, 2011 (Thursday)



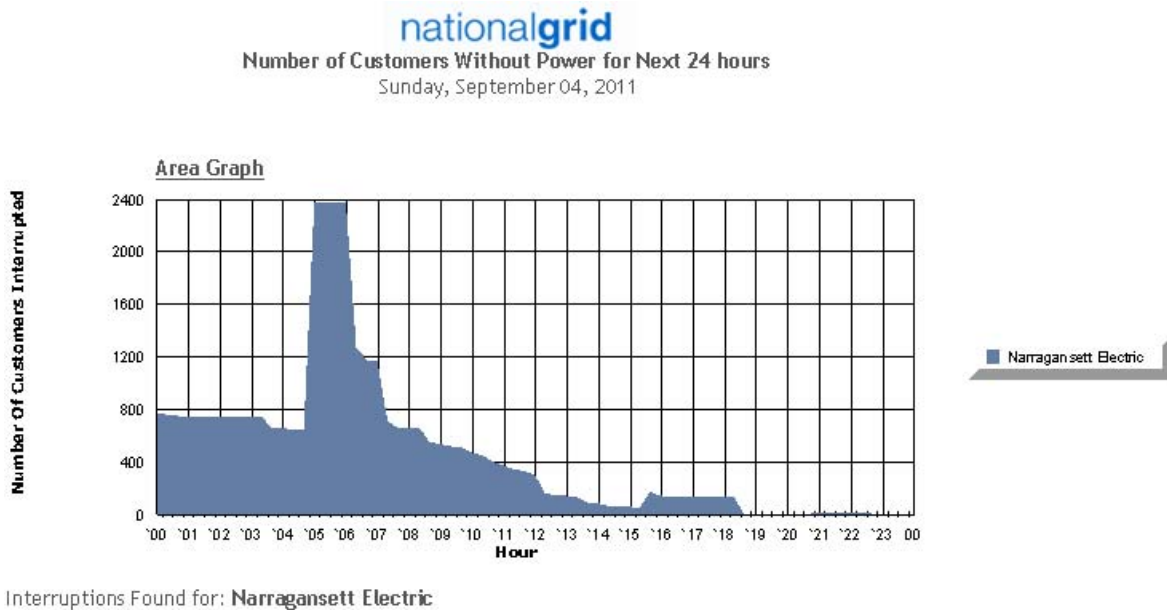
September 2, 2011 (Friday)



September 3, 2011 (Saturday)



September 4, 2011 (Sunday)

