

May 20, 2013

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Division Clerk
Rhode Island Division of Public Utilities & Carriers
89 Jefferson Boulevard
Warwick, RI 02888

**RE: Docket No. D-11-94 – Review of National Grid Storm Preparedness, Response, and Restoration Efforts Related to Tropical Storm Irene
National Grid’s Report Pursuant to Report and Order Dated November 20, 2012**

Dear Ms. Massaro:

Pursuant to the Rhode Island Division of Public Utilities and Carriers’ (the “Division”) Report and Order dated November 20, 2012 (the “Order”), the Division directed National Grid¹ to report back to the Division within six (6) months following the date of the Order with respect to the progress made on certain storm planning improvements, and to provide a cost analysis for implementing certain recommendations relating to the Company’s inspection and maintenance program and transmission upgrades.

Enclosed are five (5) copies of National Grid’s report regarding these directives in accordance with the Order.

Thank you for your attention to this transmittal. If you have any questions, please feel free to contact me at (401) 784-7288.

Very truly yours,



Jennifer Brooks Hutchinson

Enclosures

cc: Leo Wold, Esq.
Steve Scialabba, Division

¹ The Narragansett Electric Company d/b/a National Grid (referred to herein as “National Grid” or the “Company”)

National Grid

The Narragansett Electric Company

**National Grid's Report Regarding
Directives Contained in the
Rhode Island Division of Public
Utilities and Carriers' Report and
Order Dated November 20, 2012**

May 20, 2013

Docket No. D-11-94

Submitted to:
Rhode Island Division of Public Utilities & Carriers

Submitted by:

nationalgrid

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**REPORT ON BEHALF OF
THE NARRAGANSETT ELECTRIC COMPANY d/b/a NATIONAL GRID
REGARDING DIRECTIVES CONTAINED IN THE RHODE ISLAND DIVISION OF
PUBLIC UTILITIES AND CARRIERS' REPORT AND ORDER
DATED NOVEMBER 20, 2012**

I. EXECUTIVE SUMMARY

On November 20, 2012, the Rhode Island Division of Public Utilities and Carriers' (the "Division") issued its Report and Order (the "Order") following completion of the Division's regulatory review of National Grid's¹ preparedness and restoration efforts related to Tropical Storm Irene ("Irene"), which impacted Rhode Island on August 28, 2011. The Order made several findings and directives based on the recommendations by Gregory L. Booth, PE, PLS of PowerServices, Inc. in a report to the Division entitled "Review of National Grid Storm Preparedness, Response, and Restoration Efforts," (the "Booth Report") dated February 2012. The Company responded to the recommendations in the Booth Report through two submittals that it filed with the Division on April 19, 2012 ("National Grid April 19, 2012 Response") and August 14, 2012 ("National Grid Supplemental Response"). The National Grid April 19, 2012 Response addressed several findings and recommendations by Mr. Booth regarding system reliability, the Company's Electric Emergency Plan ("EEP"), and the Company's communication and outreach. That response also discussed the improvements the Company had made to its outreach efforts following Irene. On May 16, 2012, the Division submitted its response to the National Grid April 19, 2012 Response² ("Division May 16, 2012 Response"), and identified three primary areas of disagreement concerning (i) storm hardening (ii) the Company's post-storm assessments and engineering analysis, and (iii) the Company's practices regarding third-party pole attachments. At the pre-hearing conference held on June 21, 2012, the Company requested and was granted the opportunity to supplement the National Grid April 19, 2012 Response so that it could respond to each recommendation in the Booth Report, and respond to the Division's May 16, 2012 Response. The Company's Supplemental Response acknowledged and agreed with many of Mr. Booth's recommendations and described the processes and programs that the Company was implementing to address those concerns, including new initiatives and improvements to its pre-event planning processes, and storm restoration and response procedures, specifically in the areas of procurement of resources, damage assessment, and communication and outreach.

The Division noted in its Order that:

National Grid has already moved in the direction of adopting many of the recommendations enumerated in the PowerServices' Report. The Division accepts these actions by National Grid as a positive step toward improving the effectiveness of the Company's storm preparedness going forward.

¹ The Narragansett Electric Company d/b/a National Grid (referred to herein as "National Grid" or the "Company").

² The Company received a copy of the Division's May 16, 2012 Response at the June 21, 2012 Pre-Hearing Conference.

