The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

D.P.U. 11-85-A/11-119-A December 11, 2012

Investigation by the Department of Public Utilities on its Own Motion into the Preparation and Response of Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid to Tropical Storm Irene (August 2011) and to the October 29, 2011 snowstorm.

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I. INTRODUCTION

On September 15, 2011, the Department of Public Utilities ("Department"), pursuant to G.L. c. 164, §§ 1J, 85B, 76, and 220 C.M.R. § 19.00 et seq., issued an order opening an investigation ("Order Opening Investigation") into the efforts by Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid ("National Grid") and NSTAR Electric Company ("NSTAR") to prepare for and restore power following Tropical Storm Irene ("T.S. Irene"). The Department docketed the investigations as D.P.U. 11-85-A and D.P.U. 11-85-B, respectively.

On November 8, 2011, the Department, pursuant to G.L. c. 164, §§ 1J, 85B, 76, and 220 C.M.R. § 19.00 et seq., issued an order opening an investigation ("Order Opening Investigation - October") into the preparation and response of National Grid, NSTAR, and Western Massachusetts Electric Company ("WMECo") (collectively, "Companies"), to an October 29, 2011 snowstorm ("October Snowstorm"). The Department docketed the investigations as D.P.U. 11-119-A, D.P.U. 11-119-B, and D.P.U. 11-119-C, respectively.

In each Order Opening Investigation, the Department announced that it would review the Companies' compliance with the Department's performance standards regarding emergency preparation and restoration of service by evaluating the Companies' preparation for T.S. Irene and the October Snowstorm, and the Companies' implementation of their emergency response plans ("ERPs") (Order Opening Investigation at 1; Order Opening Investigation – October at 1). The Department stated that its inquiry would focus on the Companies' compliance with the Department's performance standards for emergency preparedness and restoration of service, including: (1) preparation for and management of the restoration efforts with respect to each

storm; (2) allocation of company resources in the affected communities; (3) communications with state, municipal, and public safety officials and with the Department; (4) dissemination of timely information to the public; and (5) identification of company practices that require improvement, if any. This Order concerns the investigations into National Grid's actions regarding T.S. Irene and the October Snowstorm.[1]

In this Order, we begin with the procedural history and general background on the Company and the storm events. After setting forth the applicable standard of review, we proceed by reviewing the Company's service restoration process, including National Grid's actions with respect to monitoring forecasts, classifying the event according to its ERP, securing crews, using its Outage Management System ("OMS"), providing emergency response to downed wires, conducting damage assessment, and communicating with customers and municipal officials. We then evaluate the Company's compliance with advance planning and training requirements, discuss maintenance issues, and review the Company's compliance with reporting requirements. We conclude the Order with a discussion on recommendations and penalties.

II. PROCEDURAL HISTORY

On October 12, 2011, the Department issued a notice of public hearings, request for comments, and request for petitions of intervention regarding T.S. Irene. On November 21, 2011, the Department issued a notice of public hearings, request for comments, and request for petitions of intervention regarding the October Snowstorm. The Department conducted a total of nine public hearings regarding the storms in the following Massachusetts municipalities in the

[1] On January 17, 2012, through a Hearing Officer ruling, National Grid's dockets were consolidated as D.P.U. 11-85-A/11-119-A pursuant to 220 C.M.R. § 1.09 because of the common issues raised.

Company's service territory: Quincy on October 25; Brockton on November 8; Southborough on November 29; Attleboro on December 1; East Longmeadow on December 5; Belchertown on December 7; Worcester on December 8; Brookfield on December 13; and Tyngsborough on December 15.

The Attorney General of the Commonwealth intervened pursuant to G.L. c. 12, § 11E. On January 13, 2012, the Department approved a notice by the Attorney General to retain an expert/consultant pursuant to G.L. c. 12, § 11E(b). On January 17, pursuant to a Hearing Officer ruling, the Department granted full intervenor status to the Department of Energy Resources ("DOER") and limited participant status to Fitchburg Gas and Electric Light Company d/b/a Unitil ("Unitil"). The Department conducted a procedural conference on January 23.

On February 10, the Company submitted to the Department the pre-filed testimony of the following Company personnel: (1) Christopher Root, senior vice president of network strategy; (2) Kathy Lyford, vice president-electric operations - New England; (3) David Way, vice president of project management & complex construction; (4) Amy Smith, director of regulatory support and reporting for the U.S.; (5) Neil Proudman, vice president, operations support and system logistics officer; and (6) Edward H. White, Jr., vice president of customer and business strategy for U.S. customers.

On March 14, the Attorney General submitted joint testimony of two expert witnesses: Daniel E. O'Neill, president and managing consultant, O'Neill Management Consulting, LLC; and Charles A. Fijnvandraat, subcontractor to O'Neill Management Consulting, LLC. Additionally, the Attorney General submitted testimony of: (1) Selectman Elizabeth Coughlin, Tyngsborough Board of Selectmen, Tyngsborough, Massachusetts; (2) Councilor Kevin F.

Coughlin, Quincy City Council, Quincy, Massachusetts; (3) Fire Chief Richard Francis, Brockton Fire Department, Brockton, Massachusetts; (4) Fire Chief James Neenan, Pembroke Fire Department, Pembroke, Massachusetts; (5) Town Manager Jodi Ross, Westford Town Manager's Office, Westford, Massachusetts; and, (6) Director Neal P. Aspesi, Southborough Emergency Management Operations, Southborough, Massachusetts.

On April 2, the Company submitted rebuttal testimony of Mr. Root, Mrs. Lyford, Mr. Way, and Mr. White. On April 4, the Attorney General submitted joint surrebuttal testimony of Mr. O'Neill and Mr. Fijnvandraat. On April 12, the Company submitted joint surrebuttal testimony of Mr. Root, Mrs. Lyford, Mr. Way, and Mr. White.

The Department conducted evidentiary hearings from June 4 through June 8, 2012. On June 29, the Attorney General and DOER filed initial briefs. On July 18, the Company filed its initial brief. On July 25, the Attorney General and DOER submitted reply briefs,[2] and on August 1, the Company submitted a reply brief. The record consists of approximately 480 exhibits and 26 record requests.[3]

III. BACKGROUND

A. Company

National Grid serves approximately 1.2 million customers in 172 communities in Massachusetts (Exh. NG-1, at 10). Massachusetts Electric Company/Nantucket Electric

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[2] On November 1, 2012, the Attorney General filed a motion for leave to supplement her reply brief to request that any penalties the Department imposes be refunded to ratepayers pursuant to Acts of 2012, Chapter 216, § 1. This motion is addressed below, in Section X.B.2.

[3] The Department, on its own motion, hereby moves into the evidentiary record Exhibit DPU-1 as introduced at the evidentiary hearing on June 7, 2012 (Tr. 4, at 797-798).

Company, D.P.U. 09-39, at 2 (2009). Its service territory ranges from the western border of the Commonwealth to the shores of Massachusetts Bay and touches the borders of New York, Connecticut, Rhode Island, Vermont, and New Hampshire, covering over 3,920 square miles (Exh. NG-1, at 7-8). National Grid's service territory also includes Nantucket (Exh. NG-1, at 8).

National Grid established an ERP for the purpose of managing outages caused by storms and other natural disasters, civil unrest, major equipment failure, or other emergency events (Exh. NG-5, Section .100, at 1).[4] The Company states that the ERP is intended to be simple, flexible, and easily adapted to specific emergency events (Exh. NG-5, Section .100, at 1).[5] The Company designed its ERP to provide the framework for the Company's orderly response to emergency events and to provide instruction on actions taken during emergency events classified as Levels III, IV, and V (Exh. NG-5, Section .100, at 1). The ERP in effect at the time of T.S. Irene and the October Snowstorm was the ERP that the Company filed on May 16, 2011. Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid, D.P.U. 11-ERP-09.

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4 National Grid refers to its ERP as the Electric Emergency Plan - New England or EEP; however, the Department will refer to it as its ERP. The Company states that the ERP includes procedures that will be adhered to by National Grid subsidiaries in New England whenever an emergency event occurs (Exh. NG-5, Section .100, at 1).

5 An emergency event is an event in which widespread outages or service interruptions have occurred in the service area due to storms or other causes beyond the control of the company (Exh. NG-5, Section .100, at 4). An emergency event is an event classified as a Level III, IV, or V event (Exh. NG-5, Section .100, at 4)

B. Impact of Storm

1. T.S. Irene

a. Customer Outages

T. S. Irene caused a total of 478,814 customer outages in 170 of 172 communities in National Grid's service territory. Out of approximately 1.2 million customers served, 305,004 customers experienced an outage at the peak of the storm on Sunday, August 28 (Exhs. NG-1 (Redacted) at 1, 6; DPU 4-1; DPU 5-36). Storm-related customer outages began on August 28 (Exh. DPU 2-5, Att. A). The Company restored service to 95 percent of its customers by Wednesday, August 31, and approximately 100 percent by the end of the day, Saturday, September 3 (Exh. DPU 2-5, Att. A). From the time restoration began on Sunday, August 28, until the time it was completed on September 3, was six days. See Table 1.

In total, Hurricane Irene caused nearly six million customers to experience power outages on the east coast (Exh. NG-1 (Redacted) at 4-6).

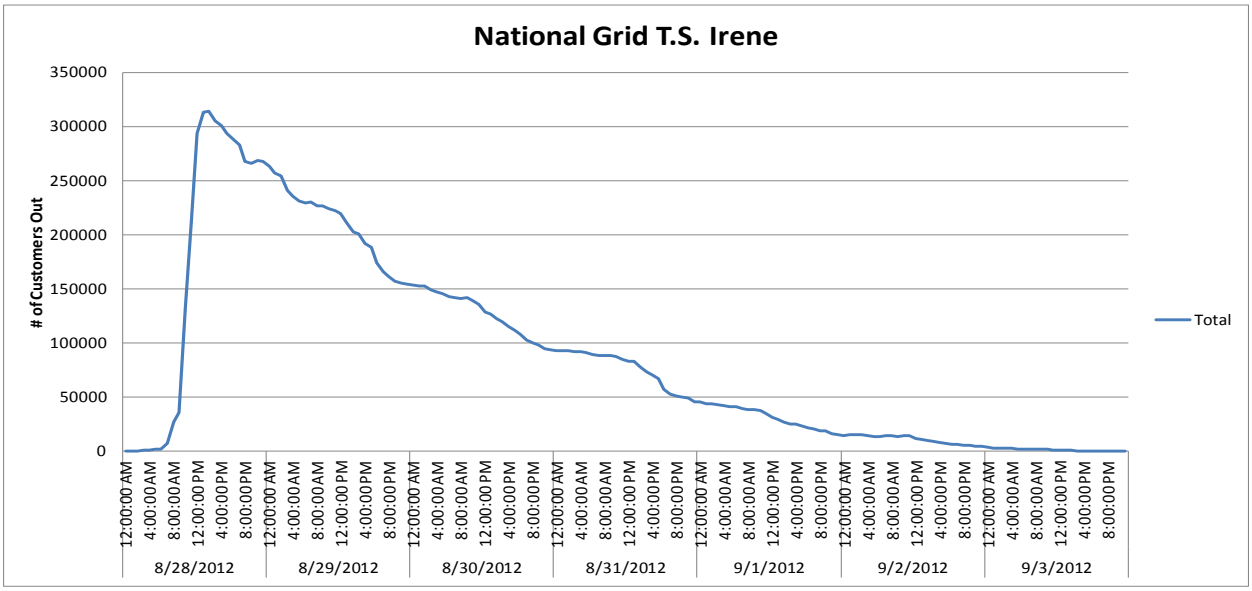
b. Damage to Company's Transmission and Distribution System

T. S. Irene imparted significant damage to the Company's infrastructure throughout the Company's service territory (Exh. NG-1 (Redacted) at 8-10). The towns in National Grid's service territory that experienced the most damage were located on the south shore, along the Rhode Island border and south central Massachusetts (Exh. NG-1 (Redacted) at 6, 9). Downed trees and erosion from flooding from T.S. Irene's tropical storm-force winds[6] and rains damaged 23 transmission circuits, 983 distribution feeders, 267 distribution poles, and 135 distribution transformers (Exhs. NG-1, at 9; DPU 10-1, Att.).

[6] Throughout New England, T.S. Irene measured sustained winds of 44 m.p.h. and wind gusts up to 67 m.p.h. (Exh. NG-1 (Redacted) at 9).

Table 1: T.S. Irene, Active Number of Customer Interruptions

	National Grid, Active Number of Customer Interruptions						
Hour	8/28/2012	8/29/2012	8/30/2012	8/31/2012	9/1/2012	9/2/2012	9/3/2012
0:00	0	262764	153653	93000	45700	14589	3594
3:00	948	241154	148496	91900	42529	15290	2373
7:00	7187	230538	141732	88168	38819	13980	1995
11:00	217701	221675	135325	84929	34925	13950	1188
15:00	305004	200518	119398	73311	24811	8573	327
19:00	282847	166012	102232	52337	20411	5871	123
23:00	267769	154557	93176	45778	14941	4012	30



(Exh. DPU 4-23).

2. October Snowstorm

a. Customer Outages

The October Snowstorm caused a total of 519,894 customer outages in 158 communities in the National Grid service territory; 382,498 customers experienced an outage at the peak of the storm on Sunday, October 30 (Exhs. NG-2 (Redacted) at 2, 4; DPU 4-1; DPU 5-36).

Storm-related customer outages began on Saturday, October 29 (Exh. NG-2 (Redacted) at 7). The Company restored 94 percent of its customer outages by Friday, November 4, and approximately 100 percent by the end of the day Sunday, November 6 (Exh. DPU 3-5). From the time restoration began on Saturday, October 29, until the time it was completed on Sunday, November 6, was eight days. See Table 2.

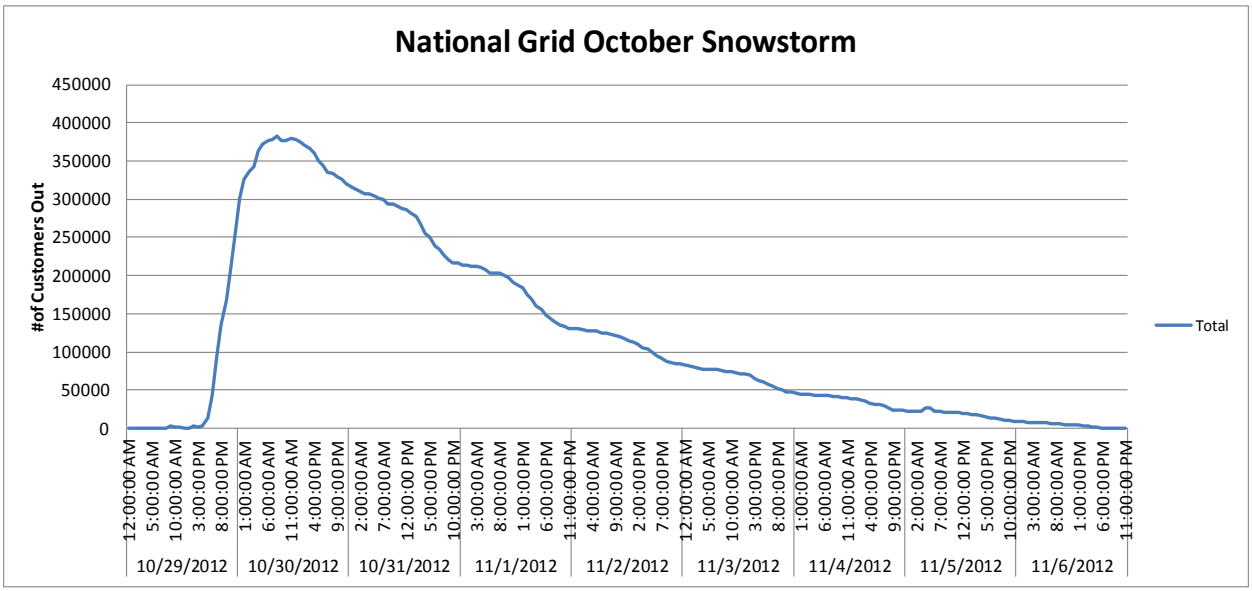
As a result of the storm system, from Maryland to Maine about three million customers lost power (Exh. NG-2 (Redacted) at 2).

b. Damage to Company's Transmission and Distribution System

The October Snowstorm imparted extensive damage to the Company's electric infrastructure (Exh. NG-2 (Redacted) at 4). The Company's infrastructure in towns located in the Merrimack Valley, Central Massachusetts, and Western Massachusetts experienced the most damage (Exh. NG-2 (Redacted) at 8). Downed trees from heavy wet snow deposited by the October Snowstorm damaged 35 transmission circuits, 34 sub-transmission circuits, 646 distribution feeders, 284 distribution poles, and 75 transformers (Exhs. NG-2 (Redacted) at 7; DPU 10-1, Att.).

Table 2: October Snowstorm, Active Number of Customer Interruptions

	National Grid, Active Number of Customer Interruptions								
Hour	10/29/2012	10/30/2012	10/31/2012	11/1/2012	11/2/2012	11/3/2012	11/4/2012	11/5/2012	11/6/2012
0:00	0	300774	316212	214011	130756	83077	46066	22809	9103
4:00	427	364026	306776	210475	126886	77401	43287	26208	7545
8:00	507	382498	293987	202730	123054	75497	42098	21300	5800
12:00	427	378846	285722	186669	114111	71186	39122	19858	3901
16:00	2887	360545	255527	160753	104352	62436	33060	16019	1335
20:00	135452	334376	226656	138993	86683	52096	27016	12216	25
23:00	254757	320878	216266	130887	83900	46758	22871	9450	20



(Exh. DPU 4-23).

IV. REGULATORY FRAMEWORK

On November 12, 2009, Governor Patrick signed into law St. 2009, c. 133, An Act Relative to Public Utility Companies ("2009 Act"). Among other provisions, the 2009 Act amended G.L. c. 164 by adding two new sections, §§ 1J and 85B.

Section 1J requires the Department to promulgate rules and regulations to establish standards of acceptable performance for emergency preparation and restoration of service for electric and gas companies doing business in the Commonwealth. Section 1J authorizes the Department to investigate alleged violations of the Department's standards of acceptable performance to determine whether a company violated such standards.[7] Finally, Section 1J states that the Department "shall levy a penalty not to exceed $250,000 for each violation for each day that the violation of the department's standards persist; provided, however, that the maximum penalty shall not exceed $20,000,000 for any related series of violations."

Section 85B requires that electric distribution, transmission, and natural gas companies submit annually an ERP for review and approval by the Department. Section 85B requires that ERPs be designed for the "reasonably prompt restoration of service in the case of an emergency event" and specifies information that must be included in a company's ERP. Section 85B also authorizes the Department to open an investigation to review the performance of any electric company in restoring service during an emergency event.

On February 2, 2010, the Department issued Emergency Preparation and Restoration of Service Regulations, D.P.U. 10-01, an Order adopting emergency regulations 220 C.M.R. § 19.00: Standards of Performance for Emergency Preparation and Restoration of Service for Electric Distribution and Gas Companies. After receiving comments and holding a public hearing, the Department revised the regulations and issued an Order adopting final regulations on April 16, 2010. D.P.U. 10-01-A (2010). The regulations establish: (1) standards

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[7] The Department also has general authority pursuant G.L. c. 164, § 76 to investigate electric companies' activities as they relate to the safety and convenience of the public or compliance with relevant statutes, orders, or regulations.

for acceptable performance for emergency preparation and restoration of service for electric and gas companies; (2) minimal requirements for ERPs based on G.L. c. 164, § 85B; and (3) procedures for Department investigations, imposition of penalties, and recovery of service restoration costs consistent with G.L. c. 164, §§ 1J and 85B.

On April 20, 2010, the Department issued Final Emergency Response Plan Guidelines for Electric Companies, D.P.U. 10-02-A (2010) ("ERP Guidelines"). The purpose of the ERP Guidelines is to "establish, to the extent reasonable, uniform content and formatting requirements by which each electric company shall structure its ERP, consistent with the requirements of G.L. c. 164, § 85B and 220 C.M.R. § 19.03 et seq." See ERP Guidelines at Section I.[8]

In our investigations of the electric companies' response to T.S. Irene and the October Snowstorm, the Department applies the above regulatory framework for the first time.[9]

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[8] On August 6, 2012, after the Department commenced its investigations into the electric companies' response to T.S. Irene and the October Snowstorm, Governor Patrick signed into law St. 2012, c. 216, An Act Relative to Emergency Service Response of Public Utility Companies (Effective Date, August 6, 2012) ("2012 Act"). Among other provisions, the 2012 Act: (1) mandates that any penalty levied by the Department for violation of the Department's standards of acceptable performance for emergency preparation and restoration of service be credited back to the company's customers in a manner determined by the Department; (2) expands the specified information that companies must include in their ERPs per G.L. c. 164, § 85B; (3) requires companies to adopt additional emergency communication protocols; (4) expands companies' reporting requirements; and (5) specifies certain vegetation maintenance activities. St. 2012, c. 216.

[9] On January 3, 2011, the Department opened an investigation into National Grid's response to a December 26, 2010 winter storm, pursuant to G.L. c. 164, §§ 1J, 85B, 76, 1E, and 1I, and the Department's emergency preparation and restoration of service regulations, 220 C.M.R. § 19.00. National Grid, D.P.U. 11-03, at 1 (2011). After discovery was complete, National Grid and the Attorney General filed an Amended Settlement Agreement, which the Department approved on September 22, 2011. Although the Department opened the investigation pursuant to our new regulations,

D.P.U. 11-85/11-119. The Department notes, however, that this is not the first time that the Department has reviewed electric companies' response to storms or addressed public utilities' obligations to provide safe and reliable service, including the responsibility to restore service in a timely manner when service to a customer has been interrupted. See Fitchburg Gas and Electric Light Company d/b/a Unitil, D.P.U. 09-01-A (2009) (Winter Storm 2008); Western Massachusetts Electric Company, D.P.U. 95-86 (1995); Hurricane Bob, D.P.U. 91-228 (1992); Hurricane Gloria, D.P.U. 85-232 (1986).

V. STANDARD OF REVIEW

A. Statutory and Regulatory Requirements

Pursuant to G.L. c. 164, § 1J, the Department established standards for the acceptable performance for emergency preparation and restoration of service for electric and gas companies. These performance standards are set forth in 220 C.M.R. § 19.03 and include the following:

1. Emergency Preparation - Each Company shall ensure that it is adequately and sufficiently prepared to restore service to its customers in a safe and reasonably prompt manner during an emergency event. 220 C.M.R. § 19.03(2).

2. Restoration of Service - Each Company shall restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages, including, at a minimum, implementing all applicable components of the Company's ERP related to restoration of service. 220 C.M.R. § 19.03(3).

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because the proceeding terminated in a settlement, the Department did not have the opportunity to apply its new regulations to a fully litigated proceeding.

3. Reporting - Each Company shall comply with certain reporting requirements (such as submitting reports on meetings with officials, training and drill exercises, as well as periodic event reports and a final event report). 220 C.M.R. § 19.03(4).

If the Department finds a violation of any of the standards established in 220 C.M.R. § 19.03, the Department shall levy a penalty not to exceed $250,000 for each violation for each day that the violation persists, for a maximum of $20,000,000 for any related series of violations. G.L. c. 164, § 1J; 220 C.M.R. § 19.05(2). In determining the amount of the penalty, the Department shall consider, among other factors, the following: (a) the gravity of the violation; (b) the appropriateness of the penalty to the size of the Company; (c) the good faith of the Company in attempting to achieve compliance; and (d) the degree of control that the Company had over the circumstances that led to the violation. 220 C.M.R. § 19.05(2).

B. Department Penalty Authority

The Department may assess a penalty where (1) there is a standard or established requirement, and (2) there is a violation of that standard or requirement. Our determination of whether a violation exists must be based on what the company knew or reasonably should have known at the time decisions were made. Attorney General v. Department of Public Utilities, 390 Mass. 208, 229 (1983); Western Massachusetts Electric Company, D.P.U. 85-270, at 23-24 (1986); Boston Edison Company, D.P.U. 906, at 165 (1982). In comparing the Company's actions to our standards, we will look to determine whether the Company's actions are reasonable, consistent with the Company's ERP, historic practices and prevailing industry practice. See 220 C.M.R. § 19.03.