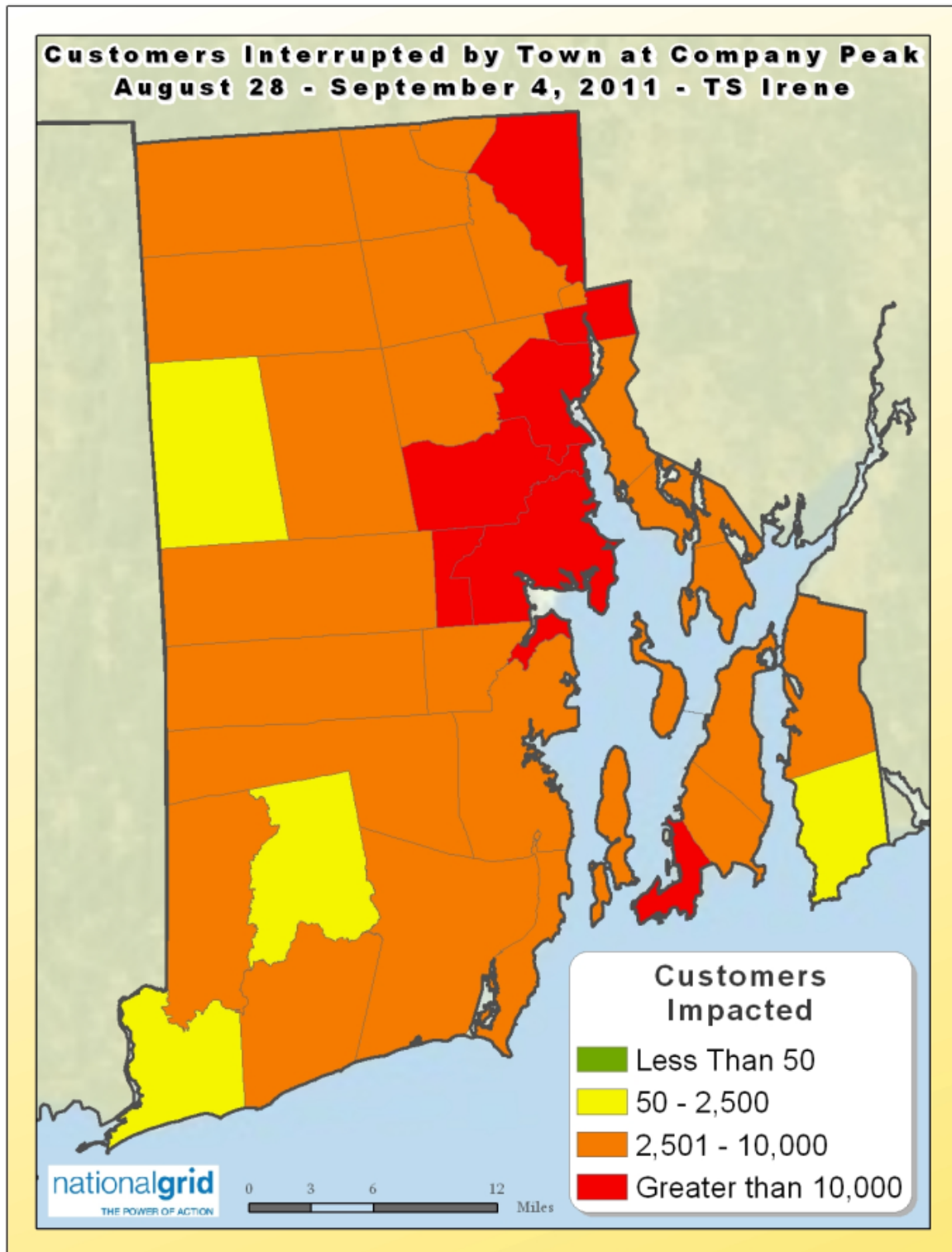


Please note, restoration time for TS Irene exceeds the number of declared Major Event days. Based on the IEEE methodology, Major Exempt Day exclusions (Tmed) were declared from August 28 to September 1. However, interruptions caused by the storm

were not fully restored until September 4th. This is consistent with Docket 2509 -Tropical Irene Storm Report (PUC 11-22-11).

10. Impacted area

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



11. Cause

TS Irene has a widespread destruction to Rhode Island's electric infrastructure and caused a lot of power outages to the customers. The causes of interruptions are trees, failed devices, deteriorated equipment, insulation failure and unknowns.

12. Weather impact on restoration

Irene caused extensive and widespread destruction along the east coast from the Carolinas to New England. Irene's hurricane-force winds as it progressed towards New England extended outward as much as 90 miles from the center and tropical storm-force winds at the periphery of the storm extended outward as much as 290 miles. In Rhode Island, Irene caused significant and extensive damage to the Company's electric infrastructure and caused power interruptions to approximately 273,000 at peak of the Company's customers, which represents 57 percent of the Company's customers.

13. Analysis of Protective Device Operation:

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

For the distribution system, design standards exist that indicate how protection devices are to be deployed and coordinated with other devices. Distribution engineers continually monitor the performance of such devices under normal and fault conditions. Where recent performance may indicate a need for improvement, National Grid performs engineering studies and makes improvements. In addition, National Grid undertakes an analysis of protection devices and coordination thereof following incidents of equipment mis-operation and circuit changes.

14. Summary of Customers Impacted:

August 28, 2011

During this topical storm, on August 28, 2011 Rhode Island experienced a total of 730 interruptions that affected 317,370 customers 845,685,270 customer minutes of interruption. On average these interruptions resulted in 0.66 SAIFI, and 1,752.60 minutes of SAIDI, and 2,665 minutes of interruption of customers affected. Since a SAIDI value of 1752.60 minutes exceeded the threshold value of 4.43 minutes, August 28, 2011 qualified as a Major Event Day under the IEEE methodology.

August 29, 2011

On August 29, 2011 restoration activity in Rhode Island associated with the tropical Storm continued. Customers experienced a total of 329 interruptions that affected 9,105 customers 15,659,953 customer minutes of interruption. On average these interruptions resulted in 0.02 SAIFI, and 32.45 minutes of SAIDI, and 1,720 minutes of interruption of customers affected. Since a SAIDI value of 32.45 minutes exceeded the threshold value of 4.43 minutes, August 29, 2011 qualified as a Major Event Day under the IEEE methodology.