In the National Grid Supplemental Response, the Company also identified those areas in which it did not agree with Mr. Booth, specifically relating to system design, construction, and maintenance issues. In certain instances, the Division accepted the Company's responses relating to these issues; however, the Division also directed the Company to report back to the Division within six (6) months of the date of the Order with details regarding its efforts to implement certain improvements and initiatives regarding planning, expanding restoration resources, and the Company's cooperative efforts in the areas such as restoration priority, its relationships with local and state officials and municipalities, damage assessment, among others.³ The Division also directed the Company to provide a cost analysis for those recommendations that the Company had rejected on cost grounds.⁴

This report summarizes each directive from the Order with an update on the status of each initiative and the steps the Company is taking or has taken with respect to implementation. In addition, the Company has taken the opportunity in this report to update the Division regarding several efforts that the Company had indicated in its Supplemental Response that it would undertake in response to those recommendations with which the Company agreed with Mr. Booth. Certain initiatives and improvements described in this report were successfully implemented during Hurricane Sandy ("Sandy") and more recently in the February 8, 2013 Nor'easter (the "Nor'easter"), specifically with respect to the procurement of additional resources, the implementation of the Company's community liaison program, and use of the strike force units. The Company continues to strive towards improving upon its preparedness, responses, and restoration efforts with each storm event. Notably, the community feedback following Sandy and the Nor'easter was positive. The Company continues to welcome the opportunity to work collaboratively with the Division to continually improve the system's ability to perform under storm conditions.

II. NATIONAL GRID'S REPORT REGARDING DIRECTIVES

A. Cost Analysis

Division Directive:

The Division directed National Grid to provide a cost analysis for all recommendations contained in the Booth Report that the Company rejected on cost grounds.⁵ PowerServices made two recommendations to which National Grid responded based on cost.

1. I&M Program

PowerServices recommended annual inspections of all transmission structures and visual inspection every two years for subtransmission structures.⁶ The Company responded that this

³ Report and Order, Docket D-11-94, 77-79 (November 20, 2102).

⁴ Id. at 84.

⁵ Id. at 84.

⁶ Booth Report at 50-51.

recommendation would add an incremental cost to the Company's Inspection & Maintenance ("I&M") program without an increase in overall benefits.⁷

Company Report:

The Company's current estimated cost for performing ground-based visual inspections is approximately \$25,000/year for the transmission system and \$50,000/year for the sub-transmission system. This estimated cost is based on a five-year cycle using a contractor unit price per structure. Increasing the frequency of visual inspections to annual inspections for the transmission system, and every two years for the sub-transmission system, will result in annual transmission costs of \$125,000/year and sub-transmission costs of \$150,000/year. As noted in the Company's responses to PowerServices' recommendations, the Company does not believe that increasing the frequency of visual inspections will result in improved performance, as structures do not deteriorate rapidly. Moreover, the use of helicopter patrols can identify issues of an immediate nature such as damaged insulators or cross arms in a more cost-effective manner.

2. Transmission Upgrades

PowerServices recommended that National Grid perform additional analyses of the structural loading for all transmission structures based upon current NESC loading criteria, with potential upgrades and storm hardening as part of the Company's existing I&M program.⁸ The Company responded that it would add an additional cost of approximately \$30 million to \$60 million to implement this recommendation and is not required for conformance to the NESC.⁹

Company Report:

The Excel spreadsheet provided on Attachment 1 includes the proposed scope of work and cost estimate to reinforce the overhead transmission system in Rhode Island. Some of the key factors that the Company considered during its analysis included line voltage, structure type (e.g. steel, wood, 2-pole, 1-pole etc.) and the transmission line condition (e.g. recent projects). The Company considered the following reinforcements: pole replacement, cross-brace reinforcement, additional guying, and lattice tower replacement. As provided in the National Grid Supplemental Response, the cost estimate to upgrade the transmission system is in the range of approximately \$30 million to \$60 million (investment grade estimate of \$45 million +/- 33%). Attachment 1 provides the assumptions that the Company used in preparing this cost estimate, as well as the proposed structure upgrades per overhead line.

⁷ National Grid Supplemental Response at 2.

⁸ Booth Report at 51.

⁹ National Grid Supplemental Response at 3.

B. Post-Storm Analysis

Division Directive:

The Division directed National Grid to develop a post-storm analysis process to correlate downed poles' age, previous condition based on inspection information, and failure cause, and to include both transmission and distribution poles in the analysis.¹⁰

Company Report:

The Company is investigating a post-storm assessment of its downed poles that will consider the following elements:

- a. Damage Assessment information (including photographs)
- b. Pole age
- c. Pole Size
- d. Pole Class
- e. Attachments to the pole
- f. Past Inspection & Maintenance Data
- g. Weather Data (wind speed, snow/rain/ice accumulations)
- h. Tree Density or Damage Metrics
- i. Geographic info (proximity to coast, roads etc)

This work is ongoing. The Company will notify the Division once the process has been fully implemented.

C. Preparedness Initiatives

1. Prediction Modeling Tool

Division Directive:

The Division directed National Grid to report back to the Division with details regarding the Company's efforts to develop a "prediction" (modeling) tool to enhance its emergency response planning in conformance with PowerServices' recommendation.¹¹

Company Report:

National Grid has been working with Massachusetts Institute of Technology ("MIT") on a project to gain a better understanding of how weather impacts the distribution electric system. The purpose of the project is to create a modeling tool that estimates the probability of damage to National Grid assets in advance of a major storm. Outages, damage assessments, and repair requirements will be calculated to aid in storm planning efforts. One of the main inputs to this model will be a weather forecast. It should be noted that while the Company has had to perform

¹⁰ Report and Order at 74.