While a company's implementation of its ERP is an element considered in the Department's assessment of a company's performance, the regulations explicitly state that to meet the standards set forth in 220 C.M.R. § 19.03(3) a company must, "at a minimum," implement all applicable components of its ERP. G.L. c. 164, § 1J authorizes the Department to assess a penalty when a company violates the Department's standards, not when a company fails to implement its ERP. Ultimately, the Company has an obligation to provide safe and reliable service, including the responsibility to restore service in a timely manner when service to a customer has been interrupted. See Fitchburg Gas and Electric Light Company d/b/a Unitil, D.P.U. 09-01-A at 6-8 (2009).

VI. RESTORATION OF SERVICE

A. Introduction

In this section, we evaluate the Company's performance regarding the restoration of service standard: Each Company shall restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages, including but not limited to implementing all applicable components of the Company's ERP. 220 C.M.R. §19.03(3). This section is concerned with the Company's actions starting several days prior to the emergency events and continuing until the Company completed restoration.

We begin with the weather forecasts and the actual weather for each storm event and then follow the Company's actions through each aspect of the restoration chronologically: from classifying the event to securing resources to its Outage Management System to emergency response (wires down) to damage assessment to restoration of service to customers. We then

discuss how the Company handled communications, an issue that cuts across the chronology of events and actions.

B. Weather Forecasts, Actual Weather and Event Classification

1. Introduction

In this section, we analyze the Company's weather forecast monitoring before each emergency event and how the Company classified the event according to its ERP in response to weather forecasts. For both storms, the Company relied primarily on professional weather data from Telvent DTN ("Telvent"), customized for its service territory, to forecast customer outages and damage to its system, and to identify the event classification level (Exhs. DPU 6-1; DPU 6-14; NG-1 (Redacted) at 12; Tr. 3, at 467-470, 487-488, 498-499). The Company supplements Telvent weather forecasts with publically available weather data from other sources, such as Impact Weather, WeatherBug, and the Weather Channel (Exh. DPU 6-14; Tr. 3, at 488-489). The Company also participates in pre-storm conference calls with Telvent, the National Weather Service, and the Northeast Mutual Assistance Group ("NEMAG") to discuss storm forecasts (Tr. 3, at 488-490, 500).

The objective of the event classification process, as outlined in the Company's ERP, is to provide a framework to assist the Company in preparing for emergency events based on the severity of expected outages and expected damage to the Company's distribution system. ERP Guidelines at Section III.[10] The Company's ERP outlines the procedures that the Company follows to prepare for and restore service following an emergency event, including activating the

[10] The number of expected outages and expected damage reflected in each event classification level is based upon damage experienced in similar previous storms. ERP Guidelines at Sec. III.

incident command system,[11] classifying an emergency event, and decentralizing storm operations. For purposes of classifying an emergency event, the Company's ERP includes a table that outlines the number of predicted outages and predicted trouble spots or locations[12] associated with each of the five emergency event classification levels (Exh. NG-5, Section .101, at 14-15). The table below provides relevant information from the Company's ERP with respect to event classification levels.

[11] The incident command system ("ICS") is the coordinated and collaborative incident management construct specifically designed and made a part of the National Incident Management System under the Federal Emergency Management Agency (Exh. NG-5, Section .100, at 4). The ICS enables effective, efficient incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents (Exh. NG-5, Section .100, at 4).

[12] A "trouble spot" or "trouble location" corresponds to an outage originating from a unique device that impacts multiple customers (Exh. NG-5, Section .101, at 14-15).

Table 3: National Grid Event Classification Levels

Event Level	Anticipated Customer Outages	Trouble Spots	Crew Requirement	Full System Restoration Time
Level I – small impact event (normal operations)	under 25,000	25 to 50	normal activity (daily internal crew assignments)	under 12 hours
Level II – moderate impact event (heightened alert)	25,000-63,000	50 to 100	normal activity (daily internal crew assignments) with possible crew transfer limited to 15 crews	12 to 24 hours
Level III – serious impact event (enhanced support)	63,000-113,700	100 to 250	all available Operations personnel and upwards of 60 contractor overhead line and 60 tree crews	24 to 48 hours
Level IV – major impact event (comprehensive support)	over 113,700	250 to 500	storm emergency assignment listing ("SEAL") personnel and 100 to 500 contractor overhead line and 100 to 500 tree crews	36 to 72 hours
Level V – catastrophic system event (emergency support)	over 113,700	over 500	all SEAL personnel & 500+ contractor overhead line and 500+ tree crews	over 72 hours

According to the Company's ERP, the Incident Commander,[13] the senior vice president of maintenance and construction, or his/her appointed designee, is responsible for establishing or changing the event classification based on factors such as the extent and type of damage expected and the availability of supplemental resources (Exh. NG-5, Section .101, at 11-12). The ERP states that the classification of an emergency event is not necessarily dependent upon

[13] The Incident Commander is the individual who has overall responsibility for the Company's response in an emergency event (Exh. NG-5, Section .100, at 4).

how widespread the emergency is geographically, but rather is based on the expected number of customers interrupted and the estimated duration of the restoration activities (Exh. NG-5, Section .101, at 11). The ERP explains that the event classification, along with other factors such as the extent and type of damage and available supplemental resources, should be considered when determining the level of the Company's response and activation of support positions during an emergency event (Exh. NG-5, Section .101, at 11).

The Company considers the following variables when establishing and revising its incident classification level: weather forecasts and conditions; projected customer outages; expected event duration; extent and type of damage; availability of resources; and restoration priorities (Exhs. NG-1 (Redacted) at 11-12; NG-2 (Redacted) at 9-10). As part of the pre-event resource forecasting process, the Regional Incident Commander and the branch directors review weather forecast information (expected precipitation levels, wind speeds, duration of the event and path of the storm) and damage sustained from similar prior weather events to determine the level of in-house and contractor resources needed to restore service to customers (Exh. DPU 6-1). The Regional Incident Commander, system planning officer and regional section planning chief compile information and identify potential contractor resources and then develop a plan to secure necessary contractor resources (Exh. DPU 6-1, at 2). The Regional Incident Commander also determines the level and start time for in-house resources to report to their storm assignments (Exh. DPU 6-1, at 2).

In addition, the Company's ERP indicates that for an event classified as Level IV or V, the Company may attempt to secure resources through the mutual assistance process from other electric distribution companies (Exh. NG-5, Section .110, at 172-173). The Company does not

currently use a specific computer-generated damage forecast model to determine resource requirements prior to an event (Exh. DPU 8-1, at 2).

2. T.S. Irene

a. Description

Weather forecasts leading up to T.S. Irene indicated that New England, including Massachusetts, would experience a low level Category one hurricane or a strong tropical storm (Exh. NG-1 (Redacted) at 1). The Company implemented the system-level incident command system for T.S. Irene as stipulated in its ERP (Exhs. NG-1 (Redacted) at 11; NG-5, Section .100.03, at 4-5). On Wednesday, August 24, National Grid activated the System Incident Commander[14] and on Thursday, August 25, activated the Regional Incident Commander for New England (Exh. NG-1 (Redacted) at 11). During T.S. Irene, the Company's System Incident Commander was primarily responsible for establishing the projected and actual incident classification level[15] (Exh. NG-1 (Redacted) at 11). On Thursday, August 25, at 5:00 p.m., a Telvent weather forecast for coastal communities and Bay State South, Bay State North and Metro Boston sections of the Company's service territory[16] predicted the possibility of sustained hurricane force winds as high as 75 m.p.h., with gusts up to 85 m.p.h., and heavy rainfall of five

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14 The System Incident Commander is responsible for managing the overall incident at the National Grid system level for its entire service territory, including New England and New York (Exh. NG-1 (Redacted) at 11).

15 The New England Regional Incident Commander testified that he was also involved in making the incident classification (Tr. 3, at 467-468, 473-476).

16 Telvent provides a customized weather forecast for the Company's service territory, segmenting its Massachusetts geography into four primary regions: Bay State North, Bay State South, Bay State West, and Metro Boston (Tr. 3, at 487-488; Exh. DPU 4-19, Att. (a) at 1-3).

to ten inches on Sunday, August 28 (Exh. DPU 4-19, Att. (a) at 2). On Thursday, August 25, National Grid classified T.S. Irene as a Level V event in the Company's pre-event stage report submitted to the Department (Exhs. NG-1 (Redacted) at 12; DPU 4-19, Att. (a)).

On the morning of Friday, August 26, National Grid continued to classify T.S. Irene as a Level V event in pre-event stage reports submitted to the Department (Exh. NG-1 (Redacted) Att. F, at 5, 8). On Friday, August 26, at 12:25 p.m., the Governor of Massachusetts declared a state of emergency.

On Friday, August 26, at 5:00 p.m., a Telvent forecast issued to National Grid slightly downgraded the severity of the storm, predicting total rainfall of four to nine inches, with sustained winds of 35-60 m.p.h. and gusts of 60-85 m.p.h. (Exh. DPU 4-19, Att. (e), at 2). In its pre-event report submitted to the Department on Friday, August 26, at 5:00 p.m., the System Incident Commander, with support from the Company's emergency planning section, including the New England Regional Incident Commander, downgraded the storm classification to a Level IV event based on (1) a Telvent forecast that showed a decrease in projected storm winds speeds inland and (2) his previous storm experience and operational knowledge of the electrical system[17] (Exhs. NG-1 (Redacted) at 11-12; NG-5 (Redacted) at 11; DPU 4-19 Att. (e), at 3; Tr. 3, at 473-476, 485-487). [18] A later Telvent forecast issued on Saturday, August 27,

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[17] The Telvent weather forecast report issued to the Company on August 26 predicted sustained winds of 35-60 m.p.h. and possible gusts as high as 60-85 m.p.h., which decreased the sustained wind speeds and gusts from an earlier weather forecast issued on August 25, which predicated sustained winds as high as 75 m.p.h., with gusts up to 85 m.p.h. (Exh. DPU 4-19, Att. (e), at 2).

[18] On Thursday, August 25, and Friday, August 26, as provided in its ERP, the Company's Regional Incident Commander for New England assigned to Company employees storm roles for various ICS positions, and decentralized National Grid's restoration operations

at 5:00 p.m. again downgraded the storm slightly, predicting total rainfall on Sunday, August 28, of four to nine inches, with sustained winds of 35-50 m.p.h. and gusts of 55-65 m.p.h. (Exh. DPU 4-19, Att. (h) at 2). On Saturday, August 27, National Grid continued to classify the event as a Level IV event (Exh. NG-1 (Redacted) Att. F at 14, 17, 20).

T.S. Irene made landfall in Massachusetts and passed through the Company's service territory early in the morning on Sunday, August 28 (Exh. NG-1 (Redacted) at 2-3, 9). The storm continued throughout the day with sustained winds of 44 m.p.h. and gusts up to 67 m.p.h. and heavy rains (Exh. NG-1 (Redacted) at 9; Tr. 3, at 638). On Sunday, August 28, at 8:00 p.m., after the storm had passed, National Grid revised the storm classification back to a Level V event based on customer outages and projected restoration time (Exhs. NG-1 (Redacted) at 12; NG-1, Att. G, Table A at 15). As a result of T.S. Irene, 478,814 customers in National Grid's service territory experienced service outages (Exh. NG-1 (Redacted) at 4-5).

b. Positions of the Parties

i. Attorney General

The Attorney General argues that when the storm began, the Company failed to declare the proper ERP event level although National Grid knew that a major storm event was going to

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by opening branch-level EOCs and appointing branch directors (Exhs. NG-1 (Redacted) at 12-13; DPU 4-16; DPU 4-28). The Regional Incident Commander made the following ICS assignments: Regional Liaison Officer; Regional Planning Section Chief; Regional Public Information Officer; Regional Logistics Section Chief; Regional Safety & Health Officer; Regional Finance Section Chief; Regional Environmental Officer; Regional Human Resources Section Chief; and additional branch directors for NE-North (Exh. NG-1 (Redacted) at 12-13). The Company decentralizes its storm operations by opening branch level emergency operations centers. The Company opened a regional-level emergency operations center ("EOC") in Northborough on August 27; a system-level EOC on August 28 in Northborough; and five branch-level EOCs in North Andover, Malden, Brockton, Hopedale and Worcester on August 28 (Exh. DPU 4-16).

hit its service territory (Attorney General Brief at 7). The Attorney General contends that because National Grid originally classified Irene as a Level V event through Friday, August 26, it should have been more prepared for the storm and able to obtain an adequate number of crews to scale back its efforts once the hurricane was downgraded to a tropical storm (Attorney General Brief at 7-8). The Attorney General asserts that the Company's lack of a systematic way to translate weather forecast parameters into estimates of expected storm damage was one factor that likely contributed to the Company's failure to identify the proper ERP level in a timely way (Attorney General Reply Brief at 8). The Attorney General argues that the subjectivity and unreliability of the Company's storm assessment process is problematic for other Company employees who may have to perform similar assessments and decisions in the future (Attorney General Reply Brief at 8-9). The Attorney General concludes that while the Company acknowledges the potential benefits of a storm damage forecasting model that is in the process of being developed,[19] the Company is pursuing this project slowly, and showing little confidence in its eventual success (Attorney General Reply Brief at 10-11).

ii. Company

The Company contends that the Attorney General provided no evidence that the Company's pre-event classification for T.S. Irene was improper or inconsistent with its ERP, and the Department should give no weight to such arguments (Company Brief at 33; Company Reply Brief at 10). The Company asserts that it reclassified T.S. Irene as a Level IV event based on

[19] As part of the settlement agreement in Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid, D.P.U. 11-03 (2011), the Company agreed to work with a university partner to develop a model to project total estimated time of restoration, based on such factors as the weather forecast, historical crew counts and geographic differences across its service territory (Attorney General Reply Brief at 9).

weather reports received closer to the onset of the event, and that it did not plan any differently for a Level IV event than it would have for a Level V event (Company Brief at 31-32). The Company contends that the Attorney General fails to offer any citation to the record to support her assertion that the Company's failure to identify the proper ERP level resulted from its lack of a systematic way to translate parameters of forecasted weather into estimates of expected storm damage (Company Reply Brief at 8). The Company claims that the only reference in this proceeding to a "systematic approach to damage modeling" was cited in the Attorney General's witness's resumé (Company Reply Brief at 8). The Company further argues that the Attorney General failed to offer into evidence both its witness's damage model as well as any other model capable of performing this functionality (Company Reply Brief at 8). In addition, the Company claims that the Attorney General's conclusions on its commitment to develop a forecast model with a university partner are irrelevant to how the Company classified either storm event (Company Reply Brief at 9-10).

c. Analysis and Findings

The days immediately preceding a storm event are a critical period of preparation for an electric distribution company. The actions that a company takes with respect to monitoring weather forecasts of an approaching event, predicting damage from that event, classifying the event according to its ERP, and securing resources before the event significantly determine how well prepared the company will be to respond to customer outages when a storm hits. We begin, therefore, by examining how the Company monitored weather forecasts as T.S. Irene approached, the substance of those forecasts, and whether the Company used those forecasts to reasonably classify the event consistent with its ERP.

The record demonstrates that the Company monitored customized weather data supplied from Telvent to assist the Company in classifying the event level, and supplemented Telvent data with other weather sources, such as Impact Weather, WeatherBug, the Weather Channel, and the National Weather Service (Exhs. DPU 6-1; DPU 6-14; NG-1 (Redacted) at 12; Tr. 3, at 467-470, 487-489, 498-499). On Thursday, August 25, and on the morning of Friday, August 26, based upon weather forecasts that predicted the possibility of sustained hurricane force winds as high as 75 m.p.h., with gusts up to 85 m.p.h., and heavy rainfall of five to ten inches for Sunday, August 28, the Company classified the event as a Level V event (Exhs. NG-1 (Redacted) at 12 & Att. F at 5, 8; DPU 4-19, Att. (a) at 2). We conclude that the Company's event classification was reasonable.

With respect to its event classification, the sole question is whether it was reasonable for the Company to reclassify the approaching storm as a Level IV event beginning on the evening of Friday, August 26. In classifying the event, the Company relied on the downgrade in weather forecasts and the Incident Commander's previous storm experience and operational knowledge of the electrical system (Exhs. NG-1 (Redacted) at 11-12; NG-5 (Redacted) at 11; DPU 4-19 Att. (e), at 3; Tr. 3, at 473-476). The downgraded weather forecast predicted total rainfall of four to nine inches, with sustained winds of 35-60 m.p.h. and gusts of 60-85 m.p.h. (Exh. DPU 4-19, Att. (e), at 2). Moreover, a Telvent forecast issued on Saturday, August 27, at 5:00 p.m., again downgraded the storm slightly, predicting total rainfall on Sunday, August 28 of four to nine inches, with sustained winds of 35-50 m.p.h. and gusts of 55-65 m.p.h.(Exh. DPU 4-19, Att. (h) at 2). Based on this evidence, we cannot conclude that National Grid's event classification of T.S. Irene was unreasonable, or that the Company failed to comply with its ERP

with respect to event classification. Therefore, we cannot find that the Company's actions in classifying the event constituted a violation of the Department's standard to restore service.

While the Department concludes that the factors used by the Company to classify the event level are reasonable, we encourage the Company to continue to explore how to more systematically predict damage before a storm. The Department notes that although the Company does not currently have a forecast model, the development of such a model with a university partner may assist the Company with the event classification process. We expect this effort to be part of the larger Management Audit that we require of the Company (see Section IX).

Additionally, we note that we are concerned about how Level V events are defined in the Company's ERP, as Level V anticipates outages affecting a range of from nine percent, or 113,700, of the Company's customers, to all of its customers (for this Company, approximately 1.2 million). See Massachusetts Electric Company/Nantucket Electric Company, D.P.U. 12-ERP-09, Emergency Response Plan, Section .101 at 20. The Company is responsible for preparing for and responding to events within the full range of Level V. Therefore, the Company needs to be able to differentiate its plans for responding to outages affecting nine percent of its customers from those affecting a significantly higher percent of its customers.

Finally, although National Grid's event classification of T.S. Irene was reasonable, the lack of a systematic way to analyze and assess predicted outages and system damage severely hampered the Company's ability to secure and deploy appropriate resources. Thus, the Department will discuss in the next section the Company's obligation to perform a systematic assessment of the damage expected and to prepare for that damage. In the section below discussing securing resources, the Department will discuss its conclusions regarding the

Company's actions in the several days prior to the onset of the storm, as it made decisions about securing and deploying resources.

3. October Snowstorm

a. Description

On Wednesday, October 26, Telvent anticipated a storm system that would lead to a rain/snow mix and to some light snowfall accumulation across New England (Exh. NG-2 (Redacted) at 4). Over the course of Thursday, October 27, the forecasts began to shift from predicting light snowfall accumulations to snowfall totals as high as ten inches (Exh. NG-2 (Redacted) at 4). On Friday, October 28, at 1:00 a.m., a Telvent weather forecast issued to the Company predicted a rain/snow storm system arriving in New England on Saturday, October 29, lasting through Sunday, October 30, and potentially depositing snowfall between seven to twelve inches over the Berkshires of western Massachusetts, four to eight inches in the lower elevations of Bay State West, and two to six inches in the Bay State North and Bay State South portions of the Company's Massachusetts service territory (Exhs. NG-2 (Redacted) at 4; DPU 4-20, Att. (a) at 1-3). On Saturday, October 29, at 8:00 a.m., Telvent issued a forecast that predicted a storm system to affect some sections of the Company's service territory, depositing between eight to 15 inches of snow (Exh. DPU 4-20, Att. (b), at 2).

The Company implemented the System-level incident command system for the October Snowstorm as outlined in its ERP, and on Friday, October 28, National Grid activated the System Incident Commander and the Regional Incident Commander for New England (Exh. NG-2 (Redacted) at 10; NG-5, Section .100.03, at 4-5). On Friday, October 28 and Saturday, October 29, as provided in its ERP, the Company's Regional Incident Commander for

New England assigned to Company employees storm roles for various incident command structure positions[20] and decentralized its restoration operations[21] by opening branch level emergency operations centers ("EOCs") and appointing branch directors (Exhs. NG-2 (Redacted) at 10, 33; DPU 4-17, DPU 4-27). During the October Snowstorm, the Company's System Incident Commander was primarily responsible for establishing the incident classification level[22] (Exh. NG-2 (Redacted) at 9-10). National Grid classified the October Snowstorm as a Level III event in the two pre-event reports the Company filed with the Department on Friday, October 28 and Saturday, October 29 (Exh. DPU 4-20).

The Company's System Incident Commander, with input from the New England Regional Incident Commander, upgraded the storm classification to a Level IV event at 7:00 p.m. on Saturday, October 29, based on the actual weather conditions as the storm transpired rather than on a weather forecast (Exh. NG-2 (Redacted) at 10; NG-2, Appendix G, Table A at 11).

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20 The Regional Incident Commander made the following ICS assignments: Branch Directors; System Planning Section Chief; System Regional Safety & Health Officer; System and New England Regional Public Information Officer; System and New England Regional Logistics Section Chief; System and New England Regional Finance Section Chief; New England Regional Planning Section Chief; New England Regional Liaison Officer; New England Regional Safety & Health Officer; and New England Regional Environmental Officer (Exh. DPU 4-27, at 1-3).

21 The Company decentralizes its storm operations by opening branch level emergency operations centers. The Company opened a Regional Level Emergency Operations Center in Northborough on October 28, a System Level EOC on October 28 in Northborough, three Branch Level EOCs in North Andover, Worcester and Brockton on October 29, and a fourth branch level EOC in Hopedale on October 30 (Exh. DPU 4-17).

22 The New England Regional Incident Commander testified that she was also involved in making the incident classification (Tr. 3, at 477-480).

The Governor of Massachusetts declared a state of emergency on Saturday, October 29, at 7:50 p.m. The October Snowstorm started in the evening on Saturday, October 29, and continued through the early morning hours of Sunday, October 30, before snow tapered off across southern New England (Exh. NG-2 (Redacted) at 4-7). The storm deposited up to a foot of heavy wet snow at a time when leaves were still on the trees across Western Massachusetts and New Hampshire, with the Berkshires and southern New Hampshire receiving up to 20 inches of snowfall (Exh. NG-2 (Redacted) at 4). The Company upgraded the storm to a Level V Event on Sunday, October 30, at 12:00 p.m. (Exh. NG-2 (Redacted) at 10; NG-2, Appendix G, Table A at 11).

b. Positions of the Parties

i. Attorney General

The Attorney General argues that especially with respect to the October Snowstorm, the Company was entirely off the mark in its initial storm assessment, failing to declare the proper ERP event level at the outset (Attorney General Brief at 7-8). The Attorney General contends that all available weather forecasts projected something more akin to a Level V event than the Level III storm event that the Company initially declared (Attorney General Brief at 8-9). The Attorney General claims that post-storm damage assessment evidence shows that the Company obtained more crews as the event progressed, which illustrates that the Company should have prepared for a Level V Event and scaled it down to a Level IV or Level III as necessary, rather than having to scale up to a Level V event (Attorney General Brief at 9). The Attorney General asserts that the Company's lack of a systematic way to translate weather forecast parameters into estimates of expected storm damage was one factor that likely contributed to the Company's

failure to identify the proper ERP level in a timely way (Attorney General Reply Brief at 8). The subjectivity and unreliability of the Company's storm assessment process, the Attorney General argues, is problematic for other Company employees who may have to perform similar assessments and decisions in the future (Attorney General Reply Brief at 8-9). The Attorney General concludes that while the Company acknowledges the potential benefits of a project it is pursuing to develop a storm damage forecasting model, the Company is pursuing this project slowly, and showing little confidence in its eventual success (Attorney General Reply Brief at 10-11).

ii. Company

The Company contends that the Attorney General provided no evidence that the Company's pre-event classification of the October Snowstorm was improper or inconsistent with its ERP, and the Department should give no weight to such arguments (Company Brief at 33; Company Reply Brief at 10). The Company asserts that it relied on the best available information to classify the October Snowstorm as a Level III event prior to its arrival in Massachusetts, as the forecasted locations for the highest snow impacts were in the westernmost portion of the Company's service territory, in which the smallest concentration of National Grid customers reside (Company Brief at 32-33).[23] The Company contends that the Attorney General fails to offer any citation to the record to support her assertion that the Company's asserted failure to identify the proper ERP level resulted from its lack of a systematic way to translate weather forecasts into estimates of expected storm damage (Company Reply Brief at 8). The

[23] The Company testified that it has approximately 170,000 customers in the western Massachusetts region (Tr. 3, at 496).