August 30, 2011

On August 30, 2011 restoration activity in Rhode Island associated with the tropical Storm continued. Customers experienced a total of 447 interruptions that affected 6,758 customers 13,024,352 customer minutes of interruption. On average these interruptions resulted in 0.01 SAIFI, and 26.99 minutes of SAIDI, and 1,927 minutes of interruption of customers affected. Since a SAIDI value of 26.99 minutes exceeded the threshold value of 4.43 minutes, August 30, 2011 qualified as a Major Event Day under the IEEE methodology.

August 31, 2011

On August 31, 2011 restoration activity in Rhode Island associated with the tropical Storm continued. Customers experienced a total of 342 interruptions that affected 5,272 customers 7,572,442 customer minutes of interruption. On average these interruptions resulted in 0.01 SAIFI, and 15.69 minutes of SAIDI, and 1,436 minutes of interruption of customers affected. Since a SAIDI value of 15.69 minutes exceeded the threshold value of 4.43 minutes, August 31, 2011 qualified as a Major Event Day under the IEEE methodology.

September 1, 2011

On September 1, 2011 restoration activity in Rhode Island associated with the tropical Storm continued. Customers experienced a total of 293 interruptions that affected 4,119 customers 2,430,364 customer minutes of interruption. On average these interruptions resulted in 0.01 SAIFI, and 5.04 minutes of SAIDI, and 590 minutes of interruption of customers affected. Since a SAIDI value of 5.04 minutes exceeded the threshold value of 4.43 minutes, September 1, 2011 qualified as a Major Event Day under the IEEE methodology.

September 2, 3, and 4, 2011

As reported in Docket 2509 - Tropical Irene Storm Report (PUC 11-22-11), restoration activity continued through September 4, however Major Event Day exemptions were not requested.

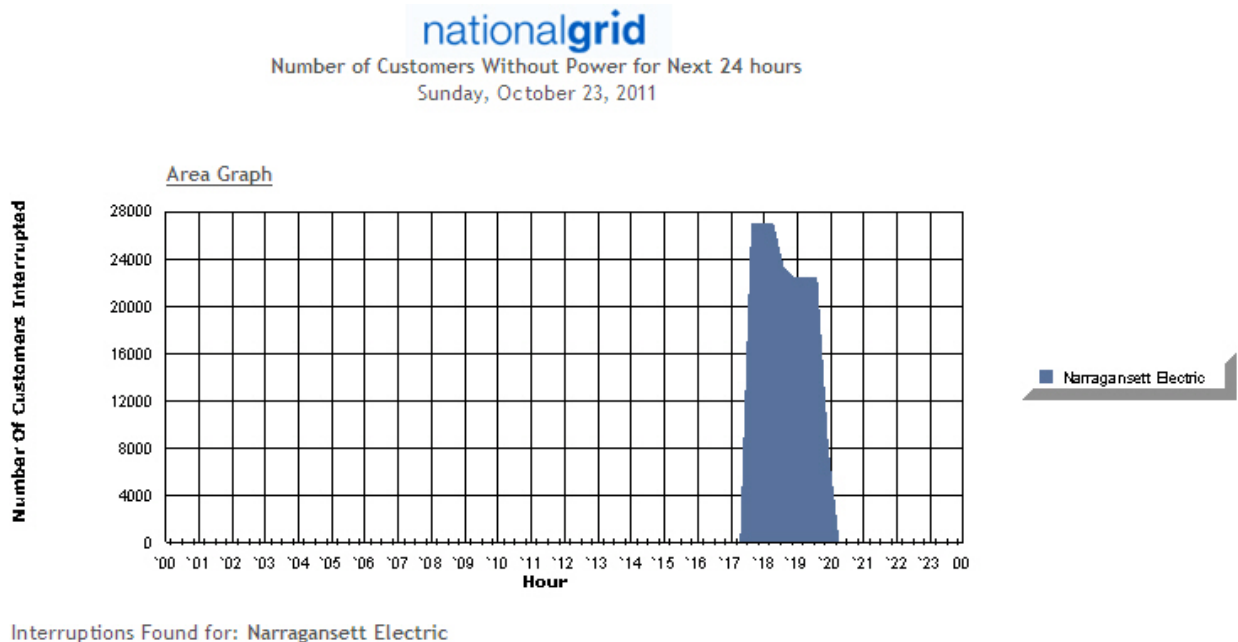
October 23, 2011 (Sunday)