¹¹ *Id.* at 76.

some work to investigate quality weather forecasts, this has not been the main focus of the project.

The Company is utilizing its Massachusetts service territory to develop the initial model and has progressed on data collection for the current network state (distribution line segments) as well as outage and call data for the six most recent storm events affecting Massachusetts. An external vendor has provided weather data from the storms in question at their weather stations. Land use data for Massachusetts is also being used as the land area has a significant impact on the effect of a storm (forested areas vs. urban residential for example).

Currently, the Company is pursuing both logistic and exponential regression models that will calculate probabilities of outages to distribution line segments. These particular regression models are not the only methods available and are not necessarily the final model templates that will be used.

Once the model is trained on the current input (actual weather, outages, land use, and network information), the results will be tested against weather forecasts from the time period of the storms in question to determine how well the model predicts outages. The Company will then begin calculating not just outages, but the actual damage to the network and the tools needed for repairs (i.e. personnel, time, etc.). The Company will train the model with the same inputs as it did previously and add the actual observed damage data.

The final step will require development of tools and applications that allow for visualization of the output and addition of new data to continually train and improve the model as storm events continue to occur.

Final completion for the Massachusetts model is expected in August 2013. A schedule for implementation of a similar model in Rhode Island will be reviewed once results are confirmed in Massachusetts.

2. Restoration Resources

Division Directive:

The Division directed National Grid to report back to the Division with details regarding the Company's efforts and new initiatives to improve its level of preparedness for future storms, including the expansion of its restoration resources.¹²

Company Report:

The Company has continued to make progress on specific initiatives targeted towards improving the ability to procure additional restoration resources. The initiatives were outlined in the Company response submitted on August 14, 2012, and an update on each initiative is outlined below:

¹² *Id.* at 76-77.

- The Company continues to expand relationships with line contractors. A review of contracting companies in the United States and Canada was completed in March 2012 to identify additional sources of restoration crews; however, the Company continues to review the market and expand relationships as additional sources are identified. The Company issued two rounds of RFPs in March 2012 (phase 1) and August 2012 (phase 2), bringing the total number of companies with a storm contract to 72. The Company's expanded relationships with contracting companies and improved processes were utilized to secure resources during the storms in late 2012 and early 2013, including Sandy and the Nor'easter. The Company continues to review the industry for additional companies, and will continue to establish relationships and contracts with companies capable of providing restoration support.
- The Company developed standard contracts for storm restoration vendors prior to issuing the first RFP. These contracts ensure that companies are operating under standard terms and conditions and fully understand the Company's expectations.
- During the period of March 2012-July 2012, the Company conducted five meetings with large contracting firms to discuss potential strategic arrangements. During these meetings, the Company and the contracting firms discussed various opportunities to increase the number of resources that could be secured; the Company and the contracting firms also discussed ways to increase the speed of mobilization and access to these resources. Opportunities that were presented were evaluated as part of the Company's overall contracting strategy. The Company intends to continue progressing conversations with these large companies as strategies continue to evolve and emerge.
- The Company continues to actively participate in two Regional Mutual Assistance Groups ("RMAG") – New England Mutual Assistance Group ("NEMAG") and New York Mutual Assistance Group ("NYMAG"). In addition, the Company actively participates in the national Mutual Aid conferences and improvement initiatives, including pursuing changes to the structure of the regional RMAGs in the northern/eastern United States. The Company's goal is to share resources in restoration events and provide mutual benefits to all member utilities. The Company's participation in these forums has been beneficial in recent events including Sandy, where other member utilities provided resources to the Company.

D. Storm Reporting

Division Directive:

PowerServices recommended hourly utility reporting during major events and a final comprehensive report within 90 days, similar to requirements mandated in Massachusetts. The Division noted that the Company already posts outage figures during major storm events, the frequency of which is typically determined by the needs of the situation and RIEMA¹³. The Division found the Company's current practice to be sufficient and did not impose any additional

¹³ *Id.* at 83. The Report and Order refers to an internet-based emergency management platform (WebEOC) as the platform for posting outage figures. The Company notes that outage figures are posted on Outage Central.

requirements. However, the Division directed the Company to file a final written report within 90 days following major storm events.¹⁴

Company Report:

The Company is already required to file a 90-day event report following major storm events pursuant to the requirements of the Storm Fund in Docket 2509. It is the Company's practice to provide a copy of this report to the Division.

E. Cooperative Efforts

Division Directive:

The Division directed National Grid to report back to the Division with details regarding the Company's cooperative efforts across a variety of areas related to the Company's restoration response based upon certain PowerServices' recommendations with which the Company generally agreed.¹⁵ The Company provides the following report regarding the status of these efforts:

1. Non-Destructive Strength Testing

PowerServices recommended that the Company follow the current NESC requirement stipulating that structures be replaced or rehabilitated when deterioration reduces the structure strength to two-thirds of that required when installed.¹⁶ The Company responded that it was investigating technology to quantify the percentage of remaining distribution pole strength.¹⁷

Company Report:

The Company's I&M cyclical inspection program currently identifies poles in need of replacement due to deteriorated condition. Although the current inspection process does not quantify the percentage of remaining pole strength, the Company believes it does a good job of identifying weakened poles. The Company is investigating technology that may provide more quantifiable information at a reasonable cost. Two technologies being considered are the "Pole Tester" from Reliable Lines and the "DEUAR MTP" from Deuar PTY LTD.