Company claims that the only reference in this proceeding to a "systematic approach to damage modeling" was cited in the Attorney General's witness's resumé (Company Reply Brief at 8). The Company further argues that the Attorney General failed to offer into evidence both its witness's damage model or any other model capable of performing this functionality (Company Reply Brief at 8). In addition, the Company claims that the Attorney General's conclusions on its commitment to develop a forecast model with a university partner are irrelevant to how the Company classified the storm event (Company Reply Brief at 9-10).

c. Analysis and Findings

The record demonstrates that weather forecasts rapidly changed in the days immediately preceding the October Snowstorm (Exhs.NG-2 (Redacted) at 4; DPU 4-20, Att. (a) at 1-3). The record also demonstrates that the Company progressively classified the event according to its ERP, first as a Level III event on Friday, October 28, and then as a Level IV event on Saturday, October 29, and finally a Level V event on Sunday, October 30 (Exhs. DPU 4-20); NG-2 (Redacted) at 10; NG-2, Appendix G, Table A at 11). The Department concludes that the Company reasonably and progressively classified the event according to its ERP in the face of the rapidly escalating weather forecasts and events on the ground. Although we are concerned about how the Company uses weather forecasts and other information to systematically inform its event level classification (see Exhs. DPU 6-1; DPU 6-4; DPU 8-1; Tr. 3, at 503-512), we cannot find that the Company's actions in classifying the event constituted a violation of the restoration of service standard.

Our comments above in the T.S. Irene context relative to a forecast model, relative to a differentiation of events within the full Level V, and relative to the need for systematic assessment, are equally applicable here in the context of the October Snowstorm.

For future emergency events, the Department directs the Company to develop a systematic and transparent protocol for monitoring, forecasting, analyzing and classifying impending outage events. The Company must have written documentation demonstrating how it uses a structured analytical framework (including how it takes into account weather, historical data on storm related damages, availability of resources, etc.) to make an event classification. We further recommend that development of such a protocol be driven by the Management Audit that the Department is requiring of the Company (see Section IX). We expect that the Company will use its experience with these storms to inform its preparation for future events.

C. Restoration

The Company segments its emergency planning for a storm into four distinct phases: Annual/Pre-Incident,[24] Incident Anticipation/Pre-Event, Incident Response/Service Restoration and the Post-Incident/Post-Event (Exh. NG-5, Section .102, at 16). In the Incident Anticipation/Pre-Event stage, the Company begins the process of securing resources (Exh. NG-5, Section .101, at 11; Section .102, at 16). For a Level IV or V event, the Company notifies employees of their storm assignments, cancels vacations, and may also request supplemental resources from contractors, mutual aid[25], and its affiliate companies (Exh. NG-5, Section .101,

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[24] The Department refers to this phase as Advance Planning and Training. See Section VII.

[25] The mutual aid (or assistance) process provides a framework for the sharing of crews and resources among member utilities, and it is facilitated through an agreement and guidelines developed by the Edison Electric Institute (DOER 1-14, Att.).

at 15). At the beginning of the Incident Response/Service Restoration phase, the Company first focuses on public safety/wires-down requests from municipalities (Tr. 3, at 633-634; Exh. NG-5, Section .106, at 140). While its line crews and wires-down personnel attend to public safety, the Company begins to perform damage assessment, beginning with a high-level survey (Phase I) and then a detailed survey (Phase II) (Tr. 3, at 633-634; Exh. NG-5, Section .017, at 149). As the Company finishes surveying its high-level damage and attending to the most critical wires down, it starts the restoration effort, following the restoration priorities set out in its ERP (Tr. 4, at 704-705; Exh. NG-5, Section .106, at 140-14). The ERP lays out the following restoration priorities in this order: (1) live wire/extreme hazards; (2) transmission; (3) substations; (4) critical facilities; (5) life support customers; (6) primary circuits; (7) secondary circuits; (8) street lighting circuits; and (9) permanent repairs (Exh. NG-5, Section .106, at 140-141).

The Company's ERP indicates that for a Level V Event, the Company will use all internal line crews, and anticipates using 500 or more contractor overhead line crews, 500 or more tree crews, and all SEAL personnel needed to function as wires-down stand-by guards, wires-down appraisers and field guides (Exh. NG-5, Section .101, at 15).

1. T.S. Irene

a. Securing, Pre-positioning and Deploying Resources

i. Description

For T.S. Irene, the Company used all 233 internal distribution line crews[26] it had in Massachusetts (Tr. 3, at 555). From Tuesday, August 23 through Saturday, September 3, the

[26] All Company line crews consist of two full-time equivalent Company personnel (RR-DPU-10, Att.).

Company requested and, when restoration began on August 28, secured an additional 233 distribution line crews[27] from its Alliance vendors[28], from local contractors, and from mutual aid (Exh. NG-1 (Redacted) at 13-16; RR-DPU-10, Att.). To secure contractor distribution line crew resources, the Company contacted vendors from as far away as Colorado, Florida, and Canada[29] (Exh. NG-1 (Redacted) at 13). The Company first initiated discussions with its Alliance vendors on Tuesday, August 23, to tentatively secure resources readily-available in the Company's service territory (Exh. NG-1 (Redacted) at 13). The Company next contacted and secured local distribution line crews from local contractors (Exh. NG-1 (Redacted) at 14). On Friday, August 26 and Saturday, August 27, the Company attempted to secure 400 more distribution line crew resources through the Edison Institute Mutual Assistance process by requesting line crew resources from the Northeast Mutual Assistance Group ("NEMAG") (Exh. NG-1 (Redacted) at 15).

Through the end of the restoration phase of the storm event on Sunday, September 4, the Company continued to try to secure more resources by participating in NEMAG calls and in calls with other regional mutual assistance groups ("RMAGs") (Exh. NG-1 (Redacted) at 15). By August 29, the Company had requested a total of 600 crews through the mutual aid process

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27 All contractor line crews consist of two full-time equivalent contractor personnel (RR-DPU-10, Att.)

28 Alliance vendors are contractors that typically have a significant number of personnel working daily on National Grid property and make those workers readily available for storm or emergency work (Exh. NG-1 (Redacted) at 14, n. 2).

29 The Company indicates that because of the magnitude and severity of the anticipated damage to electricity utility infrastructure along the eastern United States from T.S. Irene, as well as tornado damage in Canada, many normally available resources had been committed to participate in restoration activities elsewhere (Exh. NG-1 (Redacted) at 13).

(Exh. NG-1 (Redacted) at 15; Exh. DPU 2-11, Att. (a)). The Company ultimately secured, at peak, 37 mutual aid line crews[30] (RR-DPU-10, Att.). It secured no other mutual aid crews. By Saturday, August 27, the Company contacted and obtained commitments from tree contractors within and outside of the Company's service territory (Exh. NG-1 (Redacted) at 15-16). Through these efforts, the Company secured at the peak point in the restoration effort 467 distribution line crews, 101 transmission/substation crews,[31] 515 wires-down personnel,[32] 106.5 damage assessment crews[33] and 286 tree crews from a combination of Company and affiliate personnel and contractors (RR-DPU-10, Att.; RR-DPU-13, Att.).

30 All mutual aid line crews consist of two full-time equivalent mutual aid personnel (RR-DPU-10, Att.).

31 Transmission crews consist of up to eight full-time equivalent personnel (RR-DPU-10, Att.).

32 Wires-down crews consist of both one full-time equivalent appraiser and stand-by guard and two full-time equivalent cut-and-clear personnel (RR-DPU-10, Att.).

33 Damage assessor crews consist of two-person full-time equivalent damage appraisers (RR-DPU-10, Att.).

Table 4: T.S. Irene, Total Peak Crews Available

Daily Peak Crews	8/28/2011	8/29/2011	8/30/2011	8/31/2011	9/1/2011	9/2/2011	9/3/2011
Company Line Crews	233	233	233	233	238.5	238.5	215
Contractor Line Crews	233	234	210	212	162	152	155
Out-of-State Mutual Aid Line Crews	0	0	0	0	12	37	37
Company Trouble Crews	0	0	0	0	0	0	0
Company Underground Crews	11	11	11	11	11	11	11
Company Substation/Transmission Crews	74	76	76	76	76	49	49
Contractor Substation/Transmission Crews	23	23	25	22	3	3	2
Company Wires-Down Crews	269	423	495	373	217	150	37
Contractor Wires-Down Crews	0	92	19	57	81	50	50
Company Damage Appraiser Crews	33.5	66.5	45	38.5	32.5	27	27
Contractor Damage Appraiser Crews	0	40	51	48.5	18	16.5	0
Contractor Tree Crews	286	283	268	242	243	242	236
Total Crews/Resources	**1162.5**	**1481.5**	**1433**	**1313**	**1094**	**976**	**819**

(RR-DPU-10, Att.).

The Company used wires-down and damage appraisal personnel from a pool of internal employees, from affiliate companies and from contractor resources (RR-DPU-10, Att.; RR-DPU-13, Att.).

On Saturday, August 27, the day before the storm was expected to hit New England, the Company opened staging sites in Marlborough and Raynham, Massachusetts, and Salem, New Hampshire, areas where the Company expected significant outages to occur (Tr. 3, at 587-589). The Company uses these staging sites to house crew resources and store materials, trucks and other items necessary for the restoration phase (Tr. 3, at 587-589). In total, on Sunday, August 28, the Company deployed 336 Company[34] and contractor distribution line crews,

[34] The data provided by the Company were inconsistent on this point. The Company indicated that 265 contractor distribution line crews were pre-positioned prior to

21 Company and contractor transmission crews, and 279 contractor tree crews to these three staging sites (RR-AG-10).

The Company does not pre-position wires-down resources[35] in one of its three staging facilities or any other location; instead, National Grid requires Company personnel to report for their wires-down storm duty in the district in which they would work on a normal work day (Tr. 5, at 1046; RR-AG-10). The Company also does not pre-position field damage appraisers; these report to work from home (Exhs. DPU 4-51; DPU 6-10; Tr. 3, at 590-591; RR-AG-10).

Table 5: T.S. Irene, Distribution of Crew Resources

	Central		Merrimack Valley		Nantucket		North Shore		South Shore		Southeast		Western		Total	
Month and Date	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages
8/28/2011	302	48,629	147	29,529	4	-	179	10,453	64	81,458	397	127,580	69	13,342	1,163	310,991
8/29/2011	294	32,797	278	17,667	2	1	140	8,448	251	76,379	361	116,840	157	9,743	1,482	261,875
8/30/2011	259	12,029	238	6,639	-	-	71	1,248	320	57,884	379	73,792	166	3,096	1,433	154,688
8/31/2011	231	5,555	169	1,381	-	-	35	108	303	36,415	406	49,688	169	373	1,313	93,520
9/1/2011	192	1,396	79	411	-	-	26	36	284	18,821	395	25,344	118	42	1,094	46,050
9/2/2011	126	210	44	56	-	-	21	91	259	7,930	412	6,306	114	7	976	14,600
9/3/2011	123	5	34	-	-	-	18	275	215	1,571	352	2,012	79	19	819	3,882

(RR-DPU-11, Att.).

The table above (Table 5) shows how the Company deployed restoration crews and personnel resources[36] among its seven districts (Central, Merrimack Valley, Nantucket, North

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T.S. Irene (RR-AG-10). However, the Company indicated that only 234 contractor distribution line crews at peak participated in the restoration (RR-DPU-10, Att.).

35 For the wires-down function, the Company trained internal personnel as wires-down appraisers, stand-by guards, and cut-and-clear crews (Exhs. DPU 2-20; DPU 2-21 (Supp.), at 3; RR-AG-8). See Section VI.C.1.c for a discussion of the wires-down function.

36 The Company indicated that these peak crew resources include Company, contractor and mutual aid distribution line crews, and crews to address trouble spots, underground

Shore, South Shore, Southeast, and Western) from August 28 through September 3 in T.S. Irene (RR-DPU-11, Att.). The Company indicated that it attempted to allocate personnel to areas in which it expected the most damage (Tr. 5, at 1052-1058). In addition, some internal and contractor distribution line crews that regularly work in certain geographic areas were initially assigned to those districts for storm restoration (Tr. 5, at 1052-56).

ii. Positions of the Parties

(A) Attorney General

The Attorney General claims that the Company failed to assess, procure and effectively allocate resources, and thus failed to perform according to its ERP (Attorney General Brief at 12). The Attorney General rejects the Company's claim that it was torn between conducting damage assessment in a timely manner and efficiently restoring power, because the Company could have chosen to acquire sufficient crews to handle all aspects of storm damage (Attorney General Brief at 12). The Attorney General argues that National Grid has not refuted its claim that it did not mobilize sufficient resources early and adequately as compared to other utilities and municipal light companies (Attorney General Reply Brief at 16). The Attorney General claims that the Company's ability to obtain only 24 mutual aid resources[37] is evidence of the Company's delay in securing resources (Attorney General Reply Brief at 17). Further, the Attorney General rejects the Company's assertion that its ERP does not indicate the required level of resources for each storm (Attorney General Reply Brief at 17). The Attorney General

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crews, substation crews, wires-down crews, damage appraisers, and tree crews (RR-DPU-11, Att.).

[37] The Department could not reconcile the mutual aid numbers used by the Attorney General with those provided by the Company in the record.

recommends the Department levy a $500,000 penalty for failure to mobilize enough crews for T.S. Irene (Attorney General Reply Brief at 22).[38]

(B) DOER

DOER argues that the Company should have sought the assistance of crews from utilities and contractors located outside the path of the storm, which the Company now plans to do as part of a revamped program to obtain contractors for storm response (DOER Brief at 11).

(C) Company

The Company contends that it made all reasonable efforts to secure ample crews prior to T.S. Irene, but that the scope of the storm resulted in many of the crews requested being unavailable to assist the Company, at least during the days immediately after the storm had passed (Company Brief at 118-119). Although the Company does not admit that it did not have adequate resources to respond to T.S. Irene, it does acknowledge that the availability of additional resources would likely have facilitated the restoration (Company Brief at 118).

The Company claims that the Attorney General can cite to no provision in the ERP or provide any evidence that it violated the ERP regarding securing adequate resources, because the ERP does not require it to allocate a specific number or type of resources to an event (Company Brief at 114, 117). In addition, the Company contends that the Attorney General offers no objective criteria with respect to what constitutes a reasonably prompt restoration and that no such criteria exist (Company Reply Brief at 18). The Company argues that during the first two

[38] The Attorney General calculated the $500,000 proposed penalty by recommending the maximum penalty of $250,000 per violation for two days, which is the number of days to restore service exceeding the five days that the Attorney General's witness considers reasonable (seven days – five days) (Attorney General Reply Brief at 22).

days of restoration, line crews that could not begin to restore service because of high winds were assigned to the wires-down response and that transmission crews started damage assessment (Company Brief at 114-115). With respect to the Attorney General's critique of the Company's ability to obtain mutual aid resources, the Company contends that it explored the availability of mutual aid resources 72 hours before the onset of the storm (Company Reply Brief at 17-18).

The Company opines that the Attorney General's penalty calculation methodology is unsubstantiated because the Attorney General's witness testified that his recommendation is not based on any industry standard for storm restoration timeframes, but merely on a consensus view (Company Reply Brief at 26).

The Company argues that DOER's conclusion that companies outside of the path of the storm might have been able to provide crews and assistance is without merit (Company Brief at 118). The Company contends that DOER fails to acknowledge that contractors outside of the path of storm would have been located more than a thousand miles away and would have needed many days to reach the Company's service territory (Company Brief at 117-118).

iii. Analysis and Findings

We are unpersuaded that National Grid made a systematic and effective effort to translate its classification of the level of the T.S. Irene storm into the expected number of customer outages, potential damage to its distribution and transmission system, and ultimately to the resources that would be necessary to restore service. In fact, we conclude that the failures to secure and deploy adequate crews are indicative of a more general systematic failure in preparation and organization that pervaded much of National Grid's response to T.S. Irene (see Sections VI.C.1.b, VI.C.1.c, VI.C.1.d and VI.D.1).

The Company indicated that it initially prepared for a Level V event and did not change its storm preparations even when it downgraded the classification to Level IV (Tr. 3, at 467-470). For a Level IV or V event classification, the Company expects customer outages of 113,700 or more, which could extend to all 1.2 million customers in its service territory (Exh. NG-5, Section .101, at 15). During T.S. Irene, the Company sustained over 478,000 customer outages. There is no indication that the Company thought systematically about the likely number of outages in light of the weather forecasts, and about the crew numbers it would actually need to address those outages.

Further, the Company's ERP indicates that for a Level V event the Company anticipates it will use all internal line crews, 500 or more contractor and/or foreign utility overhead line crews, 500 or more tree crews, and all personnel trained for wires down (Exh. NG-5, Section .101, at 15). Our view of the crew numbers contained in the Company's ERP is that although those numbers may not be mandatory, they are an indication of the numbers of crews that should be obtained as part of a reasonable response effort, and that a deviation from these numbers requires justification. As can be seen in Table 4, at the beginning of restoration, on August 28, in total the Company had secured 233 contractor line crews, or 267 fewer than the 500 contractor line crew minimum in the Company's ERP (and fewer than the 500 contractor line crews for a high Level IV event). At the same time, it secured 286 tree crews, or 214 fewer than the minimum 500 crews in the ERP for a Level V event. We do note that the Company attempted to secure more resources from the mutual aid process and from contractors before the storm hit. On Friday, August 26, the Company requested 200 distribution line crews through the mutual aid process (Exh. DPU 2-11, Att. (a)). By Saturday, August 27, the Company increased

that request to 500 distribution line crews, and increased the request again on Sunday, August 28, to 600 distribution line crews (Exh. DPU 2-11 Att. (a)). However, the Company ultimately secured only 37 line crews through mutual aid, which arrived by Friday, September 2, late in the restoration process (RR-DPU-10, Att.; RR-DPU-13, Att.; Exh. DPU 2-11).

In our view, these efforts do not constitute reason enough to absolve the Company from its responsibility to have secured adequate resources as of the beginning of the restoration effort. In fact, record evidence suggests that the Company did not do adequate analysis of the potential impacts and required resources early enough before the storm to adequately secure an appropriate number of contractor line and tree crews. Companies cannot expect that mutual aid crews will arrive at the beginning of the restoration effort rather than towards the end of the restoration period, when released by their own utility; only a fraction of the total resources requested may in fact materialize, as was the case in T.S. Irene.

The Company testified that it initially allocates resources based on where it expects the most storm damage to occur, redeploying resources throughout its service territory to ensure appropriate allocation of crews (RR-DPU-11, Att.). However, the Company did not adequately explain why it both positioned resources in portions of its territory and retained those resources for the first several days of the restoration in areas with more limited customer outages and did not reallocate the resources more quickly and efficiently to districts with more outages (Tr. 5, at 1055-1057; RR-DPU-11, Att.). Based on examination of Table 5, we note that on August 28 and 29, the Company stationed a sizeable number of crew resources in the North Shore and Merrimack Valley districts, when the number of outages was significantly less than in other districts such as the South Shore and Southeast that had far more outages (RR-DPU-11, Att.).

For example, in the North Shore district, on Sunday, August 28 the ratio of number of crews to number of outages was 1:200 (or 147 crews: 29,529 outages); two days later, on Tuesday, August 30, the ratio of number of crews to number of outages had dropped to 1:28 (or 238 crews: 6,639 outages) as more crews were added. At the same time, on August 28, in the Southeast district, an area with more outages, the ratio of number of crews to number of outages was 1:321 (or 397 crews: 127,580 outages); two days later, on August 30, however, *fewer* crews were deployed in this district and the ratio of number of crews to number of outages stayed relatively high at 1:194 (or 379 crews: 73,792 outages).

At best, the Company's records lack the transparency to support its allocation of crews; at worst, its records show that it failed to react in a timely fashion to reallocate crews to areas that sustained the highest number of customer outages.

The Department finds that the Company's performance was deficient in translating its classification of the level of the T.S. Irene storm into the expected damage and necessary resources. The Company did not provide evidence that the number of resources it obtained for the restoration effort was reasonable and adhered to the anticipated resource levels outlined in its ERP for a Level IV or V event. In addition, the Company did not demonstrate that it uses an efficient restoration process to distribute its crews/resources – both at the beginning and throughout the event, but especially during the critical first several days of the restoration.

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Safe and reasonably prompt service restoration includes adequate estimation of customer outages and of expected damage and resource requirements, timely and effective securing of adequate

resources, and effectively deploying those resources throughout the event. The actions discussed above constitute a violation of the Company's duty to safely and promptly restore service. In light of these failures, we find that the Company violated the restoration of service standard. 220 C.M.R. §19.03(3).

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. In particular, the Department notes the cascading effect that the failures in this aspect of the restoration process had on the remaining restoration phases (Sections VI.C.1.b, VI.C.1.c, and VI.C.1.d). Taking all of these factors into consideration and a review of the record evidence in this case, we find that a $250,000 penalty per day for six days is warranted. Accordingly, the Department assesses the Company a penalty of $1,500,000 ($250,000 per day for six days).

For future emergency events, the Department directs the Company to develop a systematic and transparent protocol for analyzing and preparing for storms and securing and deploying resources. We further recommend that development of such improvements be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

b. Outage Management System

i. Introduction

National Grid's Outage Management System ("OMS"), known as PowerOn, is used to help organize outage data and coordinate Company activities related to power loss (Exh. AG 2-16). Company representatives enter outage information into the OMS when they receive trouble calls from customers (Exh. AG 2-16). The OMS also receives outage information that customers report through the self-service Inter-Voice Response ("IVR") system

and the Outage Central section of National Grid's website (Exh. AG 2-16). The OMS uses information that it receives from the trouble calls to predict which device has malfunctioned, to generate Estimated Times of Restoration ("ETRs"), and to create wires-down and tree crew orders (Exh. AG 2-16). During storm events, the automated ETR feature in the OMS is disabled and manual batch ETR updates are made (Exh. AG 2-16). The order creation feature of the OMS is also a manual process (Exh. AG 2-16). During emergency events, a system user can initiate a batch process to create orders and then assign the orders to the Company's wires-down and tree crew departments (Exh. AG 2-16). Feedback reports regarding customers and outage data are generated from the information aggregated and processed in the OMS (Exh. AG 2-16). Company call center representatives can then communicate this information to customers through the IVR (Exh. AG 2-16).

The OMS is distinct from, but linked to, Outage Central, which is an interactive section of National Grid's website. Outage information is made available to the public in list and map formats on Outage Central (Exhs. AG 3-5; DOER 2-1). Customers can also report outages through Outage Central that are then integrated in the OMS (Exh. DPU 4-2; Tr. 4, at 857).

The current version of the Company's OMS, which was installed in June 2007, is no longer supported by the vendor, General Electric (Exh. AG 2-16). Further, National Grid has identified a long-standing problem with the OMS regarding its inability to properly identify nested outages[39] (Exh. AG 2-16). Considering these factors, the Company plans to replace the OMS system in September 2013 (Exh. AG 2-16).