1. Start Date and Time of event:

Transformer and bus lockout at Drumrock Substation in Rhode Island Started Sunday Afternoon October 23, 2011 at approximately 5:45 p.m. ES

2. # of customers out by hour

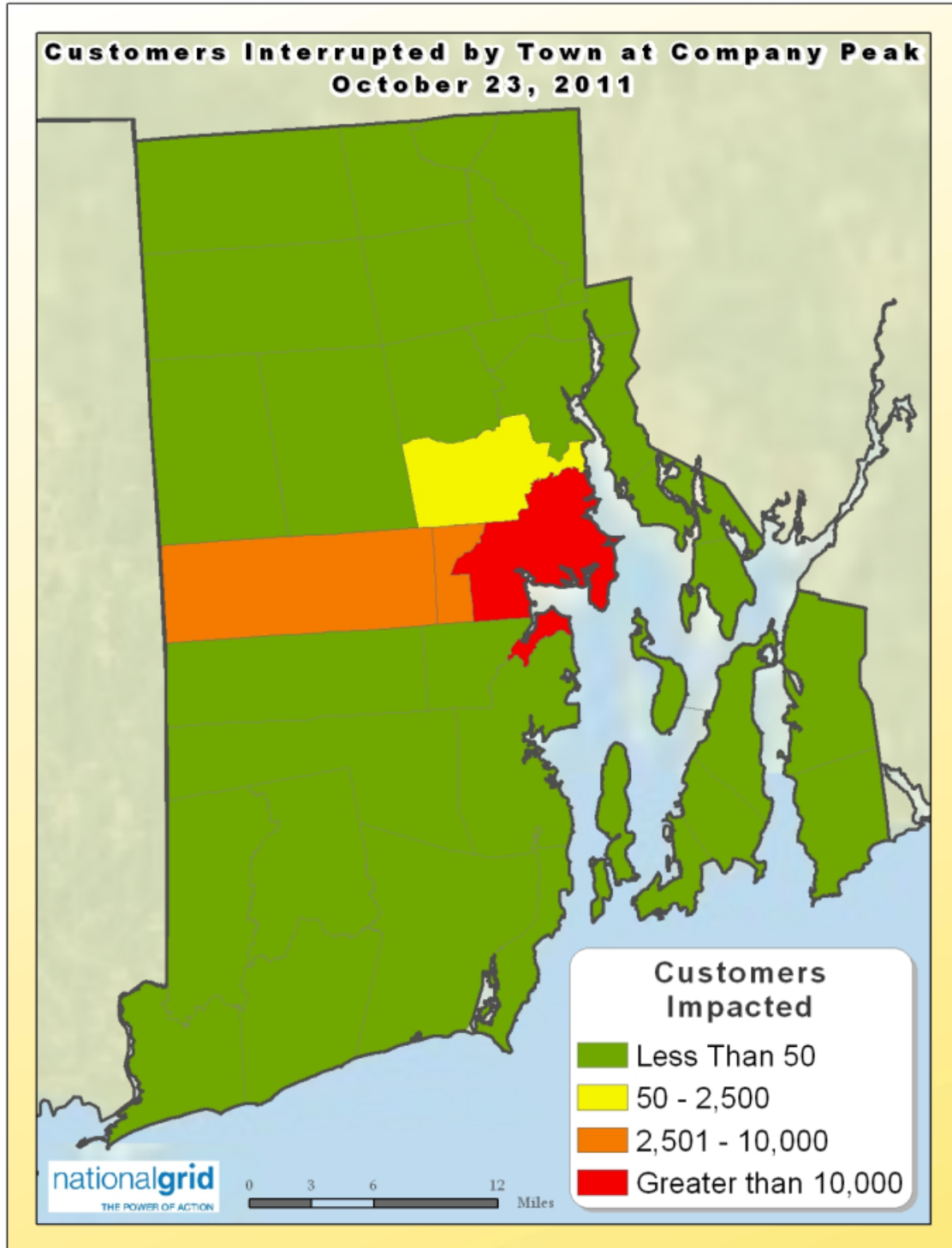
October 23, 2011 (Sunday)



3. Cause

Animal contact across the 24-2 disconnects which flashed over to the 24-1 disconnects and bus damaging the 2224 circuit breaker. The #3 & #4 Transformers and #2 Bus at Drumrock were out of service for planned work and were unavailable. This resulted in loss of supply to the 12kV & 23kV yards at Drumrock along with the Arctic, Warwick Mall, Natick, Anthony, Apponaug, and Warwick substations. While the #5 Transformer was being tested, crews manually switched to restore customers on the Drumrock 14F1, 14F2 and 14F4 feeders through feeder ties.