The Pole Tester is a new product, which the Company saw demonstrated at the Institute of Electrical and Electronics Engineers ("IEEE") Transmission and Distribution Conference trade show in the Spring of 2012. The Pole Tester is a fast and lightweight electro-mechanical device, which is attached to the pole using a belt-like mechanism. The automated device generates a number of Time of Flight values through a cross-section of a pole to identify anomalies inside the pole and calculates the percentage of original strength. In discussions with

¹⁴ Id.

¹⁵ Id. at 78-79

¹⁶ Booth Report at 52.

¹⁷ National Grid Supplemental Response at 5.

the vendor, the product is not yet commercially available, and additional testing is ongoing. The Company will continue to monitor the progress of this product.

The DEUAR MTP is a device that places mechanical stresses on the pole and measures deflection of the pole. The device is commercially available; however the relative cost of inspections is high and National Grid does not plan to pursue this option further.

2. Municipalities and “Make-Ready” Process

The Company agreed with PowerServices that it could do a better job communicating with municipalities regarding the attachment "make-ready" process. The Company also responded that going forward, on an annual basis, the Company will provide the municipalities with educational and contact information on how to safely attach to Company facilities.¹⁸

Company Report:

The Company is currently looking at ways to improve communications on its “make-ready” process with municipalities. At this time, the Company plans to make information regarding this process and contact information available at the Company’s annual meetings with Public Safety officials and the Department of Public Works Directors Association, which are scheduled to take place during the fourth quarter of 2013 and the first quarter of 2014, respectively. The Company is also considering including this information in its quarterly newsletters to the municipalities.

3. Damage Assessment Process Improvements

PowerServices’ recommended that the Company take additional steps to improve its damage assessment process.¹⁹ The Company responded that while it believes that it has made improvements to its damage assessment processes, it continues to consider process and technology enhancements that could further streamline these processes.²⁰

Company Report:

The Company has improved the speed of deployment and the volume of resources that can be accessed to perform Damage Assessment. For example, the Company has implemented a new employee notification tool. This tool receives employee assignments, contact information, and addresses from the Company’s storm emergency assignment database. This new tool has been effective in activating employees for their storm assignments and has decreased the time it takes to notify employees of their storm assignments. In addition, the tool also keeps a record of employee notifications and the status of employee responses. To increase the volume of resources available to perform damage assessment for a system-wide event, the Company developed vendor relationships with three firms that can respond in a timely manner. This has increased the Company’s firm capability of damage assessment by 100 percent. Both of these

¹⁸ Id. at 6.

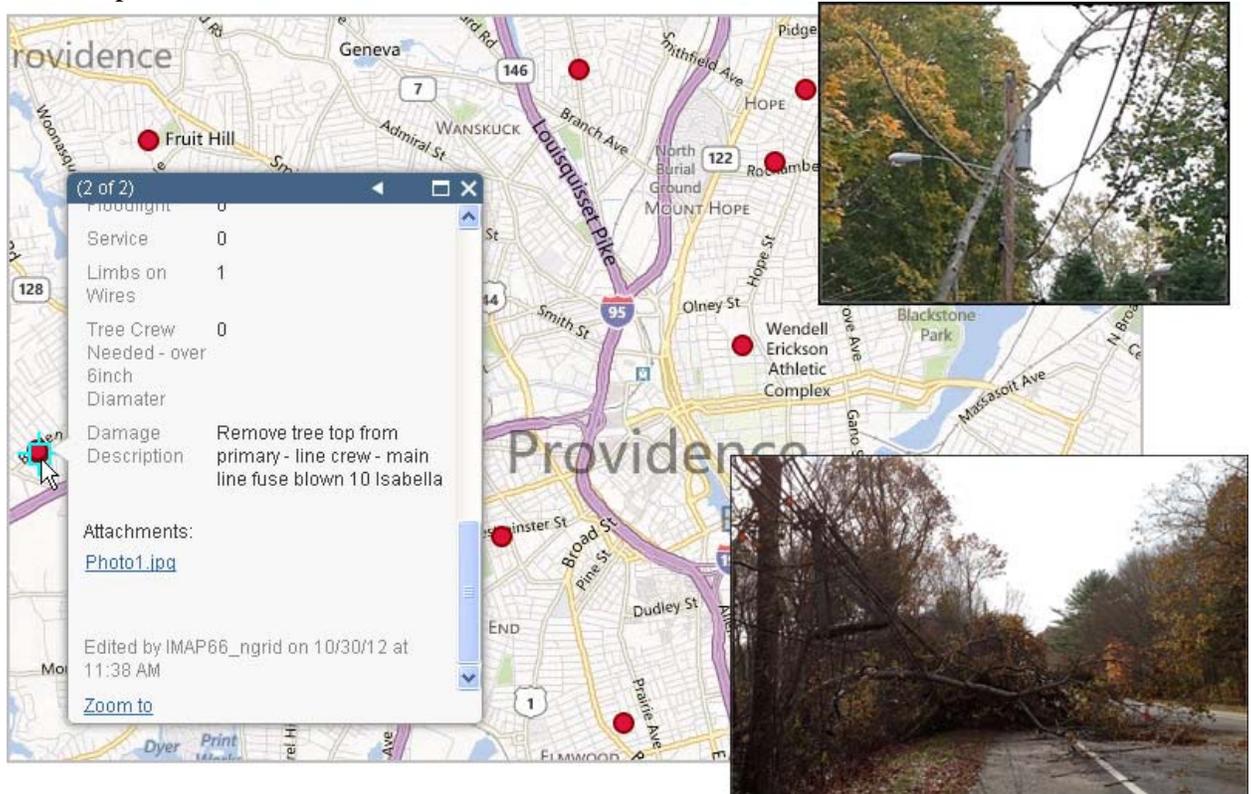
¹⁹ Booth Report at 57.