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[39] A nested outage occurs when a smaller outage is imbedded in a larger outage such that, when the fault causing the larger outage is repaired, there is still a pocket of (nested)

ii. Description

During T.S. Irene, the OMS experienced delays and multiple periods of slow operation, including on the evening of Monday, August 29, when the OMS would not allow users to log in (Exh. DPU 7-11). At another point during the T.S. Irene restoration, the OMS experienced problems with its database and with server connectivity (Exh. DPU 7-11). The Company acknowledged 15.5 hours of slowness that users experienced beginning at 10:00 a.m. on Sunday, August 28, the day the storm hit Massachusetts (Exh. DPU 7-11). The inability of the call analyzer to process calls at the rate it received them caused the system slowdown (Exh. DPU 7-11). In order to remedy this problem, the Company's information services team took the OMS off-line to reboot the server and add more capacity (Exh. DPU 7-11). The system reboot took approximately 30 minutes, during which time no users were able to access the OMS (Exh. DPU 7-11). When necessary, the Company instituted manual processes to track calls and orders due to the slow performance and the shutdown of the OMS (Exh. DPU 7-11). To compensate for the effects that the slow performance of the system had on Outage Central, the Company posted ETR information on its website in PDF format (Exh. AG 3-5). Following T.S. Irene, National Grid added two web servers and increased the processing power of its system to improve the ability of its website to handle high user volumes (Exh. AG 3-5).

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customers who remain out of service due to a more localized system issue (Exh. AG 2-16).

iii. Positions of the Parties[40]

(A) DOER

DOER argues that the Company failed to adopt available technology to improve communications (DOER Brief at 5). DOER contends that the evidence proves that the Company's OMS was ineffective in handling the large volume of calls received and jobs assigned during T.S. Irene, and that it did not have the requisite capability (DOER Brief at 5, citing Exhs. AG 3-5; AG 4-1; DOER 2-1 (revised); NG-4, at 5).

DOER points out that the inability to properly evaluate nested outages is a known limitation of the Company's OMS (DOER Brief at 5-6, citing Exh. AG 2-16; Tr. 2, at 394-396). DOER maintains that although the Company discusses its investment in a new OMS system that it claims will improve performance, the Company could have and should have addressed the known OMS limitation with a more immediate fix during T.S. Irene by deploying sufficient damage assessors to perform manual inspections and report the nature of the outages (DOER Brief at 5-6, citing Tr. 2, at 404-405; AG 5-5). DOER argues that a manual inspection process may still be necessary with the new OMS during large-scale emergencies (DOER Brief at 6).

(B) Company

The Company first distinguishes between its OMS used to manage and dispatch resources to respond to power outages and its Outage Central website, a tool that primarily allows customers to report outages to the Company and the Company to provide ETRs to customers (Company Brief at 18-19, citing Exhs. AG 1-7; DPU 4-2). The Company claims that DOER conflates the functionalities of these systems in its arguments, and that although they are related,

[40] The Attorney General did not brief this issue for T.S. Irene.

issues with Outage Central do not always indicate issues with the OMS (Company Brief at 18-19, citing Exhs. AG 1-7; DPU 4-2). The Company acknowledges performance issues with the OMS due to call and user volumes during T.S. Irene; however, the Company disputes DOER's conclusion that the system did not have the functionality to effectively handle these volumes (Company Brief at 19, citing Exh. AG 3-5). The Company also highlights additional steps that it took to compensate for the slowness of Outage Central, including posting ETR information in a tabular list on its website and adding two new web servers (Company Brief at 19, citing Exh. AG 3-5).

Regarding technology overall, the Company argues that it effectively utilized the technology it had and that the Company identified and addressed areas where its systems required support (Company Brief at 18-20, citing Exhs. AG 3-5; NG-4, at 6). The Company argues that there is no evidence linking its use of technology during storm restoration efforts to a failure to fulfill the Company's ERP requirements (Company Brief at 20). The Company also notes that there are no ERP or Department requirements regarding technology and, therefore, that the Department cannot cite National Grid for not utilizing specific types of technology (Company Brief at 20).

iv. Analysis and Findings

Based on the record, the Department concludes that National Grid's OMS did not effectively process and manage outage information during T.S. Irene, and contributed to a failure to restore service to its customers in a safe and reasonably prompt manner. 220 C.M.R. §19.03(3). As in other areas of inadequate performance with regards to meeting standards of safe and reasonably prompt restoration, failures of the OMS system are emblematic

of the Company's failures in planning, preparation, communications and implementation of emergency response.

Due to high volumes of users, National Grid's OMS experienced several periods of slowness during T.S. Irene, including one that hindered the system's performance for more than 15 hours and necessitated a shutdown of the entire system for 30 minutes (Exh. DPU 7-11). The interruption and slowness of the OMS caused the Company to resort to manual tracking processes (Exh. DPU 7-11).

Failures of the system led to multiple and cascading problems. With the system slow or down, the manual tracking negatively impacted the overall restoration management efforts. The slow performance of the OMS also caused sluggishness on the Company website and a lag in ETR updates to Outage Central (Exhs.AG 3-4; AG 3-5). This is a concern because Outage Central was one of the primary sources, along with the call center, of communication of ETR information for the public (Exhs. AG 1-7; DPU 4-2).

National Grid acknowledges that it has known of the inability of its OMS to detect nested outages for several years and concedes that having this functionality would allow the Company to provide better information to customers (Exh. AG 2-16; Tr. 2, at 396). The new OMS that the Company is purchasing in 2013 should provide greater functionality with respect to nested outages (Exh. AG 2-16; Tr. 2, at 396).

The Department concludes that National Grid has an obligation to manage outage information with its customers in a timely manner. If the limitations of the Company's OMS, current or future, inhibit its ability to do so, the Company must compensate by finding other means to fulfill these obligations.

It is ironic that the Company's OMS, as its name indicates, is designed to address outages, but is apparently incapable of doing so in a timely fashion precisely when it is most needed, that is, when a storm causes many outages. The Company indicates that it was aware of the system's limitations, and has plans to replace it in September 2013—two years after T.S. Irene hit. The Department is concerned that between now and when National Grid expects to replace its OMS there could be other storms. Therefore, the Department directs the Company to plan to implement measures to ensure that the Company is well equipped to prevent any problems should its OMS function improperly.

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Safe and reasonably prompt service restoration includes processing and managing outage information with an effectively functioning OMS or an adequate alternative. In light of the failures of the Company's OMS, we find that the Company violated the restoration of service standard. 220 C.M.R. §19.03(3).

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. In particular, the Department notes the cascading effect that this aspect of the restoration process had on the remaining restoration phases and on communications with municipal officials and the public (see Sections VI.C.1.c, VI.C.1.d and VI.D).

After a review of the record evidence in this case, we find that a $250,000 penalty per day for six days is warranted. Accordingly, the Department assesses the Company a penalty of $1,500,000 ($250,000 per day for six days).

For future emergency events, the Department directs the Company to develop a more effective OMS that addresses all of the concerns raised with respect to T.S. Irene. We further recommend that development of such a system be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

c. Emergency Response and Wires Down

i. Introduction

A critical part of an electric distribution company's storm response is its response to wires that have detached from utility poles. Electric distribution companies respond to calls concerning downed wires to address safety concerns that energized wires pose and to enable municipal officials to open roads and respond to emergency calls. Electric distribution companies respond both to wires-down calls from the public and to priority calls from municipal officials, the latter of which we discuss below. Additionally, electric distribution companies respond to wires-down calls for wires not owned by the company, including wires owned by telecommunication companies.

According to the Company's ERP, the Company's first restoration priority is to eliminate hazards to the public associated with live wires (Exh. NG-5, Section .101, at 15, Section .106, at 140-141).[41] The Company receives calls reporting downed wires from customers, municipal and public safety officials, and 911 operators (Exh. DPU 2-19, Att.). Call center representatives are trained to direct customers to contact 911 if there is an emergency situation involving a downed wire (Tr. 1, at 179-180). In response to the 911 call, the Company sends personnel to

[41] The ERP does not further define or describe wires down or the process for addressing them (Tr. 2, at 227-229).

determine if the situation presents a hazard to the public, and if so, make the area safe, either by correcting the situation or requesting personnel to stand by the wires down until repairs can be made (Exh. NG-5, Section .110, at 175).

Calls from a public/municipal official about downed wires are considered priority calls, and the Company provides municipal officials with special phone numbers to report them (Exh. AG 1 24; Tr. 4, at 765-766). The municipal official reports the downed wire calls as Priority 1, Priority 2, or Priority 3 (Tr. 4, at 769, 795-797). The categories for priority municipal calls are defined in Table 6 below.

Table 6: Priority Level Definitions

Priority	Situation
1	Life Threatening/Imminent Danger An event in which utility equipment is preventing emergency response personnel from performing rescue efforts and/or administering first-aid treatment to a person or persons who may be injured or in danger of being injured.
2	Hindering Emergency Operations An event in which utility equipment is preventing emergency response personnel from responding to an emergency situation which is not considered life-threatening, yet requires the attention of emergency response personnel.
3	Non-Threatening Electrical Hazard An event in which utility equipment created the need for emergency response personnel and/or apparatus to remain on the scene in order to protect the public from the hazard created by the utility's equipment.

(Exhs. DPU 9-4, Att.; DPU 9-5, Att.; RR-AG-5, Att.). See also Electric Distribution Companies' Emergency Response Time Protocols, D.P.U. 08-112, at 1-2 (2010).

For Priority 1 calls, a municipal official uses a dedicated line that rings directly into the Company's regional control center in Northborough (Tr. 4, at 765-767). The Company then calls the official back and provides the Company's ETA for the troubled location (Exh. AG 1-24; Tr. 4, at 765-767). Priority 2 and 3 calls ring into the Company's call center and are then referred to the branch wires-down rooms for callback (Tr. 4, at 766-768).

Upon receiving a Priority 2 or 3 call from a municipal official, a Company call center representative enters the call information into the OMS to assign a crew and provide an ETA to the municipal official (Exh. AG 1-24).[42] During normal operations, the Company manually records response times, including dispatch and arrival, in the Company OMS, as well as in a separate online police and fire database (Exh. DPU 9-1). The Company states that during emergency events it cannot maintain this manual process, and thus relies upon the OMS software to track calls and response activities (Exh. AG 1-8; Tr. 3, at 665-666).[43] To respond to downed wires, the Company uses several types of crews, including one-person wires-down appraisers and/or wires-down guard crews, two-person cut-and-clear crews, and its internal line crews (RR-DPU-10, Att.; Tr. 3, at 633-634, 666-669).[44]

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42 ETAs are provided only for priority wires-down orders (Exh. DPU 9-1; Tr. 4, at 795).

43 The Company testified that going forward during emergency events it will manually track all police, fire and 911 calls outside of the OMS, and that these wires-down tracking issues are being considered in designing the new OMS that the Company plans to purchase in 2013 (Tr. 4, at 826-828). Issues regarding the Company's OMS are discussed in greater detail in Section VI.C.1.b and VI.C.2.b.

44 The wires-down appraisers or stand-by guards are sent out for Priority 2 and 3 wires-down conditions to relieve the police and fire officials and stand by the wire until a line crew or cut-and-clear crew can assist them (Tr. 4, at 668-669). "Cut-and-clear" crews can identify wires and cut and remove only the lower voltage wires (Tr. 3, at 643-646). Line crews are the Company's highest level of trained worker, capable of setting a pole, cutting a high or low voltage wire, and picking up a wire as well as doing restoration work (Tr. 3, at 643-645). The Company relies exclusively on its own internal line crews to respond to Priority 1 calls (Tr. 4, at 803). If available, line crews also will respond to Priority 2 and 3 calls (Tr. 4, at 668).

ii. Description

During T.S. Irene, the Company received a total of 12,655 wires-down calls,[45] 1,148 of which were priority wires-down calls reported by public safety officials (Exh. NG-1, Att. B, Table B at 24; RR-DPU-12). The breakdown of the priority wires-down calls is shown in the table below.

Table 7: Priority wires-down calls for T.S. Irene

	Priority 1	Priority 2	Priority 3	uncategorized	**Total**
Number of Records	40	492	170	446	**1,148**

(Exh. DPU 9-4, Att.)

The Company did not provide the priority level for 446, or 39 percent of the calls (Exh. DPU 9-4, Att.). In addition to the priority level, many of the 1,148 call records were missing other information (Exh. DPU 9-4, Att.). The priority wires-down files the Company provided in this proceeding had many blank fields, including those for dispatch, arrival, and repair times (Exh. DPU 9-4, Att.). Further, only a minority of the Company's records, approximately 14 percent, show evidence of an ETA callback (Exh. DPU 9-4, Att.).

As in any emergency event, the Company did not use its normal manual process of recording response times during T.S. Irene (Exh. AG 1-24). Instead, it used its OMS. Given the functional limitations of the OMS, the average response times for all priority calls could not be determined (Exhs. AG 1-24; DPU 7-13). The Company provided an average response time for certain Priority 1 calls using alternate tracking data from the vehicle locator systems in its line

[45] The Company provided inconsistent data on the number of wires-down calls it received. The most recent data that the Company provided indicates that the Company received 12,655 wires-down calls. Other record evidence indicates that the Company received 13,062 wires-down calls (Exhs. AG 2-5, Att (a); DPU 5-36, at 2; DPU 9-23; NG-1, Att. B, Table B at 24; RR-DPU-12; Tr. 4, at 797-805).

crew trucks (Exha. AG 1-24; DPU 7-13). National Grid reported that the average response time for Priority 1 calls during T.S. Irene was 0.5 hours (Exh. DPU 7-13; RR-AG-4; RR-DPU-6, Att. (a); Tr. 4, at 817-818). However, the Company derived this number by utilizing only six call records that the Company identifies as "true" Priority 1 calls (Exh. DPU 9-4, Att.; RR-DPU-6, Att. (a); Tr. 4, at 770-772). The Company did not provide response times for the other 34 calls reported as Priority 1 by municipal officials during T.S. Irene (Exh. DPU 9-4, Att; RR-DPU-6, Att (a)).

Prior to T.S. Irene, the Company had trained a total of 1,313 personnel[46] for wires-down assignments, consisting of 303 cut-and-clear personnel and 1,010 appraisers[47] (RR-AG-8; Exh. DPU 2-20). In addition, during T.S. Irene the Company trained an additional 469 employees as wires-down stand-by guards to increase the total number of employees trained for wires down to 1,782 (Exh. DPU 2-20; Tr. 3, at 635-636).

The Company testified that during emergency events it taps all available resources to perform wires-down activities (Tr. 3, at 622). At the peak point in the restoration effort, the Company deployed 515 wires-down resources, consisting of wires-down appraisers, wires-down guards and cut-and-clear crews, from its internal employees, affiliate employees and contractors (RR-DPU-10, Att.; RR-DPU-13, Att.). Of those, the Company used a total of 92 contractors and

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46 The Company did not provide evidence on how many of the 1,313 National Grid New England employees who were trained for a wires-down role prior to T.S. Irene worked in Massachusetts (Exh. DPU 2-20; RR-AG-8).

47 During hearings, the Company clarified that this number of employees trained for wires-down roles represents National Grid employees within its entire New England region and not Massachusetts specifically; and that trained employees may have multiple storm duties (Exh. DPU 2-20; Tr. 3, at 635-638).

31 affiliate personnel for wires-down (RR-DPU-10, Att.; RR-DPU-13, Att.). The Company reassigned some contractors originally intended for damage assessment to support the immediate needs for responding to wires down (Exh. DPU 6-10). In addition, the Company used its 233 internal line crews for the first day and a half of the restoration effort on wires-down/public safety issues (RR-DPU-10, Att; Tr. 3, at 633-634**).**

iii. Positions of the Parties

(A) Attorney General

The Attorney General argues that by not mobilizing sufficient wires-down resources, the Company failed to meet its responsibility to provide safe and reasonably prompt restoration (Attorney General Brief at 15, citing Exh. AG-DO-CF-1, at 17; Attorney General Reply Brief at 17). The Attorney General asserts that the Company's lack of resources and inability to respond to wires-down calls in a timely and efficient manner was particularly negligent, as the Company was cited for its handling of wires-down during the December 2010 snowstorm event (Attorney General Brief at 15, citing Exh. AG-DO-CF-1, at 17, 19).[48] As an example of the insufficient response to wires-down calls, the Attorney General cites evidence that 85 percent of existing wires-down orders were incomplete on Sunday, August 28, and that 66 percent were still not addressed on Monday, August 29 (Attorney General Reply Brief at 23, citing Exhs. AG 1-15; DPU 9-23).

The Attorney General contends that as a serious public safety hazard, downed wires should be highly important to the Company, especially those reported by municipal officials and

[48] The Department investigated the Company's performance regarding that storm in Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid, D.P.U. 11-03 (2011).

911 operators as needing a priority response (Attorney General Brief at 15; Attorney General Reply Brief at 23). The Attorney General points out that Company records of priority wires-down calls show long periods of time between receipt of calls and response to and resolution of the associated issues (Attorney General Reply Brief at 23). The Attorney General categorizes the Company's response to wires down as "egregiously inadequate" and urges the Department to consider the inherent safety issues surrounding all aspects of wires down (Attorney General Reply Brief at 15). Thus, the Attorney General recommends that the Department penalize National Grid $5,000 for each priority wires-down call that the Company failed to respond to in a reasonable amount of time, which she defines as 24 hours (Attorney General Reply Brief at 23). With 229 priority wires-down calls delinquent per the Attorney General's definition, she recommends a penalty of $1,145,000 for the Company's wires-down response during T.S. Irene (Attorney General Reply Brief at 23-24).

(B) DOER

DOER argues that the Company lacked sufficient resources to perform wires-down functions, which impacted damage assessment because contractor damage assessors were assigned to the wires-down function (DOER Brief at 7, citing Tr. 4, at 633-634). DOER asserts that the lack of sufficient resources to perform the wires-down functions impeded the adequacy of the storm response (DOER Brief at 7). DOER argues that the Company has not sufficiently integrated the telecommunications companies into storm restoration efforts with respect to wires-down response (DOER Brief at 11). Finally, DOER asserts that Verizon's failure to participate in damage assessment and wires down hampers the Company's restoration efforts (DOER Brief at 12, citing Tr. 3, at 424).

(C) Company

The Company asserts that it followed the Department-approved statewide wires-down protocol and otherwise acted consistently with its ERP regarding wires-down response (Company Brief at 110). The Company also argues that the severity of the damage delayed its wires-down response (Company Reply Brief at 13, citing Exh. NG-Rebuttal at 25-26). The Company notes that it has committed to improving its performance in this area by reviewing best practices and training additional resources, including wires-down resources (Company Brief at 110, 151). During T.S. Irene, the Company argues that in the early restoration phase on Sunday, August 28, the Company's distribution line crews that could not begin to restore service were assigned to the wires-down response on that day and the following day (Company Brief at 114, citing Tr. 4, at 692).

National Grid describes the resources it had trained to address wires down and asserts that the extent and type of damage following T.S. Irene created a scenario in which even with additional personnel, response times to wires-down calls might have been longer than would have been the case if the Company's system incurred less damage (Company Reply Brief at 12-13, citing NG-Rebuttal at 25-26). The Company claims that the Attorney General can cite no provision in the ERP or provide any evidence that the Company violated the ERP regarding securing adequate resources overall and for wires down specifically, because the ERP does not require the Company to allocate a particular number or type of resources to a particular event (Company Brief at 114, 117). In addition, the Company argues that a significant portion of the downed wires were cable and telecommunications wires that do not present a danger to the

public, but which the Company must spend time and resources to evaluate (Company Reply Brief at 13, citing Exh. NG-Rebuttal at 25-26).

The Company asserts that it provided evidence regarding Priority 1 life-threatening wires down, and that its average response for these calls was 0.5 hours (Company Reply Brief at 13, citing RR-AG-4; RR-DPU-6, Att. (a); Tr. 4, at 817-818). The Company notes that its inability to track other wires-down data is not indicative of its actual performance responding to wires-down calls, and that the Company is committed to implementing a manual tracking system for wires-down response data in the future until it can update its OMS (Company Reply Brief at 13, citing Tr. 4, at 818). Regarding providing ETAs to municipal officials, the Company maintains that it is committed to providing timely ETAs for Priority 1 calls, and that it has reviewed the definitions of Priority 1, 2, and 3 calls with municipal officials (Company Reply Brief at 14-15, citing Exhs. NG-3; NG-4).

In response to DOER's allegations with respect to Verizon's participation in storm response, the Company notes that it has very little control over the actions of telecommunications companies (Company Brief at 21 n.6). The Company argues that the ability to "coordinate better" with telecommunications companies is not within the Company's sole control or discretion (Company Brief at 21 n.6). The Company notes that it has invited telecommunications companies to participate in planning a joint wires-down response to be used in future storm events (Company Reply Brief at 15-16, citing Exhs. NG-3; NG-4).

The Company argues that there are no legal grounds or record evidence to support the Attorney General's recommendation of penalties related to the Company's wires-down response (Company Reply Brief at 26-27). The Company states that there is no basis in the ERP or

Department regulations for the 24-hour response time metric used by the Attorney General in her penalty recommendation (Company Reply Brief at 26). Further, the Company stresses that its OMS was unable to capture average response times to calls during the restoration following T.S. Irene (Company Reply Brief at 26-27, citing Tr. 4, at 810-811, 818). Thus, National Grid contends that the Department cannot rely on this data and that the Attorney General's recommendation for penalties is not supported by either a legal or evidentiary basis (Company Reply Brief at 26-27).

iv. Analysis and Findings

The purpose of wires-down response is to (1) make the electric utility facilities safe, (2) relieve municipal emergency responders such as fire and police from guarding unsafe utility facilities, and (3) de-energize and clear electric wires and facilities so that the municipalities can safely perform their required storm-related duties and activities. The response of an electric distribution company to a downed wire is a critical part of providing a safe restoration response.

Municipal officials testified regarding numerous problems with the Company's response to downed wires during T.S. Irene. Some officials reported that they had to use public safety resources to guard downed wires, not knowing when they would be relieved by National Grid because the Company did not provide ETAs (Tr. B at 45-50 (D.P.U. 11-85-A); Tr. B at 50-54 (D.P.U. 11-85-A); Tr. B at 54-60 (D.P.U. 11-85-A). Testimony from the Fire Chiefs in Pembroke and Brockton described frustration with a lack of response from the Company, concerns about public safety, and an inability to do their jobs because of the need to stand by downed wires (Tr. B at 46-49, 51-52 (D.P.U. 11-85-A)). Pembroke's Fire Chief described difficulties getting to emergencies because of roads blocked by utility wires, stating "we had no

available apparatus or people left to respond because they were standing by downed wires and we couldn't leave in the interest of public safety" (Tr. B at 51-53 (D.P.U. 11-85-A)). The Fire Chief in Brockton gave an example of a police officer waiting for a National Grid crew at a downed wire for six hours (Tr. B at 47-49 (D.P.U. 11-85-A).

Here, the Company failed to produce complete data regarding its response to these calls (Exhs. AG 2-5, Att. (a); DPU 9-4, Att.; RR-DPU-6, Att.; Tr. 4, at 810-811, 817-818). Indeed, the paucity of its data is startling. The Company could not demonstrate how many or which of the priority wires-down calls had fire or police personnel guarding the wire, or when the fire or police personnel were relieved. The Company's files were missing both dispatch and arrival times for nearly 8,700 wires-down calls (Exhs. AG 2-5, Att. (a); DPU 9-4, Att.; DPU-1). Further, the Company records were missing many priority designations and ETAs (Exhs. DPU 9-4, Att.; DPU-1). Indeed, the Company was unable to provide any records of ETA callbacks for 86 percent of the 1,148 priority wires-down calls during T.S. Irene, and nearly 40 percent of the priority wires-down calls received during T.S. Irene had no priority designation at all (Exhs. DPU 9-4, Att.; DPU-1). Other than for six Priority 1 calls, the Company was unable to show the Department how the Company responded to over 1,000 priority wires-down calls and over 12,000 non-priority wires-down calls.

Due to the public safety implications of wires-down calls and of a company's response, it is imperative that companies have tracking processes in place. The Company's inability to provide reliable evidence on how it responded to wires down raises questions as to the Company's entire wires-down process, including how calls were prioritized, whether the Company actually knew the status of high-priority public safety situations, and whether the

Company handled its responses safely. In the face of numerous complaints from local safety officials, we reject National Grid's argument that the Department cannot rely on the priority calls data the Company provided because of the data's unreliability.

Based on our own review of the limited data the Company provided, the Department has calculated an average of 22.6 hours between when the Company received a priority call and when the Company dispatched a crew (Exh. DPU 9-4, Att.). While the average time between when the Company received a priority call and when it dispatched a crew was 22.6 hours, the maximum time that elapsed between when the Company received a priority call and when it dispatched a crew and/or a crew arrived was 151 hours (or over six days) (Exh. DPU-9-4, Att.).