4. Impacted area



5. Summary of Customers Impacted:

During this event, Rhode Island experienced a total of 10 interruptions that affected 27,238 customers for 3,268,586 customer minutes of interruption. On average these interruptions resulted in 0.06 SAIFI, and 6.80 minutes of SAIDI, and 120 minutes of interruption of customers affected. Since a SAIDI value of 4.67 minutes exceeded the threshold value of 4.43 minutes, October 23, 2011 qualified as a Major Event Day under the IEEE methodology.

October, 29- October, 31, 2011 snow storm

1. Start Date and Time of event:

The snow storm started in the evening of Saturday, October 29, 2011 around 9:00 pm. The storm brought heavy, wet snow at a time of year when leaves were still on the trees.

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

Location	Crew Type	# Crews (x2 headcount)
Rhode Island	Company Line Personnel	95 crews total
	Company Wire Down	37 crews total
	Company Substation/Transmission	3 crews total
	Contractor Tree	32 crews total
	Company Substation/Transmission	16 crews total

Note: The crews in Question 2 are the counts assigned on the October 30, 2011 on 6:00 am shift. Additional crews were assigned in the following shifts as the company begun other restoration activities.

3. Number of crews assigned to restoration efforts:

Location	Crew Type	# Crews (x2 headcount)
Rhode Island	Company Line Personnel	117 crews total
	Company Wire Down	82 crews total
	Company Substation/Transmission	23 crews total
	Contractor Tree	21 crews total
	Company Substation/Transmission	6 crews total

Note: The crew counts in Question 3 are at peak restoration number. Please refer to Docket 2509 -Oct2011-Snow Storm Rept (PUC 1-27-12) for more detailed crew information.

4. The first instance of mutual aid coordination:

We requested external utility crews through the Mutual Assistance process at 4:24 PM on Saturday October 29, 2011

5. The first contact with material suppliers

Full outreach with material suppliers began on October 29, 2011 during this storm event.

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; these items are not reported as inventory on the balance sheet, such as transformers.

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

Date	RI Inventory Locations	Allocated NEDC Inventory	Total Narrangansett Electric Inventory
10/28/2011	1,425,654.10	4,889,943.79	6,315,597.89
10/29/2011	1,425,654.10	4,889,860.02	6,315,514.12
10/30/2011	1,425,654.10	4,868,304.15	6,293,958.25
10/31/2011	1,425,654.10	4,914,124.59	6,339,778.69

7. Date/Time of request for external Crews:

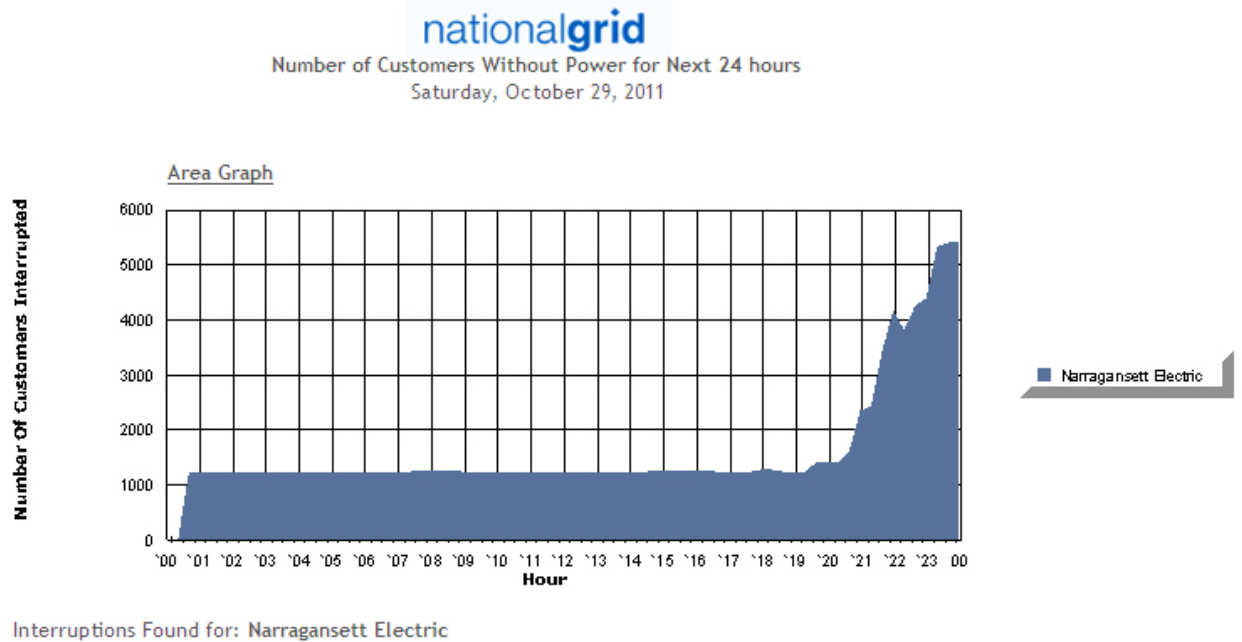
We requested external utility crews through the Mutual Assistance process at 4:24 PM on Saturday October 29, 2011