²⁰ National Grid Supplemental Response at 14.

improvements were implemented in Sandy and have been available for storm response since that time.

During Sandy, the Company also performed a limited trial of its recently completed technology to collect and store damage assessment data using electronic devices, such as an iPad, and mobile devices such as cell phones with Android and iPhone operating systems. The assessment data is geographically pin-pointed on the Company's mapping system, and the user has the ability to associate pertinent assessment data with the geographic location. The user also has the ability to take a picture or movie of the damage and associate it with a geographic location as well. This damage assessment data is stored centrally in real time and can be accessed by many. The Company continued with this trial in the Nor'easter and is now assessing the output of the trial, contemplating the benefits of further development and implementation, including appropriate back office and database support. The technology can continue to be used in future storms as improvements are made to the process and systems. The Company has recently ordered additional iPads so that all damage assessors will have access to the appropriate tools. The screen shot below illustrates the type of information the Company collected using the iPads. The dots on the map represent damage areas surveyed, with photos taken and mapped to specific damage areas.

Overall, the Company's goal is to improve the speed in which it completes the damage assessment phase of the event. This will improve the speed by which the Company's workforce and wider stakeholders, such as our municipal liaisons, can access the damage assessment information. The Company is also designing its technology to calculate the estimated times of restoration (ETRs) in a shorter amount of time and to streamline the development of work packages to prioritize restoration work.



4. Information System Improvements

PowerServices recommended that the Company evaluate all technology and communication systems that are currently employed as part of the outage process (including ETR communications).²¹ The Company agreed to further review these current technology and communications systems.²²

Company Report:

National Grid has recognized the limitations of the current application PowerOn and its supporting systems PORD and PORTIS. As a result, National Grid is actively replacing PowerOn and its components with an updated system ABB OMS that is currently scheduled for deployment in late 2013. National Grid is in the testing phase of the new environment to ensure that the updated system will meet its needs. As with any new system it will be continually reviewed to ensure it is capable of performing as intended.

In the interim, National Grid has installed additional infrastructure to address identified issues during its storm response. That infrastructure includes additional memory, CPU and front-end web servers to enhance the performance during storm events. The Company has also procured a service to facilitate presenting maps for estimated time of restoration (ETR) communications to further address high utilization of Outage Central during weather events. Additionally, Information Services actively monitors these systems during events to ensure that the systems perform optimally and can quickly address incidents.

5. End-to-End Process Improvements

PowerServices recommended that the Company implement specific operational plans that consider and address all local offices, staging sites, and material yards based upon the increased local area restoration efforts.²³ The Company agreed with this recommendation and cited its end-to-end Emergency Planning and Response review.²⁴

Company Report:

The end-to-end emergency response and repair process review identified opportunities to increase local-area restoration efforts. Specifically, the Company implemented the strike force unit approach during Sandy and the Nor'easter in coordination with the Rhode Island Department of Transportation ("RIDOT"), the National Guard, and the Rhode Island State Police, as well as the decentralized restoration to a substation level. Both proved to be an effective use of resources during restoration efforts.

²¹ Booth Report at 57-58.

²² National Grid Supplemental Response at 14-15.

²³ Booth Report at 58-59.

²⁴ National Grid Supplemental Response at 16-17.

6. Community Liaison Improvements

PowerServices recommended that the Company create or expand partnerships with local and state emergency managers.²⁵ The Company responded that it has expanded its partnerships to include local EMAs, and as part of the Company's new Community Liaison program, the Company will meet with each city and town to review contact information and their critical priorities. The Company also indicated that community liaisons will be stationed in local EOCs to help communicate ETRs and coordinate restoration of critical facilities.²⁶

Company Report:

The Company implemented its Community Liaison program during Sandy and the Nor'easter, and it was very well-received.