Based on our review of the 40 Priority 1 calls, the Department found an average 25.3-hour response time for Priority 1 life-threatening calls (Exhs. DPU 9-4, Att.; DPU-1). While the Company asserts its average response time for six Priority 1 calls was 0.5 hours, the Company based this average on only six calls. The Company asserts that these six calls were the only "true" Priority 1 calls, but the Company failed to present any evidence as to why the remaining 34 calls designated by the municipalities as Priority 1 calls were mislabeled, what the "proper" designation should have been, or how long it took the Company to respond to those 34 calls.

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Few activities are more crucial to service restoration than timely response to downed wires. While we recognize the heavy volume of wires-down calls the Company received in this storm, safety must remain an uncompromised priority. We expect all priority wires-down calls to be addressed in

an efficient and timely manner, and that they be made a top restoration priority. We find that in responding to wire-down calls during T.S. Irene, the Company failed to comply with the standard to restore service in a safe and reasonably prompt manner. 220 C.M.R. § 19.03(3).

The Department also notes that this is not the first time that the Department has received complaints regarding the Company's wires-down response. In 2008, National Grid participated in the development of a process to prioritize wires down and communicate ETAs to safety officials. D.P.U. 08-112. Despite this effort, the Company failed to implement the new process during the 2010 Winter Storm. D.P.U. 11-03. Wires-down response was one of the Company's primary problems during that storm. In that Order, the Department discussed failures by National Grid to respond to wires down appropriately, citing testimony of public safety officials who described life-threatening emergency situations that they were unable to respond to adequately because their police and fire resources were busy protecting the public from downed utility wires. D.P.U. 11-03, at 9-10. After the 2010 Winter Storm, the Company recommitted to a process to prioritize wires down and communicate ETAs to safety officials, yet in T.S. Irene the Company again failed to adequately provide ETAs to municipal officials. D.P.U. 11-03, at 12-13.

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. In particular, the Department notes that the nature of this violation is grave due to the public safety impacts of wires-down failures. Taking the factors into consideration and after a review of the evidence in this case, we find that a $250,000 penalty per day for six days, which is the length of time it took

the Company to complete the response to priority wires-down calls, is warranted. Accordingly, the Department assesses the Company a penalty of $1,500,000 ($250,000 per day for six days).

For future emergency events, the Department directs the Company to develop a more effective wires-down strategy that addresses all of the concerns raised with respect to T.S. Irene. We further recommend that development of such a strategy be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

d. Damage Assessment

i. Introduction

The Company's ERP states that the storm damage assessment process is performed to assess physical damage such as downed wires and broken poles following a storm and is used to formulate National Grid's storm response (Exh. NG-5, Section .107, at 143). The Company describes its damage appraisal process as having three primary components: (1) appraisal of physical damage in the field[49], (2) recording of each appraisal[50], and (3) compilation of work packages based on the damage found (Exh. DPU 5-32). The Company uses a storm damage appraisal ("SDA") database, which is linked to the OMS, as a primary coordination tool

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49 The damage appraisal or assessment process is generally assigned by circuit and completed in two phases (Exh. DPU 5-32). The Phase I Survey is done by damage appraisers conducting patrols of only the three-phase main lines that start at the substation and typically go down main roads and connect to large customers (Exh. NG-5, Sec. .107, at 143-150; Tr. 4, at 685-686). The Phase II Survey is done by damage appraisers conducting patrols of the entire circuit down to the single-phase circuits located in residential neighborhoods (Exh. NG-5, Sec. .107, at 143-150; Tr. 4, at 687).

50 Office support personnel gather and record summary level damage information in the storm damage appraisal database from written Phase I and II Surveys completed by damage appraisers (Exh. DPU 5-32, at 1). Several times a day, the Company prepares an updated report from the storm damage appraisal database to help in storm planning, including estimating restoration times (Exh. DPU 5-32, at 1).

(Exh. DPU 5-32, at 1). The Company uses the damage assessment information from the Phase I and II Surveys to provide an initial indication of the approximate crew hours and resources required and to prepare work packages for crews for service restoration based on restoration priorities; it does not update or recalculate the estimation of crew resources required once the initial estimates are created (Exh. DPU 5-32, at 2; Tr. 3, at 523-526).

The Branch Planning Coordinator uses weather forecasts to make arrangements to deploy damage appraisal teams to potentially-affected areas in advance of or following the arrival of a storm (Exh. NG-5, Section .107, at 147). The Branch Planning Coordinator decides on the advance placement of damage appraisers[51] and arranges for SEALS and other personnel to report as damage appraisers (Exh. NG-5, Section .107, at 147). The Branch Damage Appraisal Manager (1) prioritizes circuits by critical facility for damage patrol; (2) ensures all damage appraisers' material requirements are met; and (3) assigns circuits to local personnel for damage patrol (Exh. NG-5, Section .107, at 147). The ERP states that immediately after a storm, damage appraisers (1) perform Phase I Survey patrols within 24 hours, and (2) perform Phase II Survey patrols within 48 hours to document the damage and repairs necessary (Exh. NG-5, Section .107, at 147-148). The ERP states that based on the Phase I and Phase II Surveys, the Branch Damage Appraisal Manager determines the estimated crew hours of work required to complete the restoration (Exh. NG-5, Section .107, at 150). The ERP notes that Branch personnel should be available for wires-down response, among other duties; if damage appraisers are delayed by

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[51] In its ERP, the Company refers to the personnel who conduct damage assessments as "damage appraisal patrollers" (Exh. NG-5, Section .107, at 144). The Department, however, refers to these personnel as damage appraisers.

wires down, a timely and accurate restoration estimate will not be achieved (Exh. NG-5, Section .107, at 147).

ii. Description

The Company started its field damage appraisals on a limited basis on Sunday evening, August 28, after winds subsided (Exh. DPU 5-28, at 1). The full damage appraisal process commenced on the morning of Monday, August 29, with damage appraisers performing the Phase I Survey patrols; all Phase I Survey patrols not completed by the end of the day on Monday, August 29 were completed during the day on Tuesday, August 30 (Exh. DPU 5-28, at 1-2). On August 30, the Company had prepared some work packages based on the completed Phase I Survey patrols and assigned crews to restoration priorities (Tr. 4, at 693-695). Phase II Survey patrols commenced on August 30 at various times as Phase I Survey patrols were being completed, and Phase II patrols were finished by the end of the day on Wednesday, August 31 (Exh. DPU 5-28, at 2). The Company began to assign restoration jobs to line crews based on Phase II Survey patrols starting on August 30 as the damage assessors completed the Phase II Survey patrols, focusing first on restoration of critical care facilities such as hospitals (Tr. 4, at 694-696). The Company indicates that not all Phase I patrols were completed within 24 hours and not all Phase II patrols were completed within 48 hours due to the extent of the damage and geographical area impacted (Exh. DPU 5-28, at 2).

At the peak point in the damage appraisal component of the restoration, the Company secured 106.5 damage appraisers (RR-DPU-10). The Company relied upon engineers from its Asset Management and Engineering department, gas operations personnel, one Rhode Island affiliate crew, and contractors to serve as damage appraisers (Exh. AG 2-27; RR-DPU-13, Att.).

The Company testified that in past storms it did not use as many resources for damage appraisal (Tr. 4, at 701-702). The Company testified that at the beginning of the restoration it reassigned some of its internal employees and contractors from damage appraisal to wires down and other functions because it did not need as many damage appraisers as it originally had available (Exh. DPU 6-10; Tr. 3, at 625-630).

iii. Positions of the Parties

(A) Attorney General

For T.S. Irene, the Attorney General claims that the record evidence shows that the Company did not complete its damage assessment within 48 hours as required under its ERP (Attorney General Brief at 10). According to the Attorney General, the Company's ERP states that it requires the Company to implement rather than start the damage assessment process within 48 hours, and the word "implement" does not have the same definition as the words "start" or "begin" (Attorney General Brief at 10-11). The Attorney General recommends the Department levy a $1,250,000 penalty for failure to analyze damage assessment information within 48 hours for T.S. Irene[52] (Attorney General Reply Brief at 21).

(B) DOER

DOER contends that during T.S. Irene and the October Snowstorm the Company should have been prepared to deploy sufficient damage assessors to offset the known limitations of its

[52] The Attorney General calculated the $1,250,000 proposed penalty by recommending the maximum penalty of $250,000 per violation be applied for five days, the number of days after 48 hours from the time that the storm began until the last restoration (Attorney General Reply Brief at 21).

OMS (DOER Brief at 6).[53] DOER argues that the Company did not pre-position damage assessors prior to the storm in any meaningful sense in areas where they likely would be needed because the Company simply directed them where to go to work from their homes (DOER Brief at 6, citing Tr. 3, at 590-591; Tr. 5, at 1046-1047). DOER claims that the Company's failure to provide and pre-position enough damage assessors impeded the adequacy of the storm response and caused the Company to miss the required deadlines for providing Phase I and II damage assessments in the aftermath of the storm (DOER Brief at 7-8). DOER concludes that this constitutes a violation of the ERP Guidelines requirement that damage assessments be made within 24 and 48 hours (DOER Brief at 7-8: DOER Reply Brief at 3).

(C) Company

The Company contends that the Attorney General has failed to identify any requirement that obligates the Company to complete any phase of the damage assessment process within a 24- or 48-hour time period because no requirement exists within the Company's ERP, the Department's regulations or ERP Guidelines (Company Brief at 99, citing 220 C.M.R. § 19.00 et seq.; ERP Guidelines). The Company accuses the Attorney General of misquoting and misconstruing the meaning of the damage assessment language, as the ERP says nothing about analyzing the data collected within 48 hours or completing damage assessment within 48 hours; rather, the Company contends that the ERP requires it to implement or begin damage assessment within 48 hours (Company Brief at 98-99). The Company claims that it is within its discretion to stop or add additional steps to the damage assessment process when it determines that it has either collected sufficient information or needs additional information to conduct a safe, effective

[53] The Department addresses the Company's OMS in Section VI.C.1.b and VI.C.2.b.

and timely restoration (Company Brief at 99). The Company argues that because it began partially restoring service in parallel to performing damage assessment due to the infrastructure and road damage sustained in each storm, its restoration efforts were not delayed by its failure to perform a complete damage assessment on every circuit within a 48-hour period (Company Brief at 99-101).

In response to the Attorney General's recommendation for penalties related to damage assessment, the Company argues that the Attorney General provides no evidentiary basis for its proposed penalty, as (1) the Company could only undertake limited initial damage appraisal patrols immediately after the storm due to safety issues and lingering high winds, which delayed the damage assessment process; and (2) the Attorney General provides no basis for the penalty calculation methodology, which charges the Company for the total number of days of the restoration that extended beyond the 48-hour damage assessment timeline (which the Attorney General asserts is five days) (Company Reply Brief at 21-23).

The Company argues that the record does not support DOER's conclusions regarding the number of damage assessors utilized during the storm restoration phase (Company Brief at 126). While the Company notes that additional personnel might have shortened the time to complete damage assessment, it contends that additional personnel would not necessarily have led to earlier restoration times for customers as the damage assessment process provided a sufficient volume of work for available line resources throughout the storm events (Company Brief at 126).

iv. Analysis and Findings

For T.S. Irene, the Company testified that it started its Phase I Survey patrols on Sunday, August 28 and completed them on Tuesday, August 30, over 24 hours into the restoration; and

that it started Phase II Survey patrols on Tuesday, August 30, and Wednesday, August 31, and completed them on August 31, well over 48 hours into the restoration (Exh. DPU 5-28, at 1-2; Tr. 4, at 693-695). The Company also acknowledged that it reassigned some of its internal employees and contractors from damage appraisal to wires down and other functions because it determined it did not need as many damage appraisers as it had available (Exh. DPU 6-10; Tr. 3, at 625-630).

The language in both the ERP Guidelines and the Company's ERP indicates that the Phase I and Phase II Surveys for damage assessment are expected to be completed within the 24- and 48-hour timeframes, respectively (Exh. NG-5, Section .107, at 5). ERP Guidelines, at Section V.B.2. The Department requires companies to include these timelines in their ERPs to ensure that companies obtain in a reasonable timeframe the information necessary to promptly restore service to customers. The Department must be convinced, when these timelines are missed, that doing so was consistent with the obligation to restore service in a safe and reasonable manner.

Here, we are not persuaded that this was the case. Although the Company testified that it employed 106.5[54] damage assessors at the peak, it neither pre-positioned damage assessors nor retained for damage assessment duties all of the damage assessors it had obtained (Tr. 3,

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[54] The data the Company provided on damage assessment resources were inconsistent. In an information response, the Company stated that it originally secured 76 internal employees and 166 contractors for damage assessment, but ultimately used only 68 internal employees and 61 contractors as damage assessors (Exh. DPU 6-10). Later, the Company indicated that it used 66.5 internal employees and 51 contractors at peak for damage assessment, which corresponds to 1.5 fewer internal employees and ten fewer contractors conducting damage assessment than originally reported (Exh. DPU 6-10; RR-DPU-10, Att.).

590-591; RR-DPU-10). In fact, the record evidence in this case is that the Company secured additional contractors and internal employees for damage assessment, but then reassigned these resources to other storm duties (Exh. DPU 6-10; Tr. 3, 625-630).

We acknowledge that the wires-down response must be the Company's top priority, and that some restoration efforts went forward contemporaneously with damage assessment. However, it would not have been necessary to reassign resources if the Company had obtained adequate wires-down resources. Securing too few resources for wires-down work and then reallocating the damage assessors to this function to compensate for an ineffective wires-down strategy is not a sufficient reason for missing damage assessment timelines.

We also note that the Company's testimony on its damage assessment process highlighted the highly manual and inefficient nature of its approach to damage assessment. The record contains several examples of these steps, including (1) assessors writing notes of damage on damage assessment forms; (2) engineers and designers taking this damage assessment information and working to physically align data on the location of damage; (3) calculating the number of crews/hours necessary to repair the damage; and (4) creating physical work packages for line crews (Tr. 4, at 688-692). In addition, the Company testified that it uses information from damage assessment to determine the order of magnitude of damage sustained from the event and calculate crew hours of work required; however the Company does not update this information on crew hours required to repair damage throughout the event as new information becomes available (Exh. DPU 9-21; Tr. 3, at 524-526).

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Safe and

reasonably prompt service restoration requires timely and effective damage assessment. We find that the Company failed in its obligation in this regard. We also conclude, in view of the manual nature of the Company's damage assessment process, that the process has not been updated and optimized to deal with a Level V event of the magnitude of this storm, which was detrimental to the ability of the Company to complete its damage assessment. The Department finds that the Company failed to perform damage assessment adequately and that this failure had an impact on restoration. We find that the Company's failure regarding damage assessment is a violation of the restoration of service standard. 220 C.M.R. §19.03(3).

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. Based on a review of the record evidence in this case, we find that a $200,000 penalty per day for six days is warranted. Accordingly, the Department assesses the Company a penalty of $1,200,000 ($200,000 per day for six days).

For future emergency events, the Department directs the Company to develop a more effective damage assessment system that addresses all of the concerns raised with respect to T.S. Irene. We further recommend that development of such a system be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

2. October Snowstorm

a. Securing, Pre-positioning and Deploying Resources

i. Description

For the October Snowstorm, the Company used all 231 internal line crews that were available in Massachusetts (Tr. 3, at 577). In addition, from Thursday, October 27 through

Friday, November 4, the Company secured at peak 493 distribution line crews from its Alliance vendors and from other existing contractors (Exh. NG-2 (Redacted) at 12; RR-DPU-10, Att.). The Company initiated discussions with local contractors and its Alliance vendors on Thursday, October 27, to confirm plans to use all existing resources for the potential storm (Exh. NG-2 (Redacted) at 12). Starting on Friday evening, October 28, the Company also began requesting outside contractor crews, securing crews from Indiana, Kansas, Michigan, North Carolina, Tennessee, and Texas (Exh. NG-2 (Redacted) at 12). During the weekend of October 29, the Company participated in mutual assistance calls with NEMAG, New York Mutual Assistance Group, Southeast Electricity Exchange, the Mid Atlantic Mutual Assistance Group and Midwest Mutual Assistance Group, ultimately securing at peak 109 mutual aid line crews for its restoration efforts (Exh. NG-2 (Redacted) at 13; RR-DPU-10, Att.). The Company began initiating calls on Friday, October 28, to secure additional tree crews (Exh. NG-2 (Redacted) at 14). Some local tree contractor crews began arriving on Saturday, October 29, while some other tree contractors began arriving on Sunday, October 30, and increased in number as the restoration phase progressed, with up to 475 tree crews at peak (Exh. NG-2 (Redacted) at 14; RR-DPU-10, Att.).

The Company secured the following resources from its affiliates in New York, Rhode Island and New Hampshire for restoration activities: 151 distribution line crews, 38 transmission line crews, 2.5 substation crews, 99 damage appraisers, 158 wires-down resources, and 175 contractor tree crews (RR-DPU-13, Att.). The Company requested distribution line crews from its affiliates in New York on Sunday, October 30, and expected them to arrive in Massachusetts on Tuesday, November 1, but due to a state practice in New York that the Company was aware

existed, those crews were not allowed to leave New York until all New York utility customers had been restored (Tr. 3, at 604-611; Exh. DPU 6-15). A total of 92 distribution line crews from the New York state affiliate companies began arriving on Friday, November 4 (22 line crews) and Saturday, November 5 (70 line crews) (RR-DPU-13, Att.).

Through all of these efforts, at the peak point in the restoration phase the Company secured in total 984 distribution line crews, 92.5 transmission line crews, 153 damage appraisal crews, 610 wires-down personnel, and 475 tree crews from a combination of Company internal and affiliate personnel, contractors, and mutual aid (RR-DPU-10, Att.; RR-DPU-13, Att.). See Table 8.

Table 8: October Snowstorm, Total Peak Crews Available

Daily Peak Crews	**10/30/2011**	**10/31/2011**	**11/1/2011**	**11/2/2011**	**11/3/2011**	**11/4/2011**	**11/5/2011**	**11/6/2011**
Company Line Crews	231	264	290	290	290	320	382	382
Contractor Line Crews	32	122	165	188	270	349	493	493
In-State Mutual Aid Line Crews	0	0	0	0	0	10	26	26
Out-of-State Mutual Aid Line Crews	0	0	43	47	60	69	83	83
Company Underground Crews	10	10	10	10	10	10	10	10
Company Substation/Transmission	75.5	75.5	75.5	75.5	75.5	49	49	49
Contractor Substation/Transmission	16	17	17	17	17	20	20	20
Contractor Wires-Down Crews	0	11	62	91	81	27	6	0
Company Wires-Down Crews	188	378	468	519	490	506	349	0
Company Damage Appraiser Crews	84	100	144	131	143	143	120	0
Contractor Damage Appraiser Crews	0	0	9	9	9	9	0	0
Contractor Tree Crews	232	315	351	421	454	473	475	338
Total Crews/Resources	**868.5**	**1292.5**	**1634.5**	**1798.5**	**1899.5**	**1985**	**2013**	**1401**

(RR-DPU-10, Att.).

The Company sourced wires-down and damage appraisers from a pool of internal employees, from National Grid affiliate companies, and from contractor resources (RR-DPU-10, Att.; RR-DPU-13, Att.).

Table 9: October Snowstorm, Distribution of Crew Resources

	Central		Merrimack Valley		Nantucket		North Shore		South Shore		Southeast		Western		Total	
Month and Date	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages	Peak Crews Available	Peak Customer Outages
10/29/2011	-	15,707.0	-	3,241.0	-	-	-	427.0	-	103.0	-	2,044.0	-	21,822.0	-	43,344.0
10/30/2011	199.1	117,808.0	213.0	125,425.0	4.8	184.0	74.3	9,430.0	91.3	2,282.0	125.4	67,298.0	160.5	72,373.0	868.5	394,800.0
10/31/2011	295.4	96,729.0	331.5	101,001.0	-	-	55.0	64.0	35.9	154.0	306.1	48,803.0	268.6	68,016.0	1,292.5	314,767.0
11/1/2011	460.5	76,761.0	491.7	66,516.0	1.4	-	28.5	1.0	16.2	126.0	347.0	21,415.0	289.1	47,585.0	1,634.5	212,404.0
11/2/2011	655.1	48,730.0	471.6	33,983.0	1.2	-	25.2	14.0	18.8	32.0	302.0	8,457.0	324.6	37,378.0	1,798.5	128,594.0
11/3/2011	862.8	32,199.0	428.9	18,361.0	1.1	-	14.2	-	11.3	-	133.5	585.0	447.6	31,088.0	1,899.5	82,233.0
11/4/2011	963.8	17,394.0	285.0	3,777.0	1.0	-	11.9	-	9.7	-	92.0	1,385.0	621.5	24,701.0	1,985.0	47,257.0
11/5/2011	719.8	4,916.0	61.7	689.0	-	-	10.8	-	5.7	14.0	12.4	1.0	1,202.7	16,736.0	2,013.0	22,356.0
11/6/2011	328.3	875.0	35.4	23.0	-	-	4.6	-	5.0	-	1.1	1.0	1,026.6	8,148.0	1,401.0	9,047.0

(RR-DPU-11, Att.).

For the October Snowstorm, the above table (Table 9) shows how the Company deployed restoration crews and personnel resources[55] among its seven districts (Central, Merrimack Valley, Nantucket, North Shore, South Shore, Southeast, and Western) from October 29 through November 6 (RR-DPU-11, Att.). The Company indicated that it tried initially to allocate resources to areas in its service territory in which it expected the most damage (Tr. 5, at 1052-1058). In addition, it assigned some internal and contractor distribution line crews that regularly work in specific geographical areas to those areas for the storm restoration (Tr. 5, at 1052-1056).

In total, on October 29, the Company pre-staged nine transmission line crews and 29 contractor tree crews (RR-AG-10). On October 30, the Company had on site 30 contractor distribution line crews and a total of 83 tree crews (RR-AG-10). The Company did not

[55] The Company indicated that these peak crew resources include Company, contractor and mutual aid distribution line crews, and crews to address trouble spots, underground crews, substation crews, wires-down crews, damage appraisers, and tree crews (RR-DPU-11, Att.).

pre-position local distribution contractor crews that work on the National Grid system on a daily basis, but had these crews available on call (Exh. DPU 4-52). On Monday, October 31, the Company opened three staging sites in Marlborough, Sturbridge, and Salem, New Hampshire (Tr. 3, at 587, 598-602). These sites, located near geographic areas in which the Company expected significant outages, were established to house crew resources and store trucks and other items necessary for restoration (Tr. 3, at 587, 598-602).

The Company does not pre-position wires-down resources; instead, it requires regional Company personnel to report for their wires-down storm duty in the district in which they would work on a normal work day (Tr. 5, at 1046; RR-AG-10). The Company also does not pre-position field damage appraisers; these reported to work from home on Sunday, October 30 (Exhs. DPU 4-52; DPU 6-11; RR-AG-10).

ii. Positions of the Parties

(A) Attorney General

The Attorney General claims that the Company failed to assess, procure and effectively allocate resources, including outside utility crews, contractor line crews, and tree crews, and thus failed to perform according to its ERP (Attorney General Brief at 12). The Attorney General argues that National Grid has not refuted her claim that the Company did not mobilize sufficient resources early and in an adequate manner as compared to other utilities and municipal light companies (Attorney General Reply Brief at 16). The Attorney General rejects the Company's claim that it was torn between conducting a timely damage assessment and efficiently restoring power, as the Company could have chosen to acquire sufficient crews to do both (Attorney General Brief at 12). Further, the Attorney General contends that the Company is wrong that its

ERP does not indicate the required level of resources for each level storm (Attorney General Reply Brief at 17). For the October Snowstorm, the Attorney General states that the Company should have been preparing for a Level IV or V event instead of a Level III event (Attorney General Brief at 8). The Attorney General recommends the Department levy a $1,000,000 penalty for failure to mobilize enough crews for the October Snowstorm[56] (Attorney General Reply Brief at 22).