8. Date/Time of request for external Crews assignment

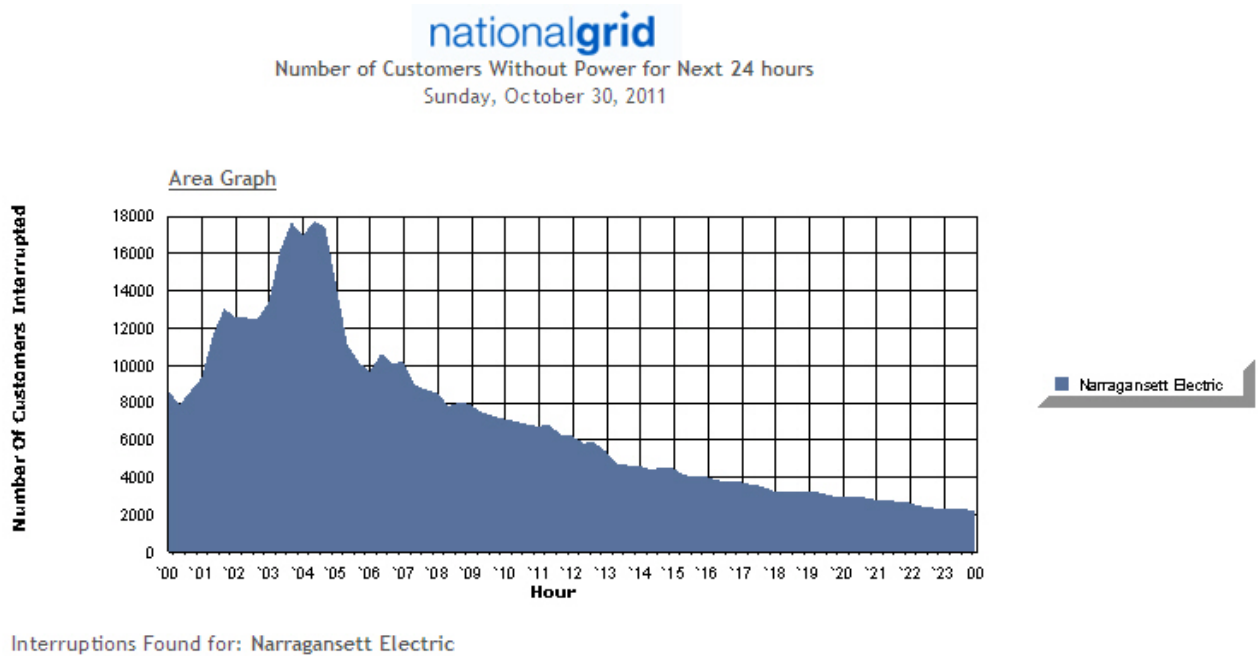
We requested external utility crews through the Mutual Assistance process at 4:24 PM on Saturday October 29, 2011