7. Mutual Assistance with Pascoag Utility District

In response to PowerServices' recommendation that National Grid participate with local authorities to develop mutual aid support agreements, the Company indicated that it is working with Pascoag Utility District on a mutual aid support agreement.²⁷

Company Report:

An Edison Electric Institute Mutual Assistance Subcommittee is being formed to assess the feasibility of increasing the current footprint of the New England Regional Mutual Assistance Group and to set up mutual assistance agreements with municipal-owned electric utilities and co-operatives.

8. Regional Zone Plan

In response to PowerServices' recommendation that National Grid coordinate with local government to clear streets to allow access for first responders, the Company indicated that it was implementing a Regional Zone plan in coordination with the National Guard and Rhode Island State Police to help clear streets as soon as possible to allow access for first responders.²⁸ Additionally, quarterly meetings with the Rhode Island State Police, RIEMA, the National Guard and RIDOT have continued throughout the year to further refine emergency operating procedures within the state.

Company Report:

The Regional Zone plan initiative has been fully implemented and was utilized during the prior two major storm events among the Company, RIEMA, RIDOT, and the Rhode Island State Police.

²⁵ Booth Report at 62-63.

²⁶ National Grid Supplemental Response at 21.

²⁷ Id.

²⁸ Id. at 22.

9. Minor Storm Hardening

In response to PowerServices' recommendations regarding improvements to the system's ability to perform under storm conditions, the Company indicated that it was developing a Minor Storm Strategy to address pockets on the distribution system that have experienced multiple minor storms over the past five years. The Company also indicated that it would consider such improvements as part of its Infrastructure, Safety, and Reliability ("ISR") Plan, and would work with the Division on such a program through the ISR Plan.²⁹

Company Report:

The Minor Storm Hardening Strategy is intended to address pockets on the distribution system that have experienced multiple interruptions during minor storms. The Company defines "Minor Storms" as occurring on days when the network experiences an exponentially greater number (between 1.5 and 2.5 Beta plus three times the average number of events) of SAIDI minutes due to a weather event.

The Tunk Hill Reliability project in Rhode Island, which is included in the Company's FY2014 Infrastructure, Safety and Reliability ("ISR") Plan, will reconnector two miles of 1/0 Al bare wire primary conductor with 477kcmil Al spacer cable conductor at an estimated capital cost of \$1.275 million. Spacer cable construction is being utilized for its resistance to tree contact outages. This project is being considered as a pilot to evaluate various elements associated with the development of a comprehensive storm hardening program, including the mechanism in which potential project locations are identified, the use of Grade B construction at critical pole locations, and the implementation of an enhanced vegetation management specification.

In selecting potential project locations, the Company has developed a means to identify customers that experience multiple interruptions ("CEMI"). An analysis of CEMI on adverse weather days can be used to identify areas of potential storm hardening. In the area of reconnectoring, attention to pole loading and the use of Grade B construction at critical poles (i.e. junction poles, switch poles, and rail road and water crossings) will be employed. Along the two miles of reconnectoring plus an additional 5.5 miles of overhead line down stream of the reconnectoring area, the Company will employ a vegetation management strategy referred to as Branch Reduction.

In addition to the Tunk Hill Reliability project, the Company is implementing five additional projects (three in New York and two in Massachusetts) as part of its pilot. The lessons learned from all six projects will determine the future application of this program. Evaluation of the pilot will occur in stages. First, the Company will assess the methodologies for identifying candidate locations and scoping of projects to respond to identified

²⁹ Id. at 25.

issues. This can be done after the projects are design complete. In the years following construction, the reliability performance of those areas will be reviewed to determine the effectiveness of the projects. Assuming the results are positive, there are numerous potential locations throughout Rhode Island that would be candidates for hardening efforts to enhance performance during adverse weather events.

10. Activation of SRT

The Company committed to reviewing the need for official activation of the SRT in each future event and will activate the SRT when appropriate.³⁰ The Division urged the Company to use its SRT more liberally during major storm events.³¹

Company Report:

The SRT activation process is documented, trained, and drilled annually. It includes the activation of the SRT for major storm events. Specifically, during Sandy and the Nor'easter, the System Incident Commander provided frequent briefings to the SRT Chair in accordance with the SRT Activation Guide both before and during the restoration for both events. Although a formal SRT call was not activated, the majority of the Primary and Secondary members of the SRT participated in all System conference calls and/or were activated for System ICS roles.

III. CONCLUSION

The Company has taken steps to implement certain improvements and initiatives with respect to its level of preparedness, expansion of restoration resources, and other cooperative efforts, as directed by the Division in its Order. In addition, the Company continues to make progress with those initiatives that it indicated it would undertake in response to certain recommendations by PowerServices. The Company has had success with some of these initiatives during Sandy and the Nor'easter, specifically respect to the procurement of additional resources, damage assessment, its community liaison program, and the use of the strike force units. The Company looks forward to working collaboratively with the Division to implement these improvements and initiatives in future storm events.

³⁰ Id. at 9.