(B) DOER

DOER argues that the Company should have been prepared to seek the assistance of crews from utilities and contractors located outside the path of the storm, as it now plans to do as part of a revamped program to obtain contractors for storm response from a wider geographic area (DOER Brief at 11).

(C) Company

The Company contends that it undertook all reasonable efforts to secure ample crews prior to the October Snowstorm, but that the scope of the event resulted in many of the crews requested being unavailable, at least during the days immediately after the storm (Company Brief at 118-119). Although the Company does not admit that it did not have adequate resources to respond to the October Snowstorm, it acknowledges that the availability of additional resources would likely have facilitated restoration efforts (Company Brief at 118).

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[56] The Attorney General calculated the $1,000,000 proposed penalty by recommending that the maximum penalty of $250,000 per violation be applied for four days, which is the number of days exceeding the five-day restoration period that the Attorney General considers reasonable (nine days – five days) (Attorney General Reply Brief at 22).

The Company claims that the Attorney General cannot show that the Company violated its ERP regarding securing adequate resources because the ERP does not require it to allocate a specific number or type of resources to an event (Company Brief at 114, 117). In addition, the Company contends that the Attorney General offers no objective criteria as to what constitutes a reasonably prompt restoration period and that no such criteria exist (Company Reply Brief at 18). The Company argues that during the first two days of the restoration phase, line crews were predominantly focused on public safety, although both transmission and distribution damage assessment and limited restoration were performed simultaneously (Company Brief at 115-116). The Company rejects the Attorney General's conclusion that it chose not to acquire sufficient crews, claiming that it made all reasonable efforts to secure ample crews, and that crews it requested were unavailable (Company Brief at 118-119). The Company argues that the Attorney General provides no evidence that the Company chose not to contact available crew resources in New England, New York and along the eastern seaboard (Company Reply Brief at 16). The Company opines that the Attorney General's penalty calculation methodology is unsubstantiated in light of her witness's testimony that his recommendation is not based on any industry standard for storm restoration periods (Company Reply Brief at 26).

The Company rejects DOER's conclusion that companies outside of the storm path might have been able to provide crews and assistance more promptly, as DOER provides no evidence with respect to contractors the Company could have employed (Company Brief at 118). The Company contends that DOER fails to acknowledge that contractors outside of the path of storm would have been located more than a thousand miles away and would have needed many days to

reach the Company's service territory in order to have been available at the beginning of the restoration period (Company Brief at 117-118).

iii. Analysis and Findings

Notwithstanding that for the October Snowstorm the Company did ultimately obtain more than the total number of crews indicated in its ERP for a Level V storm, we are unpersuaded once again, that National Grid made a systematic effort to translate its classification of the level of the October Snowstorm into the expected damage and thus into the resources that would be necessary to restore service. Moreover, we conclude that the failures to secure and deploy adequate crews are indicative of a more general failure in preparation and organization that pervaded much of National Grid's response to the October Snowstorm (see Sections Sections VI.C.2.b, VI.C.2.c, and VI.C.2.d).

As stated above, the Company secured at peak 493 contractor line crews and 475 tree crews, which were available by November 5, the seventh day of the restoration. The Company also secured 109 mutual aid crews at peak out of total mutual aid requests of 200 line crew resources requested; these crews began arriving on November 1 but the peak resource count did not occur until November 5, at the end of the restoration period. In total, for contractor/foreign utility crews, the Company secured 612 crews, 112 crews more than the 500 indicated in its ERP for a Level V; and 475 tree crews, or 25 less than 500. However, as noted above, the peak number of contractor, mutual aid, and tree crews all materialized towards the end of the restoration. In fact, as noted in Table 8, by the time the storm ceased on October 30, National Grid had mobilized only 32 contractor line crews, which is fewer than the 60 contractor line crews in the ERP for a Level III (the Company's original event classification level), and far

fewer than the minimum of 500 contractor line crews in the ERP for a Level V event. The Company mobilized 232 tree crews, which was greater than the 60 tree crews in the ERP for a Level III, but fewer than the minimum of 500 in the ERP for a Level V event. Again, our view of the crew numbers contained in the Company's ERP is that although those numbers may not be mandatory, they are an indication of the numbers of crews that should be obtained as part of a reasonable response effort and a deviation from these numbers requires justification. The record shows that the Company did not provide a compelling justification.

We note, as with T.S. Irene, that the Company continued to attempt to secure resources from contractors throughout the restoration phase of the storm; however, the Company should have appropriately assessed the risks of the possible impacts of the storm and secured adequate resources, to be available at the beginning of or, at the very least, earlier in the restoration period. In fact, record evidence suggests that the Company did not do adequate analysis of potential impacts and required resources early enough before the storm to adequately secure an appropriate number of contractor line and tree crews. The Company cannot reasonably expect that it will be able to secure adequate crews through its reliance on mutual aid and affiliate crews when it needs them, that is, at the beginning of the restoration period. Indeed, the Company was aware of the New York State policy not to permit the release of affiliate crews until all New York customers have been restored. The Company claims that it anticipated that the New York crews would arrive on Tuesday, November 1; however, these crews were not allowed to leave New York until late in the restoration process, and began arriving in Massachusetts on Friday, November 4, and Saturday, November 5 (RR-DPU-13, Att.). We do acknowledge that the

Company's affiliate crews from Rhode Island and New Hampshire arrived earlier in the restoration process.

We also conclude that the Company's approach to allocating resources before and during the restoration period was inadequate. Record evidence shows that the Company's decision not to pre-position more resources interfered with the efficiency of the initial period of the restoration (Exhs. DPU 4-51; DPU 4-52; Tr. 3, at 592-600; RR-AG-10; RR-AG-8). Additionally, evidence of peak crews and outages show that during the restoration the Company stationed crews for several days in the North Shore and South Shore, which sustained a fraction of the outages suffered in the Central and Merrimack Valley districts (RR-DPU-11, Att.). See Table 9. The Company did not adequately explain why it retained crews for the first days of the restoration in areas with fewer customer outages, and did not reallocate resources more quickly and efficiently to areas with more outages (Tr. 5, at 1055-1057; RR-DPU-11, Att.). Based on examination of Table 9, we note that on October 30 and 31, the Company stationed a sizeable number of crew resources in the North Shore and South Shore districts, where there were significantly fewer outages than in other districts such as the Central and Merrimack Valley that had far more outages. For example, in the North Shore district, on October 30 the ratio of number of crews to number of outages was 1:127 (or 74 crews: 9,430 outages); one day later, on October 31, the ratio of number of crews to number of outages had dropped to 1:1.1 (or 55 crews: 64 outages). At the same time, on October 30, in the Merrimack Valley district, an area with more than ten times the number of outages, the ratio of number of crews to number of outages was 1:589 (or 213 crews: 125,425 outages); one day later, on October 31, more crews were deployed in this district but the ratio of number of crews to number of outages stayed

relatively high at 1:305 (or 331 crews: 101,001 outages). As with T.S. Irene, at best, the Company's records lack the transparency to show why it allocated crew resources as it did; at worst, the Company's records show that it failed to react in a timely fashion to reallocate crews to areas where the damage was worst.

As for T.S. Irene, the Department finds that the Company's performance in the October Snowstorm was deficient in translating its classification of the level of the storm into the expected damage and necessary resources. The Company did not provide evidence that the timing of the resources it obtained for the restoration effort was reasonable. In addition, the Company did not demonstrate that it uses an efficient restoration process in terms of pre-positioning and distributing its crews/resources – both at the beginning and throughout the event, but especially during the critical first several days of the restoration.

Also as for T.S. Irene, the Company has the duty to restore service to its customers in a safe and reasonably prompt manner. The actions discussed above constitute a violation of the Company's duty to safely and promptly restore service. 220 C.M.R. §19.03(3).

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. Taking all of these factors into consideration and a review of the record evidence in this case, we find that a $250,000 penalty per day for eight days is warranted. Accordingly, the Department assesses the Company a penalty of $2,000,000 ($250,000 per day for eight days).

For future emergency events, the Department directs the Company to develop a systematic and transparent protocol for analyzing and preparing for storms, and for securing and

deploying resources. We further recommend that development of such improvements be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

b. Outage Management System

i. Description

The OMS did not go off line during the October Snowstorm, but it operated slowly at many points (Exh. DPU 7-12). Once again, calls came into the system faster than the call analyzer could process them and there were problems with the system database and server connections (Exh. DPU 7-12). Additionally, the OMS was not updating at one point on Sunday evening, October 30 (Exh. DPU 7-12).

ii. Positions of the Parties[57]

(A) DOER

DOER argues that the Company failed to adopt available technology to improve the performance of the OMS (DOER Brief at 5, citing Exh. DOER 3-1; Tr. 2, at 407). DOER maintains that the OMS was incapable of performing functions essential to the Company's restoration and communication efforts (DOER Brief at 5, citing Exhs. AG 3-5; AG 4-1; DOER 2-1 (revised); NG-4, at 5; Tr. 2, at 394-396). The primary concern that DOER points out is the inability of the OMS to effectively handle a large volume of calls and work orders (DOER Brief at 5, citing Exhs. AG 3-5; AG 4-1; DOER 2-1 (revised); NG-4, at 5).

DOER notes that, although the Company acknowledges that there is an issue with the ability of the OMS to evaluate nested outages and says that it will address this concern with a new OMS system, the Company knew about this problem prior to the October Snowstorm

[57] The Attorney General did not brief this issue for the October Snowstorm.

(DOER Brief at 5-6, citing Exh. AG 2-16). DOER contends that the Company should have remedied the nested outage issue with an immediate fix during the storm event (DOER Brief at 5-6). DOER suggests that additional damage assessors could have manually inspected and reported on the outages to compensate for the OMS limitation (DOER Brief at 5-6, citing Tr. 2, at 404-405).

(B) Company

The Company distinguishes between its OMS and the Outage Central website, noting that each has different functionalities and that issues with the website do not necessarily provide evidence of issues with the OMS (Company Brief at 18-19, citing Exhs. AG 1-7; DPU 4-2). The Company argues that Outage Central's performance was better during the October Snowstorm due to system improvements the Company implemented based on its experiences during T.S. Irene (Company Brief at 19, citing Exh. AG 3-5). The Company notes that it has taken steps to address issues related to technology, including the purchase of 1,000 GPS units to track contractor crews (Company Brief at 19-20, citing Exh. NG-4, at 6). National Grid further contends that the Department has no regulations directing the use of a specific technology and, therefore, the Department should reject DOER's conclusion that the Company failed to restore service in a safe and reasonably prompt manner due to a "lack of…adoption of available and effective communications technology in its storm preparation" (Company Brief at 20).[58]

[58] As discussed later, in the context of the Attorney General's comments regarding ETRs, the Company states that more damage assessors might have shortened the time to complete damage assessment, but that this would not necessarily have impacted restoration times (Company Brief at 126, citing Exh. AG 2-27).

iii. Analysis and Findings

Based on the record, the Department concludes that, despite some improvements compared to OMS performance during T.S. Irene, National Grid's OMS did not effectively process and manage outage information during the October Snowstorm, and contributed to a failure to restore service to its customers in a safe and reasonably prompt manner. 220 C.M.R. §19.03(3). As in other areas of inadequate performance with regards to meeting standards of safe and reasonably prompt restoration, failures of the OMS are emblematic of the Company's failures in planning, preparation, communications and implementation of emergency response.

National Grid's OMS performed somewhat better during the October Snowstorm than during T.S. Irene (Exhs. DPU 7-11; DPU 7-12). The processing power and web servers that National Grid added after T.S. Irene reduced operational issues with the Company's website as well (Exh. AG 3-5). However, users still experienced several periods of slow operation due to call and work order volumes, forcing Company personnel to resort to manual tracking processes and affecting customers trying to obtain outage information (Exh. DPU 7-12). Thus, based on the record and consistent with our finding in T.S. Irene, the Department concludes that National Grid's OMS did not effectively process and manage outage information during the October Snowstorm, and contributed to a failure to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Our observations above in the T.S. Irene context are largely applicable to the October Snowstorm.

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Safe and reasonably prompt service restoration includes processing and managing outage information with an effectively functioning OMS or an adequate alternative. In light of the failures of the Company's OMS, we find that the Company violated the restoration of service standard. 220 C.M.R. §19.03(3).

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. In particular, the Department notes the cascading effect that this aspect of the restoration process had on the remaining restoration phases and on communications with municipal officials and the public (see Sections VI.C.2.c, VI.C.2.d, and VI.D). We also note that some incremental improvements in the system were made between T.S. Irene and the October Snowstorm, although the majority of problems were not addressed.

After a review of the record evidence in this case, we find that a $200,000 penalty per day for eight days is warranted. Accordingly, the Department assesses the Company a penalty of $1,600,000 ($200,000 per day for eight days).

For future emergency events, the Department directs the Company to develop a more effective OMS that addresses all of the concerns raised with respect to the October Snowstorm. We further recommend that development of such a system be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

c. Emergency Response and Wires Down

i. Description

In the October Snowstorm, the Company received a total of 22,617 wires-down trouble calls,[59] 3,013 of which were priority wires-down calls made by public safety officials (Exh. DPU 9-5, Att.; RR-DPU-3, Att.; RR-DPU-12). The breakdown of priority wires-down calls is shown in the table below:

Table 10: Priority wires-down calls for October Snowstorm

	Priority 1	Priority 2	Priority 3	uncategorized	**Total**
Number of Records	56	967	872	1,118	**3,013**

(Exh. DPU 9-5, Att.).

The Company did not provide a priority level for 1,118 calls, or 37 percent, of the calls. In addition to the priority level, the Company did not provide data on ETA callbacks for 88 percent of these records (Exh. DPU 9-5, Att.).

As was the case for T.S. Irene, the Company provided incomplete data regarding its response to priority wires-down calls for the October Snowstorm (see Section VI.C.1.c) (Exh. DPU 7-35; RR-AG-4). National Grid provided an average response time of 1.2 hours for certain Priority 1 calls during the October Snowstorm, using data from its vehicle locator system (Exh. AG 1-24; RR-AG-4; RR-DPU-6, Att.(b)). This average represents only 15 calls that the Company determined met the Priority 1 definition and does not include the remainder of the

[59] The Company provided inconsistent data on priority wires-down calls. The most recent data provided by the Company indicates 22,617 wires-down calls; however, other record sources indicate 21,529 wires-down calls (Exhs. AG 2-5, Att.(b); DPU 5-36; DPU 9-5, Att.; RR-DPU-3 Att.; RR-DPU-12).

56 events reported by public safety officials as Priority 1 (Exh. DPU 9-5, Att.; RR-DPU-6, Att. (b); Tr. 4, at 770-772).

Prior to the October Snowstorm, the Company had trained a total of 1,798 personnel[60] for wires-down assignments: 303 cut-and-clear personnel; 1,024 appraisers; and 486 wires-down stand-by guards (Exh. DPU 2-20). By the end of the October Snowstorm, the Company testified that it had trained a total of 1,813 personnel for a wires-down storm role (Exh. DPU 2-20; Tr. 3, at 636).

During the October Snowstorm, the Company indicates that it obtained resources for the wires-down duties from the same pool of trained wires-down personnel, if they were available, as the Company did during T.S. Irene (Tr. 4, at 684). The Company indicated that during the October Snowstorm, it trained eight additional personnel as wires-down stand-by guards (Exh. DPU 2-20; RR-AG-8; RR-AG-9). At the peak point in the restoration effort, the Company deployed 610 wires-down resources, consisting of wires-down appraisers, wires-down guards, and cut-and-clear crews, from its internal employees, affiliate employees and contractors (RR-DPU-10, Att.; RR-DPU-13, Att.). In addition, the Company used its 231 internal line crews for the first two days of the restoration effort on wires-down/public safety issues (RR-DPU-10, Att.; Tr. 4, at 707).

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60 During hearings, the Company clarified that this number of employees trained for wires-down roles represents National Grid employees within its entire New England region and not Massachusetts specifically; and that trained employees may have multiple storm duties (Exh. DPU 2-20; Tr. 3, at 635-638).

ii. Positions of the Parties

(A) Attorney General

The Attorney General contends that the Company's wires-down response during the October Snowstorm event was egregiously inadequate (Attorney General Reply Brief at 15). Though the Attorney General acknowledges that the volumes of both priority wires-down calls and non-priority wires-down trouble calls were unprecedented, the Attorney General's witnesses testified that these high volumes were predictable and therefore could have been responded to appropriately (Attorney General Brief at 15, citing Exh. AG-DO-CF-1, at 17, 19). The Attorney General notes that the Company had approximately the same number of priority wires-down calls during the October Snowstorm as compared to T.S. Irene and nearly twice the number of wires-down trouble calls from the public (Attorney General Brief at 15, citing Exh. AG-DO-CF-1, at 17, 19). However, according to the Attorney General, the Company deployed far fewer resources for the October Snowstorm, with only 86 line crews to address wires-down calls compared with 429 line crews during T.S. Irene (Attorney General Brief at 15, citing Exh. AG-DO-CF-1, at 17, 19). The Attorney General argues that this was negligent given the Company's poor performance handling wires-down calls in the December 2010 Snowstorm (Attorney General Brief at 15). The Attorney General concludes that by not mobilizing sufficient resources for wires down, the Company failed to meet its responsibility to provide safe and reasonably prompt restoration (Attorney General Brief at 15; Attorney General Reply Brief at 17).

The Attorney General argues that National Grid was slow in addressing wires-down calls, especially from Saturday, October 29 through Monday, October 31 (Attorney General Reply

Brief at 24, citing Exhs. AG 1-15; DPU 3-7; DPU 9-23). The Attorney General argues that 24 hours is a reasonable time for the Company to respond to priority wires-down calls given the exigency of these calls (Attorney General Reply Brief at 23-24). For the 1,686 priority wires-down calls that the Attorney General says were not addressed within this timeframe, the Attorney General recommends a penalty of $5,000 per call for a total wires-down penalty of $8,430,000 for the October Snowstorm (Attorney General Reply Brief at 24, citing Exh. DPU 3-7).

(B) DOER

DOER argues that the Company assigned damage assessors to the wires-down function because it did not have adequate wires-down resources (DOER Brief at 7, citing Tr. 4, at 633-634). DOER contends that deficiencies in the Company's coordination and communication of wires-down activities with local emergency responders and town departments of public works led to the delay in restoring service in a safe and reasonably prompt manner (DOER Brief at 10).

(C) Company

The Company argues that the severity of the damage delayed its wires-down response (Company Reply Brief at 13, citing Exh. NG-Rebuttal at 25-26). For the October Snowstorm, the Company claims that it acted consistently with Department protocols and its ERP in its wires-down response (Company Brief at 110).

The Company contends that it did not violate its ERP by obtaining too few wires-down resources, as there is no requirement to obtain a specific number of resources (Company Brief at 114, 117). The Company claims that the Attorney General can cite to no provision in the ERP

or provide any evidence that the Company violated the ERP regarding securing adequate resources, overall and for wires down specifically, because the ERP does not require it to allocate a particular number or type of resources to a particular event (Company Brief at 114, 117). The Company rebuts the Attorney General's contention that the Company had only 86 line crews to address wires-down calls, pointing to evidence that it had over twice that number (Company Brief at 116-117, citing Exh. DPU 6-17). The Company also contends that a significant portion of the downed wires were cable and telecommunications wires that do not present a danger to the public, but which the Company must spend time and resources to evaluate (Company Reply Brief at 13, citing Exh. NG-Rebuttal at 25-26).

The Company argues that in the first two days of the restoration phase, line crews were predominantly focused on the wires-down response (Company Brief at 115 citing Tr. 4, at 704-705, 707). National Grid maintains that given the extent of damage following the October Snowstorm, long delays would have been experienced between wires-down notification and arrival of Company resources even with significantly more resources to watch downed wires (Company Reply Brief at 12-13, citing Exh. NG-Rebuttal at 25-26).

The Company asserts that it provided evidence regarding Priority 1 life-threatening wires down, and that its response was 1.2 hours (Company Reply Brief at 13, citing RR-AG-4; RR-DPU-6, Att (b)). The Company notes that its inability to track other wires-down data is not indicative of its actual performance responding to wires-down calls, and that it is committed to implementing a manual tracking system for wires-down response data until it can update its OMS (Company Reply Brief at 14, citing Tr. 4, at 810-811). Regarding providing ETAs to municipal officials, the Company maintains that it is committed to providing timely ETAs for

Priority 1 calls, and that it has reviewed the definitions of Priority 1, 2, and 3 with municipal officials (Company Reply Brief at 14-15, citing Exhs. NG-3; NG-4).

The Company argues that there are no legal grounds or record evidence to support the Attorney General's recommendation of penalties related to the Company's wires-down response (Company Reply Brief at 26-27). First, in reply to the Attorney General's recommendation of penalties related to wires-down response, the Company reasserts that its OMS could not and did not capture response times to priority wire calls during the October Snowstorm event (Company Reply Brief at 26-27). Therefore, National Grid concludes that the Attorney General cannot recommend penalties based on calls that were not addressed within 24 hours, as the records do not accurately reflect response times (Company Reply Brief at 26-27). Second, the Company states there is that no basis in the ERP or Department regulations for the 24-hour response time metric used by the Attorney General in her penalty recommendation (Company Reply Brief at 26, citing Attorney General Reply Brief at 23-24).

iii. Analysis and Findings

Municipal officials testified about numerous problems with the Company's response to downed wires during the October Snowstorm. For example, Elizabeth Coughlin, a member of the Town of Tyngsborough Board of Selectmen, testified that Tyngsborough experienced more than one occurrence of power being restored in residential neighborhoods while live wires went unattended and unmarked (Tr. E at 35-36 (D.P.U. 11-119-A)). Eric Vollheim, Chairman of the Hardwick Board of Selectmen and in charge of emergency management for both Hardwick and New Braintree, testified about the importance of knowing that wires are deenergized so that towns can clear those lines and not have to wait for outside help (Tr. D at 75-76 (D.P.U.

11-119-A)). The Westford town manager, Jodi Ross, testified that Westford had 30 major roads closed on the first day of the storm and 15 major roads still closed four days after the storm, making them inaccessible to fire personnel and police (Tr. E at 48-53 (D.P.U. 11-119-A)).

Though National Grid committed to providing ETAs for all priority wires-down calls, it appears that the protocol for doing so was not followed during the October Snowstorm. See D.P.U. 11-03 (2011). The Company did not provide records of ETAs for approximately 88 percent of priority wires-down calls (2,648 calls) (Exh. DPU 9-5, Att.). The Company was unable to show whether or not ETAs were provided to local officials for priority calls. The Company's inability to accurately record data resulted in inconsistent and incomplete records of ETA callbacks (Exh. DPU 9-5, Att.; Tr. 4, at 791-795).

Our observations here are largely the same as our observations in the T.S. Irene context. In the face of numerous complaints from local safety officials, we again reject National Grid's argument that the Department cannot rely on the priority calls data the Company provided because of the data's unreliability.

Based on our review of the Company's limited data, the Department has found an overall average time of 46.0 hours between when a call was received and a crew was dispatched, over double the average in T.S. Irene (Exhs. DPU 9-5, Att.; DPU-1). While the average was 46 hours, the maximum time that elapsed between when the Company received a priority call and when it dispatched a crew and/or a crew arrived was 185.8 hours (or approximately eight days) (Exhs. DPU 9-5, Att.; DPU-1).

The Company states its average response time for 15 "true" Priority 1 calls was 1.2 hours (almost three times the average response time it reported for T.S. Irene) (Exhs. AG 1-24;

DPU 9-5, Att.; RR-AG-4; RR-DPU-6, Att. (b); DPU-1). The Company failed to present any evidence as to why the remaining 41 calls designated by municipalities as Priority 1 were mislabeled, what the "proper" designation should have been, or how long it took the Company to respond to those 41 calls. We restate our conclusions above with respect to the importance of public safety and the wires-down response. All priority wires-down calls should be addressed quickly, and as a top restoration priority.

We find that in responding to wires-down calls during the October Snowstorm, the Company failed to comply with the standard to restore service in a safe and reasonably prompt manner. 220 C.M.R. §19.03(3). In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors.