9. # of customers out by hour

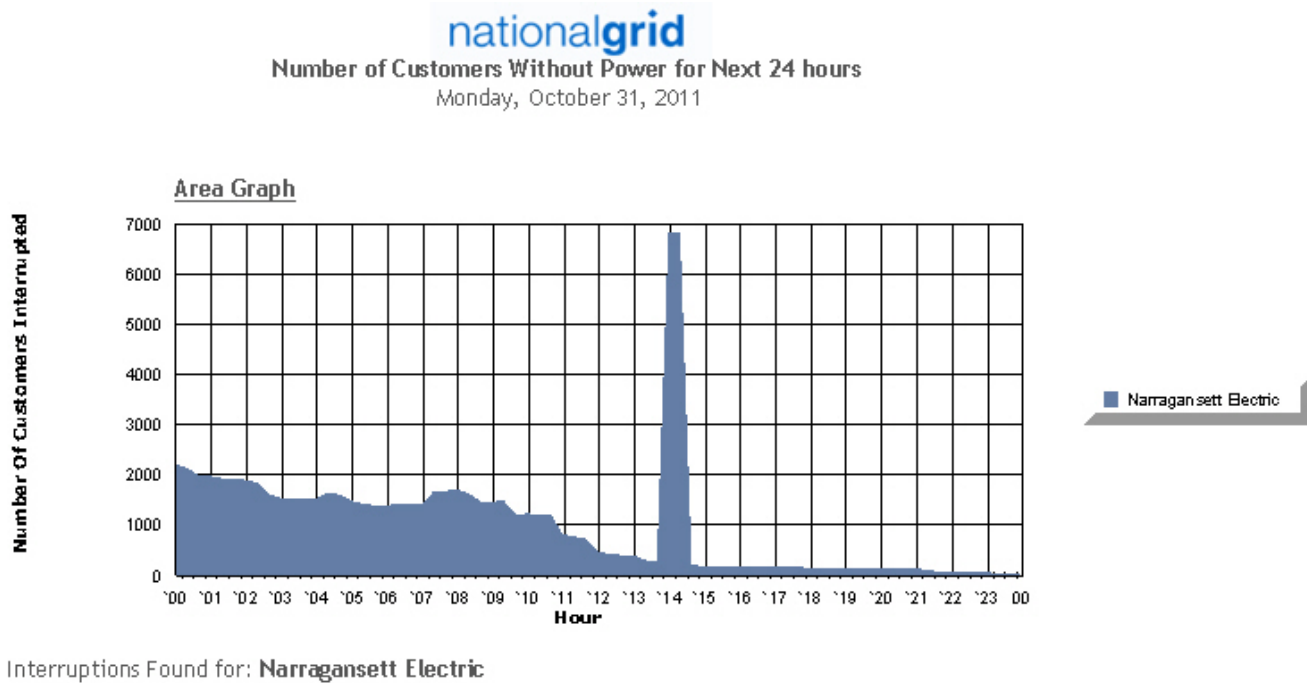
October 29, 2011 (Saturday)



October 30, 2011 (Sunday)