³¹ Report and Order at 76.

Attachment 1
National Grid's Report
Regarding Directives Contained in the
Rhode Island Division's Report and Order
Dated November 20, 2012
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Transmission Circuits

LINE DESIGNATION	VOLT (KV)	STRUCTURE TYPE (A)	Wood	Steel	Approximate Structures	# of Str Models	Model Ea Str	Check Ea Str	Eng \$ (\$100/hr)	Previously Replaced	Assumed % Str Replac	Str Repl	Cost/Str	Total	H-Frame Xbraced	H-Frame Not Xbraced	Xbrace Installation (\$10,000/Str)	1/3 Guy	Guy Installation (\$5,000/Str)	Member Reinfor	Member Reinforce (\$50,000/Str)	Comments	
315	345	WHF	60		60	4	12	30	\$4,200														
328	345	WHF	72		72	4	12	36	\$4,800	5	10%	6	\$100,000	\$600,000	53	0	0	0	0	0	0	0	Refurb in 2007 - Minimal Structure Replacement
332	345	WPHF	227		227	4	12	113.5	\$12,550	20	10%	21	\$100,000	\$2,100,000	94	0	0	0	0	0	0	0	Refurb in 2005 - Minimal Structure Replacement
3361	345	WHF	1		1	4	3	0.5	\$350	0	10%	1	\$100,000	\$100,000	1	0	0	0	0	0	0	0	
347	345	WHF	67		67	4	12	33.5	\$4,550	5	10%	7	\$100,000	\$700,000	55	0	0	0	0	0	0	0	Refurb in 2005 - Minimal Structure Replacement
1187 TAP	115	WPHF	2		2	1	3	1	\$400	0	0%	0	\$80,000	\$0		2	20000	0	0	0	0	0	Refurb in 2005
1187 TAP	115	WHF	1		1	1	3	0.5	\$350	0	0%	0	\$80,000	\$0		1	10000	0	0	0	0	0	Refurb in 2005
J188 TAP	115	WPHF	2		2	1	3	1	\$400	0	0%	0	\$80,000	\$0		2	20000	0	0	0	0	0	
G188N	115	WHF	7		7	1	3	3.5	\$650	0	0%	0	\$80,000	\$0		7	70000	0	0	0	0	0	
G188S	115	WHF	175		175	4	12	87.5	\$9,950	20	20%	35	\$80,000	\$2,800,000	140		1400000	0	0	0	0	0	
L190	115	WHF	12		12	2	6	6	\$1,200	0	20%	3	\$80,000	\$240,000			90000	0	0	0	0	0	
1870S	115	WHF	80		80	4	12	40	\$5,200	0	20%	16	\$80,000	\$1,280,000	64		640000	0	0	0	0	0	
E183	115	WHF	25		25	4	12	12.5	\$2,450	0	20%	5	\$80,000	\$400,000	20		200000	0	0	0	0	0	
F184	115	WHF	80		80	4	12	40	\$5,200	0	20%	16	\$80,000	\$1,280,000	64		640000	0	0	0	0	0	
V148	115	WHF	34		34	4	12	17	\$2,900	0	20%	7	\$80,000	\$560,000	27		270000	0	0	0	0	0	
Q143S	115	WPHF	165		165	4	12	82.5	\$9,450	46	20%	24	\$80,000	\$1,920,000	95		950000	0	0	0	0	0	
R144	115	WPHF	127		127	4	12	63.5	\$7,550	34	20%	19	\$80,000	\$1,520,000	74		740000	0	0	0	0	0	
3761/3762	69	DCWH, WHF	47		47	4	12	23.5	\$3,550	0	40%	19	\$50,000	\$950,000	28		280000	0	0	0	0	0	Refurbished in 2006 - About 1/4 structures replaced
3763	69	WP	86		86	3	6	43	\$4,900	0	40%	35	\$50,000	\$1,750,000	0	0	0	28	141900	0	0	0	
E23	115	WP	65		65	3	6	32.5	\$3,850	0	33%	22	\$80,000	\$1,320,000	0	0	0	21	107250	0	0	0	
G188S TAP	115	WP	10		10	1	2	5	\$700	0	33%	4	\$60,000	\$240,000	0	0	0	3	16500	0	0	0	
I187	115	WP	44		44	3	6	22	\$2,800	0	33%	15	\$60,000	\$900,000	0	0	0	15	72600	0	0	0	Refurb in 2005
J188	115	WP	43		43	3	6	21.5	\$2,750	0	33%	15	\$60,000	\$900,000	0	0	0	14	70950	0	0	0	
L190	115	WP	23		23	3	6	11.5	\$1,750	0	33%	8	\$60,000	\$480,000	0	0	0	8	37950	0	0	0	
L14	115	WP	95		95	3	6	47.5	\$5,350	0	66%	63	\$60,000	\$3,780,000	0	0	0	31	156750	0	0	0	
M13	115	WP	95		95	3	6	47.5	\$5,350	0	66%	63	\$60,000	\$3,780,000	0	0	0	31	156750	0	0	0	
P11.R9	115	DCST	2		2	1	16	2	\$1,800	0	20%	1	\$150,000	\$150,000	0	0	0	0	0	30%	1	30000	
P11.X3	115	DCST	27		27	3	48	27	\$7,500	0	20%	6	\$150,000	\$900,000	0	0	0	0	0	30%	8	405000	
R9.J16	115	DCST	36		36	4	64	36	\$10,000	0	20%	8	\$150,000	\$1,200,000	0	0	0	0	0	30%	11	540000	
R9.Q10	115	DCST	42		42	5	80	42	\$12,200	0	20%	9	\$150,000	\$1,350,000	0	0	0	0	0	30%	13	630000	