Taking the factors into consideration and after a review of the record evidence in this case, we find that a $250,000 penalty per day for eight days, which is the length of time it took the Company to complete the response to priority wires-down calls, is warranted. Accordingly, the Department assesses the Company a penalty of $2,000,000 ($250,000 per day for eight days).

For future emergency events, the Department directs the Company to develop a more effective wires-down strategy that addresses all of the concerns raised with respect to the October Snowstorm. We further recommend that development of such a strategy be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

Finally, with respect to coordination between the Company and Verizon, the record does not show whether or not Verizon participated in the restoration during either storm. However, the record does show that the Company has no knowledge of Verizon's storm restoration practices (Tr. 3, at 424). We note that not all downed wires during an emergency are electric

wires, and that participation of the telecommunications companies in wires-down response benefits both telecommunications and electric companies to ensure efficient restoration. In addition, prior to an emergency event, it is imperative that all stakeholders develop a plan to address important safety and restoration concerns, including response to utility equipment that may become damaged and fall in the public way. Telecommunications companies that own equipment that may impede access to public roads must participate in a plan to repair or remove their equipment in a timely manner. The record shows that the Company has invited telecommunication companies to participate in joint wires-down response (Exhs. NG-3; NG-4). We direct the Company to file with the Department 60 days from the date of this Order a plan for greater coordination with telecommunications companies to remove downed wires and ensure safety during emergency events. Finally, if and when the Company requests recovery of storm costs in any future proceeding, the Company must demonstrate that it is not seeking to recover any costs from its customers that should be paid by Verizon under the joint ownership agreement. See Western Massachusetts Electric Company, D.P.U. 10-70, at 68 (2011); Massachusetts Electric Company/Nantucket Electric Company, D.P.U. 09-39, at 212-213 (2009).

d. Damage Assessment for the October Snowstorm

i. Introduction[61]

During the October Snowstorm, the Company began its field damage appraisals on the morning of Sunday, October 30, shortly after the storm subsided (Exh. DPU 5-29, at 1). The Company's damage appraisers completed a majority but not all of the Phase I Survey patrols by the end of the day on Monday, October 31, which was 36 hours after the storm ended

[61] A general description of damage assessment was provided in Section VI.C.1.d.i.

(Exh. DPU 5-29, at 1-2). By October 31, the Company had prepared some work packages based on the completed Phase I Surveys and had assigned crews to certain restoration priorities (Tr. 4, at 693-695). Phase II patrols commenced on October 31 as Phase I patrols were being completed; not until the end of the day Tuesday, November 1, were Phase II patrols in the North Andover and Hopedale areas complete, which was 60 hours after the storm ended (Exh. DPU 5-29, at 2). In addition, by the end of the day Tuesday, November 1, 60 hours after the storm ended, only 40 percent of Phase II patrols in the Worcester/Western Massachusetts area[62] were finished (Exh. DPU 5-29, at 2). For the Worcester/Western area, the Company suspended Phase II patrols on Wednesday, November 2, as it determined that damage assessment resources provided greater value performing targeted patrols on a section of a feeder ahead of the line crews deployed to restore services on that feeder (Exh. DPU 5-29, at 2; Tr. 4, at 707-709). The field damage appraisers provided this support to the restoration crews through Saturday, November 5 (Exh. DPU 5-29, at 2). The Company indicates that not all Phase I patrols were completed within 24 hours and not all Phase II patrols were completed within 48 hours, due to the extent of the damage and geographical area impacted (Exh. DPU 5-28, at 2).

At the peak point in the damage appraisal component of the restoration, the Company secured 153 damage appraisers (RR-DPU-10). The Company relied upon engineers from its Asset Management and Engineering department, personnel from its New York and Rhode Island affiliates, and contractors to serve as damage appraisers (Exh. AG 2-27; RR-DPU-13, Att.).

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62 The Worcester/Western area of the Company's territory sustained the heaviest damage from the October Snowstorm (Tr. 4, at 707-708).

ii. Positions of the Parties

(A) Attorney General

The Attorney General argues that based on Company witness testimony and record evidence, the Company failed to meet the 48-hour damage assessment requirement in the Worcester and Western Massachusetts areas during the October Snowstorm (Attorney General Brief at 11). The Attorney General claims that the Company's acknowledgment of its failure to meet the requirements of its ERP should not be excused, especially in light of the Company's failure to properly identify the storm as a Level V event and request crews sooner (Attorney General Brief at 11). The Attorney General recommends the Department levy a $1,500,000 penalty for failure to analyze damage assessment information within 48 hours[63] (Attorney General Reply Brief at 21).

(B) DOER

DOER's comments regarding damage assessment in the October Snowstorm are identical to its comments in this regard for T.S. Irene. See Section VI.C.1.d.iii.

(C) Company

The Company contends that the Attorney General has failed to identify any requirement that obligates the Company to complete any phase of the damage assessment process within a 24- or 48-hour time period because no requirement exists within the Company's ERP, 220 C.M.R. § 19.00 et seq., or the ERP Guidelines (Company Brief at 99). The Company accuses the Attorney General of misquoting and misconstruing the meaning of the damage

[63] The Attorney General calculated the $1,500,000 proposed penalty by recommending the maximum penalty of $250,000 per violation be applied for six days, the number of days after 48 hours from the time that the storm began to the last day of restoration (Attorney General Reply Brief at 21).

assessment language, as the ERP says nothing about analyzing the data collected within 48 hours or completing damage assessment within 48 hours (Company Brief at 98-99). The Company claims that it is within its discretion to stop or add additional steps to the damage assessment process when it determines that it has either collected sufficient information or needs additional information to conduct a safe, effective and timely restoration (Company Brief at 99). The Company argues that because it began partially restoring service in parallel to performing damage assessment, due to the infrastructure and road damage sustained in each storm its restoration efforts were not delayed by its failure to perform a complete damage assessment on every circuit with a 48-hour period (Company Brief at 99-101). In response to the Attorney General's recommendation for penalties related to damage assessment, the Company argues that the Attorney General provides no evidentiary basis for its proposed penalty because (1) the Company could not undertake damage appraisal patrols until the peak storm conditions began to subside in the early hours of Sunday, October 30; and (2) the Attorney General provides no basis for the penalty calculation methodology, which charges the Company for the total number of days of the restoration that extend beyond the 48-hour damage assessment timeline (six days, according to the Attorney General's calculation) (Company Reply Brief at 21-23).

The Company argues that the record does not support DOER's conclusions regarding the number of damage assessors utilized during the storm restoration phase (Company Brief at 126). While the Company notes that additional personnel might have shortened the time to complete damage assessment, it contends that additional personnel would not necessarily have led to earlier restoration times for customers, as the damage assessment process provided a sufficient volume of work for available line resources throughout the storm event (Company Brief at 126).

iii. Analysis and Findings

For the October Snowstorm, the Company testified that it completed a majority, but not all, of its Phase I Survey patrols on Monday, October 31, 36 hours into the restoration. It did not complete Phase II Survey patrols for North Andover and Hopedale until the end of the day Tuesday, November 1, which was 60 hours after the storm ended (Exh. DPU 5-29, at 2). Finally, only 40 percent of Phase II Survey patrols in the Worcester/Western area were completed by the end of the day Tuesday, November 1, 60 hours into the restoration (Exh. DPU 5-29, at 2). The Company did not complete all Phase II Survey patrols for the Worcester/Western Massachusetts area (Exh. DPU 5-29, at 2; Tr. 4, at 707-709). The Company indicated that it suspended Phase II patrols in that area when it determined that damage assessment resources provided greater value performing targeted patrols on a section of a feeder ahead of the line crews deployed to restore services on that feeder (Exh. DPU 5-29, at 2; Tr. 4, at 707-709). We concur that, given the level of damage, and the Company's appraisal of the situation, this was a more effective procedure than adhering strictly to the 48-hour deadline in this area. The Company maintained that as a general matter it redirected contractors from damage appraisal to wires-down work because that was the area with the greater need of support (Tr. 4 at 711-712). As in T.S. Irene, the Company also testified that it neither pre-positioned damage assessors before the storm (Exh. DPU 6-11; RR-AG-10) nor retained for damage assessment duties all of the damage assessors it had obtained (Tr. 4, at 711-712).

As we noted in the T.S. Irene context, the Department must conclude when the damage assessment timelines are missed that the Company's doing so was consistent with its obligation to restore service in a safe and reasonable manner. Although we note that the Company secured

more damage assessment assets during the October Snowstorm than during T.S. Irene and that the Company was reasonable in switching to a feeder approach to restoration in the Worcester area, we are unpersuaded that overall the Company's damage assessment efforts were adequate, for the same reasons as we articulated for T.S. Irene. Had the Company obtained adequate wires-down resources, it would not have been necessary to reassign damage assessment resources to wires-down work. Our observations on that point, and on the Company's manual and inefficient processes apply equally here.

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Safe and reasonably prompt service restoration requires timely and effective damage assessment. We find that the Company failed in its obligation in this regard. We also conclude, in view of the manual nature of the Company's damage assessment process, that the process has not been updated and optimized to deal with an event of the magnitude of T.S. Irene. The Department finds that the Company failed to perform damage assessment adequately and that this failure had an impact on restoration. We find that the Company's failure regarding damage assessment is a violation of the restoration of service standard. 220 C.M.R. §19.03(3).

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. Based on a review of the record evidence in this case we find that a $200,000 penalty per day for eight days is warranted. Accordingly, the Department assesses the Company a penalty of $1,600,000 ($200,000 per day for eight days).

For future emergency events, the Department directs the Company to develop a more effective damage assessment system that addresses all of the concerns raised with respect to the October Snowstorm. We further recommend that development of such a system be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

D. Communications

1. Introduction

Communication between a company and municipal officials and between a company and the general public is a critical component of safe and prompt restoration during an emergency event. Accurate and timely communication allows customers and officials to prepare for and respond to an event and serves as a central piece of a systematic response. In this section, we address the Company's communication with public officials, customers and life support customers ("LSCs").

2. Communication with Public Officials

a. General Description

The Department's ERP Guidelines require that the Company's ERP detail procedures for communication with local officials, including how the Company will (a) provide advance notice of emergency events, establish a dedicated line of communication, and provide restoration effort information; (b) receive and process calls from officials; (c) meet regularly with officials; and (d) ensure unity of message during an emergency event. ERP Guidelines at Section V.F.

According to National Grid's ERP, the Company's community and customer management division is responsible for communicating with municipalities and responding to their needs during emergency events (Exh. NG-5, Section .113.2, at 196-198). The ERP

describes several methods for municipalities to communicate with the Company, including a dedicated phone line, municipal conference calls, and municipal liaisons (Exhs. DPU 7-5; DPU 7-6; NG-5, Section .113.2, at 196-198). These channels are coordinated through decentralized municipal rooms[64] that the Company establishes during emergency events (Exhs. DPU 7-7; DPU 7-8). The Company establishes a dedicated phone line for local officials to relay inquiries and restoration priorities to the Company during Level III, IV and V events (Exh. NG-5, Section .113.2 B at 198). Similarly, for a Level III, IV or V event the Company arranges daily conference calls with local officials if the event is expected to last more than 48 hours (Exh. NG-5, Section .113.2 D at 198). National Grid assigns municipal liaisons to one or more affected communities, as resources permit, to facilitate communication during a storm event (Exh. NG-5, Section .113.2 C at 198).

The Company also adheres to an outage and accident reporting protocol ("ORP") (Exh. AG 1-17). The ORP requires the Company to notify relevant municipalities when either 100 or more customers experience an interruption in their electrical service or when a critical customer interruption occurs (Exh. AG 1-17). The ORP generates and sends a fax to the appropriate municipal contact when such an outage occurs (Exh. AG 1-17). The Company updates its ORP municipal contact list when the Company obtains new information from municipal officials (Exh. DPU 9-3). The Company submits its ORP contact list to the Department on a quarterly basis (Exh. DPU 9-3).

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64 The Company control center for normal operations is located in Northborough (Tr. 4, at 726). During emergency events, operations are decentralized to branch EOCs (Tr. 4, at 725-727). Municipal rooms and wires-down rooms are set up in each EOC as a mechanism for Company communication with municipalities (Tr. 4, at 725-727).

b. Event Description

i. T.S. Irene

National Grid opened four divisional municipal rooms during T.S. Irene, one each in North Andover, Worcester, Hopedale and Brockton to facilitate communication of the needs and priorities of area municipalities (Exh. NG-1, at 38). Some municipal liaisons were based in the division municipal rooms, although National Grid primarily stationed the liaisons in town offices (Tr. 4, at 735-736). Of the 170 municipalities served by National Grid that were affected by the storm, 41 had municipal liaisons (Exh. DPU 7-5). National Grid assigned a total of 36 Company employees to be community liaisons, four of whom served multiple communities (Exh. DPU 7-5).

The Company shut down its ORP notification system during T.S. Irene because the volume of faxes generated by the ORP due to T.S. Irene damage was overwhelming for the municipalities (Exh. DPU 9-2). The Company shut down the ORP notification system on Thursday, September 1, and reconnected it on Tuesday, September 6 (Exh. DPU 9-2). Upon reconnection, 1,950 events were shown in the ORP system for the period of time covering the T.S. Irene event (Exh. DPU 9-2).

ii. October Snowstorm

During the October Snowstorm, the Company established municipal rooms in the same locations as during T.S. Irene (Exh. NG-2, at 36). The North Shore and Merrimack Valley were served by the municipal room in North Andover (Exh. NG-2, at 36). The Worcester, Hopedale and Brockton municipal rooms served the Worcester, South Shore and Southeast regions, respectively (Exh. NG-2, at 36). Of the 158 communities affected by the October Snowstorm,

93 had municipal liaisons during the October Snowstorm event, more than double the number of municipalities with municipal liaisons during T.S. Irene (Exh. DPU 7-6). During the October Snowstorm, the Company increased the number of employees serving as municipal liaisons to 55 from 36 during T.S. Irene (Exh. DPU 7-6). Of these 55 municipal liaisons, 21 served multiple communities during the October Snowstorm (Exh. DPU 7-6).

During the October Snowstorm, the ORP system generated 3,909 total events, with 1,560 of them meeting the interruption criteria for municipal notification (Exh. AG 1-17). For 239 of these events, municipalities were not contacted (Exh. AG 1-17). Despite claiming that the ORP contact list was under review after T.S. Irene and prior to the October Snowstorm, National Grid cited outdated contact information as an important factor leading to these missed notices (Exhs. AG 1-17; DPU 9-3).

c. Positions of the Parties

i. T.S. Irene

(A) Attorney General

The Attorney General contends that the Company violated its ERP and endangered the public by failing to communicate efficiently with public safety and municipal officials (Attorney General Brief at 15-17, citing Exhs. AF-JN-1; AG-RF-1; NG-5, Section .113, at 197). The Attorney General cites testimony from fire chiefs who described being unable to obtain accurate and timely information from the Company (Attorney General Brief at 16, citing Exhs. AG-JN-1; AG-RF-1). The Brockton Fire Chief stated that he was not informed of revised ETRs, and the Pembroke Fire Chief described a lack of effective communication with the Company until Wednesday, August 31 (Attorney General Brief at 16, citing Exhs. AG-JN-1; AG-RF-1).

Despite the Company's focus on processes regarding communications with elected, regulatory and municipal officials, the Attorney General contends that the Company was inattentive to communication issues experienced by local police and fire officials during the event (Attorney General Reply Brief at 18, citing Company Brief at 63-76, 127-134). The Attorney General argues that the Company's discussion of the fire chiefs' testimony ignores relevant public safety concerns about the lack of ETRs and wires-down personnel, diverting focus instead to a positive comment made by the Pembroke Fire Chief about one Company employee and noting a clarification regarding ETRs in the Brockton Fire Chief's testimony (Attorney General Reply Brief at 18-19, citing Exhs. AG-JN-1; AG-RF-1; Company Brief at 136-137). The Attorney General alleges that there were many instances of the Company's communication failures with local public safety officials during T.S. Irene, citing testimony from officials in Quincy, Tyngsborough, Southborough, Brockton and Pembroke (Attorney General Reply Brief at 24-25, citing Exhs. AG-EC-1; AG-KC-1; AG-NPA-1; AG-RF-1; Company Brief at 4).

The Attorney General argues that these instances of "lax" communication constitute violations of the Company's ERP, and she recommends that the Department impose penalties for these violations (Attorney General Reply Brief at 24-25). The Attorney General advocates for a penalty of $250,000 for the Company's lack of communication with the Quincy Fire Department for the first 24 hours of T.S. Irene (Attorney General Reply Brief at 24, citing Exh. AG-KC-1, at 3). She further recommends a penalty of $250,000 per municipality for the Company's failure to clearly and responsibly communicate with officials in Southborough and Tyngsborough (Attorney General Reply Brief at 24, citing Exhs. AG-EC-1; AG-NPA-1). Additionally, she

argues that a penalty of $500,000 is appropriate for the two days that Brockton officials did not receive revised restoration times from the Company (Attorney General Reply Brief at 24, citing Exh. AG-RF-1, at 3). Finally, the Attorney General advocates for a penalty of $250,000 per day for each of the four days that National Grid failed to communicate with the Pembroke Fire Chief (Attorney General Reply Brief at 24-25, citing Exh. AG-JN-1, at 2; Company Brief at 4). The total penalty that the Attorney General recommends for these violations is $2.25 million (Attorney General Reply Brief at 24-25).

(B) DOER

DOER argues that National Grid's failure to adopt certain communication technology hindered the Company's restoration efforts as well as its communication with municipal officials (DOER Brief at 5-6). DOER also notes that, without GPS or automated tracking of non-Company vehicles, the Company had difficulty determining and communicating to municipalities the location of crews (DOER Brief at 6-7, citing Tr. 2, at 407). DOER further argues that insufficient damage assessor and wires-down resources led to delayed and inaccurate communication of ETRs to municipal and legislative officials, violating the ERP Guidelines requiring timely communication of restoration estimates (DOER Brief at 7-8, citing Exh. DOER 1-1; Tr. 4, at 862-863; Tr. 5, at 956; ERP Guidelines at Section V.B.2).

(C) Company

The Company argues that it has demonstrated that its communication with municipal officials during the storm events was consistent with the Company's ERP and that the Attorney General's argument to the contrary is unsupported by record evidence (Company Brief at 131-135; Company Reply Brief at 19, citing Exhs. DPU 4-36; NG-1, at 37-38; NG-2, at 36).

Specifically, the Company notes that the Attorney General's assertion that the Company failed to communicate with the Quincy Fire Department for the first 24 hours of T.S. Irene is not reflected in the testimony that she cites (Company Reply Brief at 27, citing Exh. AG-KC-1). Additionally, the Company argues that allegations regarding failures of "responsible" and "clear" communication in testimony from Tyngsborough and Southborough officials are vague and subjective and, therefore, do not constitute substantial evidence that justifies a penalty based on the Company's ERP and Department regulations (Company Reply Brief at 27-28, citing Exhs. AG-EC-1; AG-NPA-1). To rebut the Attorney General's allegations based on the Brockton Fire Chief's testimony, the Company refers to the Fire Chief's revised statement acknowledging that he was informed of an extended restoration period "a couple days later" as opposed to not at all (Company Brief at 135-136, citing Exh. AG-RF-1, at 3; Tr. 5, at 884, 886); Company Reply Brief at 28, citing Exh. AG-RF-1; Tr. 5, at 884). Regarding the Pembroke Fire Chief's testimony, the Company argues that the Fire Chief's acknowledgement of contact with a Company official undermines his statement about ineffective communication (Company Brief at 136, citing AG-JN-1, at 2; Company Reply Brief at 28-29, citing AG-JN-1, at 2). In summary, the Company asserts that the Attorney General's suggestions for penalties regarding municipal communication are invalid as they are based on the subjective testimony of a small number of individuals and fail to consider the overall efforts by the Company to communicate with local officials during T.S. Irene (Company Reply Brief at 29).

National Grid refutes DOER's conclusion that the Company has "deficiencies" with respect to municipal outreach and training (Company Brief at 138). The Company notes that DOER's conclusion is based on the Company's Technical Session Report following the October

Snowstorm, and that although the Company committed to addressing municipal communications in this report, these commitments do not evidence deficiencies in the Company's efforts regarding the storms (Company Brief at 138, citing DOER Brief at 10). Further, the Company contends that DOER does not cite to any record evidence supporting its assertion that coordination and communications with municipalities surrounding wires down hindered restoration efforts (Company Brief at 138, citing DOER Brief at 10).

ii. October Snowstorm

(A) Attorney General

The Attorney General argues that the Company failed to ensure public safety and violated its ERP by not communicating effectively with first responders or the Company's customers (Attorney General Brief at 15-17, citing Exhs. AF-JN-1; AG-RF-1; NG-5, Section .113, at 197). The Attorney General notes a lack of ETAs provided to officials, as well as inaccurate ETRs (Attorney General Brief at 16-17, citing Exhs. AF-JN-1; AG-RF-1).[65]

(B) DOER

DOER contends that National Grid had inadequate communication technology resources during the October Snowstorm (DOER Brief at 5-6). DOER argues that the Company was unable to easily track the locations of contractor and mutual aid crews, as the Company did not have GPS or automatic tracking units for those vehicles, making it difficult for National Grid to inform municipal officials of restoration efforts specific to their communities and the location of

[65] The Attorney General argues that the Company should have found a workaround for its shut-down of its ORP system during the October Snowstorm (Attorney General Reply Brief at 19-20, citing Exh. NG-5, Section .113.2, at 4; Company Brief at 69). However, the ORP remained operational during the October Snowstorm; it was disabled only during T.S. Irene.

crews working in their regions (DOER Brief at 6-7, citing Tr. 2, at 407). As with communications with the general public, DOER argues that insufficient Company personnel resources, particularly in the damage assessment phase, hindered National Grid's ability to provide timely and accurate ETRs to municipal officials (DOER Brief at 7-8, citing Exh. DOER 1-1; Tr. 4, at 862-863; Tr. 5, at 956; ERP Guidelines at Section V.B.2).

(C) Company

In response to arguments that the Company's ETRs were inaccurate, National Grid notes that ETRs by definition are estimates and contends that DOER's statement that the ETRs were "inaccurate" is false (Company Brief at 125-126). In response to DOER's argument that the addition of more damage assessment personnel might have allowed for more accurate and focused ETRs, the Company concedes that damage assessment might have been completed earlier with more staff, but also maintains that the record does not support DOER's conclusion (Company Brief at 126, citing Exh. AG 2-27).

d. Analysis and Findings

The Department must determine whether the Company fulfilled its responsibility described in the Department's performance standards, the ERP Guidelines and the Company's ERP, to coordinate and effectively communicate with municipal officials before, during, and after T.S. Irene and the October Snowstorm (Exh. NG-5, Section .113.2, at 196-198). ERP Guidelines at Section V.F.

The Company's ERP includes several provisions regarding communication and coordination with local officials (Exh. NG-5, Section .113.2, at 196-198). These measures include pre-event planning such as regular contact list updates and annual meetings with local

officials focused on emergency procedures (Exh. NG-5, Section .113.2, at 196-198). The Company's ERP also outlines a suite of communication channels that the Company makes available to municipal and public safety officials during an emergency event (Exh. NG-5, Section .113, at 196-198).

It is not enough for the Company to set forth methods of communication in its ERP if the Company's procedures and methods as implemented result in the Company's failure to restore service to its customers in a safe and reasonably prompt manner. Safe and reasonably prompt service restoration requires coordination with local officials and communications that are effective and timely. See Fitchburg Gas and Electric Light Company d/b/a Unitil, D.P.U. 09-01-A at 125 (2009) (Department finds that the company failed to provide accurate and useful information to the public and that this failure was inconsistent with company's obligation to provide safe and reliable service to its customers). The record evidence demonstrates that the Company's communications with local officials during T.S. Irene and the October Snowstorm failed in this respect in several areas: (1) communicating with and responding to municipalities; (2) municipal liaisons; (3) ORP notifications; and (4) critical facilities.[66]

i. Communicating with Municipalities

The ERP Guidelines require a Company to establish procedures for (1) coordinating the Company's restoration procedures with local emergency management; and (2) providing restoration effort information to government officials during an emergency event. ERP Guidelines at Section V.B.4.b; Section V.F. The ERP Guidelines also require the Company to

[66] This discussion does not address the Company's failure to adequately communicate with municipal officials regarding wires-down calls, which the Department addresses in Sections VI.C.1.c. and VI.C.2.c.

receive and process calls from public safety officials and to provide "frequent and timely feedback." ERP Guidelines at Section V.F. The Company's ERP requires the Company to meet annually with local officials "to ensure the effective and efficient flow of information between the Company and local . . .officials during an Emergency Event" (Exh. NG-5, Section .113.2, at 197).