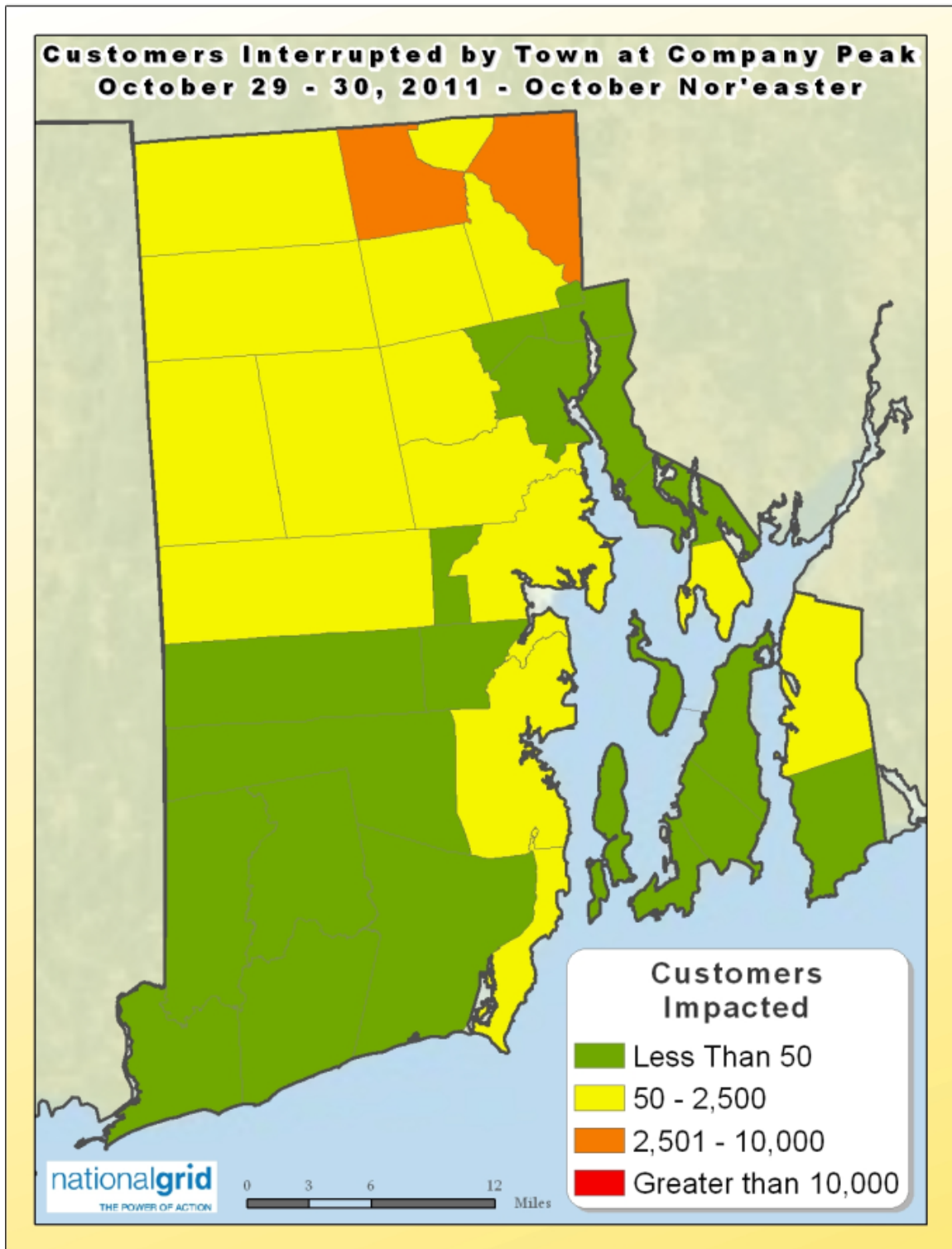
October 31, 2011



Please note, restoration time for the October snowstorm exceeds the number of declared Major Event days. Based on the IEEE methodology, Major Exempt Day exclusions (Tmed) were declared from October 29 to October 30. However, interruptions caused by the storm continued and were restored until October 31. This is consistent with Docket 2509 -Oct2011-Snow Storm Rept (PUC 1-27-12)

10. Impacted area

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



11. Cause

This snowstorm caused widespread power outages to customers in Rhode Island. The causes of interruptions are trees, failed devices, deteriorated equipment, insulation failure and unknowns

12. Weather impact on restoration

The October Storm brought heavy, wet snow at a time of year when leaves were still on the trees causing widespread power outages across New England and several states along the Eastern seaboard, including Rhode Island. In Rhode Island, the highest total reported snowfall was approximately 7 inches in West Gloucester. In North Kingstown, maximum sustained winds of 28 mph and maximum wind gusts of 45 mph were recorded on Saturday, October 29th at approximately 7:00 p.m. Wind and snow, and subsequent tree damage did have an impact on the electrical system with the damage primarily to the Company's distribution system in the form of wires down, including primary, secondary, and services.

13. Analysis of Protective Device Operation:

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

For the distribution system, design standards exist that indicate how protection devices are to be deployed and coordinated with other devices. Distribution engineers continually monitor the performance of such devices under normal and fault conditions. Where recent performance may indicate a need for improvement, National Grid performs engineering studies and makes improvements. In addition, National Grid undertakes an analysis of protection devices and coordination thereof following incidents of equipment mis-operation and circuit changes.

14. Summary of Customers Impacted:

October 29, 2011

During this storm, Rhode Island experienced a total of 47 interruptions that affected 7,856 customers for 3,680,854 customer minutes of interruption. On average these interruptions resulted in 0.02 SAIFI, and 7.65 minutes of SAIDI, and 469 minutes of interruption of customers affected. Since a SAIDI value of 7.65 minutes exceeded the threshold value of 4.43 minutes, October 29, 2011 qualified as a Major Event Day under the IEEE methodology.

October 30, 2011

During this storm, Rhode Island experienced a total of 189 interruptions that affected 23,790 customers for 9,280,101 customer minutes of interruption. On average these interruptions resulted in 0.05 SAIFI, and 19.29 minutes of SAIDI, and 390 minutes of interruption of customers affected. Since a SAIDI value of 19.29 minutes exceeded the threshold value of 4.43 minutes, October 30, 2011 qualified as a Major Event Day under the IEEE methodology.

October 31, 2011

As reported in Docket 2509 -Oct2011-Snow Storm Rept (PUC 1-27-12), restoration activity continued on Oct 31, however a Major Event Day exemptions were not requested.