H17	115	DCST	2		2	1	16	2	\$1,800	0	20%	1	\$150,000	\$150,000	0	0	0	0	0	30%	1	30000	
1TR,2TR,3TR	115	ST	18		18	2	32	18	\$5,000	0	10%	2	\$120,000	\$240,000	0	0	0	0	0	30%	5	270000	
R144	115	ST	46		46	5	80	46	\$12,600	0	10%	5	\$120,000	\$600,000	0	0	0	0	0	30%	14	690000	
V148	115	ST	5		5	1	16	5	\$2,100	0	10%	1	\$120,000	\$120,000	0	0	0	0	0	30%	2	75000	
G188S/L190		DCSP	51		51	4	32	25.5	\$5,750	0	5%	3	\$120,000	\$360,000	0	0	0	0	0	0	0	0	
L14/M13		DCSP	5		5	1	8	2.5	\$1,050	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
333	345	SP	2		2	1	8	1	\$900	0	5%	1	\$150,000	\$150,000	0	0	0	0	0	0	0	0	
3763	69	SP	11		11	2	16	5.5	\$2,150	0	5%	1	\$100,000	\$100,000	0	0	0	0	0	0	0	0	
E183	115	SP	96		96	4	32	48	\$8,000	0	5%	5	\$120,000	\$600,000	0	0	0	0	0	0	0	0	
G188N	115	SP	4		4	1	8	2	\$1,000	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
G188S TAP	115	SP	13		13	2	16	6.5	\$2,250	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
I187	115	SP	21		21	3	24	10.5	\$3,450	0	5%	2	\$120,000	\$240,000	0	0	0	0	0	0	0	0	Refurb in 2005
I187 TAP	115	SP	10		10	1	8	5	\$1,300	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	Refurb in 2005
J188	115	SP	21		21	3	24	10.5	\$3,450	0	5%	2	\$120,000	\$240,000	0	0	0	0	0	0	0	0	
J188 TAP	115	SP	11		11	2	16	5.5	\$2,150	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
K189	115	SP	12		12	2	16	6	\$2,200	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
L14 TAP	115	SP	5		5	1	8	2.5	\$1,050	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
M13 TAP	115	SP	5		5	1	8	2.5	\$1,050	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
Q143S	115	SP	6		6	1	8	3	\$1,100	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
V148	115	SP	71		71	4	32	35.5	\$6,750	0	5%	4	\$120,000	\$480,000	0	0	0	0	0	0	0	0	
X3	115	SP	19		19	2	16	9.5	\$2,550	0	5%	1	\$120,000	\$120,000	0	0	0	0	0	0	0	0	
					2186			Eng Cost	\$202,300			472	Str Replac	\$36,380,000			X-Braces	\$5,330,000	Guying	\$760,650	Member Replacment	\$2,670,000	\$45,342,950
T7	115	DCST (WITH DIST)	0		26																		Reconstructed in 2011
S171N	115	WPHF	15		15																		Rebuild in progress
S171N	115	WHF	133		133																		Rebuild in progress
S171S	115	WHF	14		14																		Rebuild in progress
S171S TAP	115	WPHF	124		124																		Rebuild in progress
S171S TAP	115	WHF	28		28																		Rebuild in progress
S171S TAP	115	SHF	3		3																		Rebuild in progress
S171S TAP	115	WHF	1		1																		Rebuild in progress
T172N	115	WHF	15		15																		Rebuild in progress
T172N	115	WHF	125		125																		Rebuild in progress
T172N TAP	115	WHF	6		6																		Rebuild in progress
T172S	115	WHF	15		15																		Rebuild in progress
T172S	115	WHF	127		127																		Rebuild in progress
T172S TAP	115	WHF	29		29																		Rebuild in progress
T172S TAP	115	SHF	3		3																		Rebuild in progress
L14	115	WHF	28		28																		Refurb in near future
M13	115	WHF	28		28																		Refurb in near future
1870	115	WHF	48		48																		Refurb/Recond in 2007
1870N	115	WHF	66		66																		Refurb/Recond in 2007
H17	115	WHF	50		50																		Refurb in 2009
H17	115	SP	7		7																		Refurb in 2009
L190 TAP	115	SP	178		178	4	32	89	\$12,100	0	5%	9	\$120,000	\$1,080,000	0	0	0	0	0	0	0	0	