(A) T.S. Irene

Numerous local officials reported that the Company's communication with local officials during T.S. Irene was ineffective and inadequate.[67] The Director of Emergency Management in Southborough described communication from the Company as vague and lacking both in real-time information and in honesty (Exh. AG-NPA-1, at 2). Officials from other communities agreed; Leicester, Cohasset, Foxborough, and Avon were among the other municipalities that expressed frustration with unhelpful and "piecemeal" information from National Grid during T.S. Irene (Tr. D at 42-45 (D.P.U. 11-85-A); October 25, 2011 letter from Michael Coughlin, Cohasset Town Manager; November 1, 2011 letter from Francis Hegarty, Avon Board of Selectmen; December 11, 2011 letter from Robert Reed, Leicester Town Administrator). Officials in Quincy, Scituate, and Brockton discussed great difficulty in their ability to properly focus community emergency management efforts, including establishing shelters and closing schools, because they were not receiving "honest" information from the Company

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67 See e.g., Exhs. AG-JN-1; AG-KC-1; AG-NPA-1; AG-RF-1; Tr. A at 31-52 (D.P.U. 11-85-A); Tr. B at 37-45. 61-65 (D.P.U. 11-85-A); Tr. D at 42-45 (D.P.U. 11-85-A); September 22, 2011 letter from Robert Cook, Salisbury Emergency Management Director; October 12, 2011 letter from Charlie Seelig, Halifax Town Administrator; October 25, 2011 letter from Michael Coughlin, Cohasset Town Manager; November 1, 2011 letter from Francis Hegarty, Avon Board of Selectmen; December 11, 2011 letter from Robert Reed, Leicester Town Administrator.

(Exhs. AG-JN-1; AG-RF-1; AG-KC-1; Tr. A at 31-52 (D.P.U. 11-85-A); Tr. B at 37-45 (D.P.U. 11-85-A)).

In addition to not being able to obtain useful information from the Company regarding outages and restoration efforts, many officials described a lack of response to information that they provided to National Grid (Exh. AG-JN-1; Tr. B at 61-65 (D.P.U. 11-85-A); Tr. D at 43-44 (D.P.U. 11-85-A); September 22, 2011 letter from Robert Cook, Salisbury Emergency Management Director; October 12, 2011 letter from Charlie Seelig, Halifax Town Administrator). Officials in Norwell, Halifax, Salisbury, Foxborough, and Pembroke were among those who expressed frustration on this point (Exh. AG-JN-1; Tr. B at 61-65 (D.P.U. 11-85-A); Tr. D at 43-44 (D.P.U. 11-85-A); September 22, 2011 letter from Robert Cook, Salisbury Emergency Management Director; October 12, 2011 letter from Charlie Seelig, Halifax Town Administrator).

(B) October Snowstorm

Many local officials expressed frustration in their efforts both to receive information from and to provide information to National Grid during the October Snowstorm (Tr. A at 24-29, 54-56 (D.P.U. 11-119-A); Tr. D at 53-63 (D.P.U. 11-119-A); Tr. E at 37-42, 86-88 (D.P.U. 11-119-A); December 7, 2011 letter from Don Lowe, Bolton Town Administrator; December 15, 2011 letter from Tyngsborough Board of Selectmen; December 19, 2011 letter from Shaun Suhoski, Sturbridge Town Administrator; December 20, 2011 letter from Thomas Creamer, Chair Sturbridge Board of Selectmen). Tyngsborough and Sturbridge officials described extremely inadequate communication on the part of the Company and a lack of coordination with the towns, while a town representative from Bolton portrayed the Company's

communication efforts as "abysmal" (Tr. D at 53-63 (D.P.U. 11-119-A); Tr. E at 37-42, 86-88 (D.P.U. 11-119-A); December 7, 2011 letter from Don Lowe, Bolton Town Administrator; December 15, 2011 letter from Tyngsborough Board of Selectmen; December 19, 2011 letter from Shaun Suhoski, Sturbridge Town Administrator; December 20, 2011 letter from Thomas Creamer, Chair Sturbridge Board of Selectmen). Municipalities described a lack of credible and honest information from the Company that made it difficult for them to properly focus their emergency response efforts with regard to shelters and school closings, and made it impossible for municipalities to answer questions about restoration from their residents and constituents (Tr. A at 24-29, 54-56 (D.P.U. 11-119-A); December 7, 2011 letter from Don Lowe, Bolton Town Administrator). In Belchertown, Hardwick, Longmeadow, Tyngsborough, and Westford officials reported a problem with the Company's inaccurate and untimely ETRs (Exh. AG-JR-1; Tr. A at 24-29, 54-56 (D.P.U. 11-119-A); Tr. B at 38-48 (D.P.U. 11-119-A); Tr. D at 75-77 (D.P.U. 11-119-A); December 15, 2011 letter from Tyngsborough Board of Selectmen).

ii. Municipal Liaisons

The Company's ERP states that during more severe storms and extended restoration efforts, some or all municipalities affected may be assigned a liaison, as resources permit (Exh. NG-5, Section .113.2 C at 198). Furthermore, the ERP states that over time the Company has experienced that providing liaisons to municipalities "not only supports the local area affected, but also aids in prioritizing the restoration of electric facilities and may improve access to Company facilities by obtaining municipal support" (Exh. NG-5, Section .113.2 C at 198).

(A) T.S. Irene

The Company provided municipal liaisons to a minority of affected communities (41 out of 170) during T.S. Irene, leaving most municipalities without a consistent point of contact (Exh. DPU 7-5). Among those communities that did have liaisons, the record indicates that some found the municipal liaisons helpful; while Southborough, Norton and Holbrook officials expressed this position, they also noted that there was room for improvement (Tr. C at 34 (D.P.U. 11-85-A); Tr. D at 49-50 (D.P.U. 11-85-A); November 21, 2011 letter from Richard Reuss, Holbrook Emergency Management Director). Other communities including Scituate, Quincy, Brockton, Halifax, and Pembroke found the liaisons to be ineffective primarily due to the fact that they were unfamiliar with the local system (Exhs. AG-JN-1; AG-RF-1; Tr. A at 43-52 (D.P.U. 11-85-A); Tr. B at 37-45 (D.P.U. 11-85-A); October 12, 2011 letter from Charlie Seelig, Halifax Town Administrator).

(B) October Snowstorm

Approximately 60 percent of the National Grid communities that suffered outages during the October Snowstorm had a consistent point of contact with the Company in the form of a municipal liaison (Exh. DPU 7-6). The 93 communities with liaisons during the October Snowstorm represented more than double the number of communities with liaisons than in T.S. Irene (Exhs. DPU 7-5; DPU 7-6). Some communities found having a municipal liaison helpful and noted it was an improvement over the Company's procedure in T.S. Irene (December 7, 2011 letter from Don Lowe, Bolton Town Administrator). However, several communities still expressed frustration with municipal liaisons who were unfamiliar with the local system, and therefore ineffective in addressing municipal priorities and providing timely

and accurate information (Tr. B at 38-48 (D.P.U. 11-119-A); Tr. D at 53-63, 75-77 (D.P.U. 11-119-A); December 19, 2011 letter from Shaun Suhoski, Strubridge Town Administrator) .

Subsequent to the October Snowstorm, the Company has trained over 100 employees in the municipal liaison role and created binders of information on each of the communities it serves in order to help liaisons familiarize themselves with the local electric system and municipal structure (Exhs. DPU 5-40; DPU 5-41; Tr. 4, at 731).

iii. ORP Notification

During T.S. Irene, the Company disabled the ORP notification system per the request of local officials who found the faxed notices to be unhelpful and overwhelming (Exh. DPU 9-2; Tr. 4, at 750-751). During the October Snowstorm, the ORP failed to notify municipalities of 239 events that met the interruption criteria for municipal notifications (Exh. AG 1-17).

iv. Critical Facilities

Pursuant to the Department's ERP Guidelines critical facilities include "area hospitals and other state or municipal Level 1 critical care facilities." ERP Guidelines at Section VI.D.4. The Company's ERP defines a "critical facility" as: "A location or facility where the loss of electrical service would interrupt vital services to the public, e.g., hospitals," and is categorized as a restoration priority (Exh. NG-5, Section .100.03, at 4, Section .106, at 140).

One of the tools that National Grid uses to prioritize restoration is a feeder restoration ranking system that lists facilities in three tiers (Exh. DPU 4-42). The first tier consists entirely of hospitals (Exh. DPU 4-42, Att. (b)). The second tier includes municipal public safety facilities, such as the fire and police departments, as well as water and sewer departments,

nursing homes and schools that may be used as shelters (Exh. DPU 4-42, Att. (a) CONFIDENTIAL; Tr. 4, at 756). Facilities in the third tier include some schools, housing authorities and telephone and cable providers, among others (Exh. DPU 4-42, Att. (a) CONFIDENTIAL; Tr. 4, at 756).

The Company's critical facilities list used during T.S. Irene consisted of only Tier 1 facilities and, therefore, only hospitals were considered critical facilities (Exh. DPU 4-42, Att. (b)). This is true even though the Company had identified nursing homes, key municipal facilities, and sewage treatment plants as "facilities that provide vital services to the public" (Exh. NG-5, Section .100.03, at 4; Section .106, at 140; Section .113.2 B at 198). Since the Company had not included facilities that provide vital services to the public on the critical facilities list, municipal officials had to call the Company to request restoration prioritization for these facilities (Exh. NG-5, Section .106, at 140, Section .113.2 B at 198).[68]

The process for municipalities to request prioritization for vital facilities beyond the narrow critical facilities list was a great source of frustration during the 2011 storms, sparking comments and testimony from public safety officials as well as the general public (Exh. AG-JN-1; Tr. D at 42-45 (D.P.U. 11-85-A); Tr. C at 93-94 (D.P.U. 11-119-A); Tr. D at 53-63 (D.P.U. 11-119-A); September 22, 2011 letter from Robert Cook, Salisbury Emergency Management Director; October 12, 2011 letter from Charlie Seeling, Halifax Town

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68 The Company expanded its critical facilities list after T.S. Irene, to include facilities such as public safety buildings and shelters (Exh. AG 1-4, Att. 1). This is the list that was in effect during the October Snowstorm (Exh. AG 1-4, Att. 1). Subsequent to the October Snowstorm, the Company further updated its critical facilities list to include all Tier 2 facilities (Exh. DPU 4-42).

Administrator; October 21, 2011 letter from John Mariano, Norwell Board of Selectmen; December 19, 2011 letter from Shaun Suhoski, Sturbridge Town Administrator; December 20, 2011 letter from Thomas Creamer, Chair Sturbridge Board of Selectmen). During T.S. Irene, officials in many municipalities described a failure on the part of the Company to restore critical, identified priority infrastructure and facilities (Exh. AG-JN-1; Tr. D at 42-45 (D.P.U. 11-85-A); September 22, 2011 letter from Robert Cook, Salisbury Emergency Management Director; October 12, 2011 letter from Charlie Seeling, Halifax Town Administrator; October 21, 2011 letter from John Mariano, Norwell Board of Selectmen). Norwell's Fire Chief noted that the Company requested and then largely ignored a list of town priorities (Tr. B at 61-65 (D.P.U. 11-85-A). Additionally, the Brockton Fire Chief testified that essential facilities and senior housing in the city lost power after being on generators for days due to lack of restoration prioritization (Exh. AG-RF-1). Beyond failing to prioritize vital facilities, officials in Cohasset and Foxborough stated that National Grid failed to return prioritization request calls placed on the dedicated municipal line (Tr. D at 42-45 (D.P.U. 11-85-A); October 25, 2011 letter from Michael Coughlin, Cohasset Town Manager; November 14, 2011 letter from Foxborough Board of Selectmen). There also appeared to be a lack of knowledge about priority facilities: Quincy's City Council President testified that he understood Eventide Nursing Home to be a critical facility, yet National Grid representatives were unaware of the facility when he requested specific restoration information (Tr. A at 26 (D.P.U. 11-85-A)).

During the October Snowstorm, fewer individuals raised restoration prioritization as a concern. Many communities, however, still described issues similar to those seen in T.S. Irene, with the Company failing to prioritize, or even address, facilities identified by local officials

(Tr. D at 53-63 (D.P.U. 11-119-A); December 19, 2011 letter from Shaun Suhoski, Sturbridge Town Administrator; December 15, 2011 letter from Tyngsborough Board of Selectmen; December 20, 2011 letter from Thomas Creamer, Chair Sturbridge Board of Selectmen). Officials cited Sturbridge and Tyngsborough as examples of towns where the Company did not respond to the municipalities' priorities (Tr. D at 53-63 (D.P.U. 11-119-A); December 19, 2011 letter from Shaun Suhoski, Sturbridge Town Administrator; December 15, 2011 letter from Tyngsborough Board of Selectmen; December 20, 2011 letter from Thomas Creamer, Chair Sturbridge Board of Selectmen).

e. Conclusions on Communication with Public Officials

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Safe and reasonably prompt service restoration includes accurate, timely and effective communication with municipal officials.

i. T.S. Irene

The Department finds that, despite the many communications channels the Company established with public officials, the Company communication efforts with municipal officials before, during and after T.S. Irene failed in several respects. Specifically, we find that (1) the Company's communication with municipal officials was ineffective, resulting in inaccurate or incomplete information being disseminated; (2) despite the Company's acknowledgement of the importance and benefit of community liaisons in its ERP, the Company failed to provide an adequate number of municipal liaisons and several of the liaisons the Company did provide created frustration for municipal officials due in part to the liaison's unfamiliarity with the

municipality's system; and (3) the limited nature of National Grid's critical facilities list impaired the Company's ability to conduct both effective advance planning and timely restoration of vital facilities. Further, the Department concludes that the ORP notification system is meant for normal operations and is not an appropriate means of communication between the Company and municipalities during an emergency event. The Department finds that the Company failed to effectively communicate with public officials and that this failure had a negative impact on the restoration efforts. This failure constitutes a violation of the restoration of service standard which requires the Company to restore service in a safe and reasonably prompt manner. 220 C.M.R. §19.03(3).

Based on this violation, we determine that a penalty is appropriate. In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. In particular, the Department notes that the nature of this violation is grave due to the public safety impacts of communication failures with public officials. Based on a review of the record evidence in this case, we find that a $250,000 penalty per day for seven days, the length of time from when the storm began until restoration was complete, is warranted**.** Accordingly, the Department assesses the Company a penalty of $1,750,000 ($250,000 per day for seven days).

For future emergency events, the Department directs the Company to develop a more effective communication system that addresses all of the concerns raised with respect to T.S. Irene. We further recommend that development of such a system be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

ii. October Snowstorm

The Department also finds that the Company failed to communicate effectively with municipalities before, during and after the October Snowstorm. Specifically, we find that (1) the Company's communication with municipal officials was ineffective, resulting in inaccurate or incomplete information being disseminated; (2) the Company did not provide an effective, consistent point of contact for many municipalities, though we note the effort of the Company to address this problem by increasing the number of municipal liaisons during the October Snowstorm, in comparison to T.S. Irene; and (3) although the Company made an effort to expand its critical facilities list, the list was still limited, such that it impaired the Company's ability to conduct both effective advance planning and timely restoration of critical facilities. Further, the Department concludes that the ORP notification system is meant for normal operations and is not an appropriate means of communication between the Company and municipalities during an emergency event. The Department finds that the Company failed to effectively communicate with public officials and that this failure had a negative impact on the restoration efforts. This failure constitutes a violation of the restoration of service standard which requires the Company to restore service in a safe and reasonably prompt manner. 220 C.M.R. § 19.03(3).

Based on this violation, we determine that a penalty is appropriate. In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. In particular, the Department notes that the nature of this violation is grave due to the public safety impacts of communication failures with public officials. However, we also note, that the Company made some efforts, although not fully adequate, to improve communications compared to communications during T.S. Irene, especially

by increasing the number of municipal liaisons. Based on a review of the record evidence in this case, we find that a $225,000 penalty per day for nine days, the length of time from when the storm began until restoration was complete, is warranted**.** Accordingly, the Department assesses the Company a penalty of $2,025,000 ($225,000 per day for nine days).

For future emergency events, the Department directs the Company to develop a more effective communication system that addresses all of the concerns raised with respect to the October Snowstorm. We further recommend that development of such a system be driven by the Management Audit that the Department is requiring of the Company (see Section IX).

3. Communication with the Public

a. General Description

The ERP Guidelines require that the Company's ERP include a process for communicating with its customers and that such process must extend beyond normal business hours and conditions. ERP Guidelines at Section V.E. The Department's ERP Guidelines specifically require the ERP to detail how the Company will (a) ensure that customer calls are responded to in a timely manner (including sufficient staffing to handle extraordinary volumes of customer calls); (b) develop public service announcements with respect to status of service interruptions, projections for restoration, and any other pertinent information; (c) contact LSCs; and (d) advise LSCs to contact public safety officials. ERP Guidelines at Section V.E.

National Grid used various means to communicate with the public during T.S. Irene and the October Snowstorm. According to the Company, messages concerning general readiness, safety tips, contact information and the status of outages were disseminated through radio interviews and press releases (Exh. DPU 4-2). Additionally, this information was posted on the

Company website and social media pages, including Facebook, Twitter and YouTube (Exh. DPU 4-2).

If a customer contacted the Company's call center to report an outage or an emergency, the caller was placed into the automated self-service IVR system (Exh. DPU 4-4). The Company defines "emergency calls" as those regarding gas leaks, wires down, trees down or poles down (Exh. DPU 4-4). If customers could not or chose not to use the IVR system, they could opt-out of self-service to speak with a live representative (Exh. DPU 4-4). The call center is staffed 24 hours per day, seven days per week to handle emergency calls (Exh. DPU 4-4). Customers also could report outages, check outage statuses and ETRs on the Company's website (Exh. DPU 4-2).

b. T.S. Irene

i. Description

The table below provides communication methods utilized by the Company during T.S. Irene.

Table 11: Communication resources utilized during T. S. Irene August 25, 2011 to September 4, 2011

Medium	Frequency	Activity
Facebook	Account was monitored from 7 a.m. to 11 p.m. every day during the storm – messages posted approximately every 2 hours – customer questions responded to throughout	2,151 new fans 390 posts
Twitter	Account was monitored from 7 a.m. to 11 p.m. every day during the storm – messages posted approximately every 30 minutes – customer questions responded to throughout	3,622 new followers 6,860 tweets
YouTube	Account was monitored from 7 a.m. to 11 p.m. every day during the storm – Company posted messages related to readiness, safety tips, outage status, and restoration process	

Company Website	Outage Central updated approximately every 20 minutes	59 changes/updates Maximum number of visitors: 13,535 on August 28 at noon
Texts/ Emails	Broadcast messages sent as determined necessary	6 emails sent 6 text messages sent 42,756 mobile opt-ins
Call Center	Call Center was staffed 24/7 throughout the storm, beginning Sunday, August 28; approximately 201 employees were assigned to the call center	Calls received: 105,010 live 155,196 IVR
Public Service Announcements ("PSAs")	August 26 – September 2: one to three PSAs per day September 3: one PSA every two hours updating outage status by community, total of six	18 total PSAs

Sources: Exhs. AG 1-7; AG 3-5; AG 2-17 Att. (a); AG 2-28; DPU 2-9; DPU 4-2-B Att.; DPU 7-9; DPU 7-20; DPU 7-22; NG-1, at 26.

With respect to restoration times, National Grid stated that it first made a global ETR available on Tuesday, August 30 (Exh. NG-1, at 5, 36-37; Tr. 4, at 871). The Company began providing localized information regarding restoration efforts by type of outage by crew location on Wednesday, August 31 (Exh. NG-1, at 5, 36-37). On Thursday, September 1, National Grid began localizing ETRs by type of outage by town, and continued this through the next few days, reaching the street level when requested by municipalities (Exh. NG-1, at 5, 36-37). ETR information was available on the Company website though it was not easily accessible to customers at the beginning of T.S. Irene (Exh. NG-1, at 37).[69] Pursuant to the Department's request to improve data accessibility, the Company posted ETRs on its website that the Company updated from August 30 to September 2 (Exh. NG-1, at 37). The Company received over

[69] Due to delays with the Company's OMS system, the website was slow from 11 a.m. to 1 p.m. on August 31 (Exh. AG 3-4). The Company rebooted the system and added a server to allow customers continued access to the website (Exhs. AG 3-4; AG 3-5).

300 media inquiries during the T.S. Irene event, and a team of nine Company spokespersons responded to the inquiries (Exh. DPU 2-10).

ii. Positions of the Parties

(A) Attorney General

The Attorney General argues that the Company violated its ERP by failing to respond to customer calls in a timely manner or to alert customers to damage severity and restoration length (Attorney General Brief at 17). She further contends that the Company did not provide any evidence to refute this claim (Attorney General Reply Brief at 20).

(B) DOER

DOER argues that the Company's failure to adopt certain communication technology hindered its restoration efforts as well as its communication with customers (DOER Brief at 5-6). DOER notes that although National Grid utilized texting to send broadcast messages, the Company lacked mobile applications and texting functions that could have provided additional venues for customers to report outages and check restoration status (DOER Brief at 5-6, citing Exh. DOER 3-1). DOER further argues that the Company's insufficient damage assessor and wires-down resources led to delayed and inaccurate communication of ETRs to customers, violating the Department's ERP Guidelines, which call for timely communication of restoration estimates (DOER Brief at 7-8, citing Exh. DOER 1-1; Tr. 4, at 633-634, 862-863; Tr. 5, at 956; ERP Guidelines at Section V.B.2).

(C) Company

The Company contends that it adhered to its ERP regarding timely response to customer calls and the release of PSAs providing helpful storm information (Company Brief at 124, 126, citing ERP Guidelines at Section X.E.).

The Company argues that its ERP does not prescribe timelines regarding the release of ETRs and that the record does not address whether the ETRs were "inaccurate" as DOER contends (Company Brief at 125). Additionally, regarding damage assessment personnel, the Company acknowledges that more damage assessors might have shortened the amount of time required to complete this task; however, the Company contends that the record does not support DOER's argument that additional damage assessors would have led to more customer-specific ETRs (Company Brief at 126, citing Exh. AG 2-27).

iii. Analysis and Findings

The Department must determine whether the Company communicated with customers in compliance with the Company's ERP or as otherwise required to ensure safe and reasonably prompt restoration. The Company's obligation to restore service to customers includes timely response to their calls and consistent, accurate information on safety measures and the length of restoration (Exh. NG-5, Section .113.1, at 195-196). ERP Guidelines at Section X.E. This communication is important so that customers can assess and safely determine their needs during an emergency.

The record demonstrates that the Company communicated with the public through various means, including social media, press releases and television and radio interviews, as well as through the Company's call center and website (Exhs. AG 2-17; DPU 2-9; DPU 4-2;

DPU 7-20). There also were multiple methods for customers to reach the Company, including through the call center and through Facebook and Twitter and the Company's website (Exhs. AG 2-17; DPU 2-9; DPU 4-2; DPU 7-20). Although ETR information was not easily accessible on the Company's website due to high user volumes, the Company corrected that issue by posting estimated restoration times (Exh. NG-1, at 37).

In public hearings and letters submitted to the Department, customers testified that they had difficulty communicating with the Company, including an inability to reach a live person on the phone, despite several attempts to do so (Tr. A at 31-43, 83 (D.P.U. 11-85-A); Tr. B at 68-70 (D.P.U. 11-85-A); Tr. D at 38-42 (D.P.U. 11-85-A); December 4, 2011 letter from Carol Gay). Records submitted by the Company show that average call wait time peaked during T.S. Irene at approximately seven minutes (Exh. DPU 4-6, Att.).

The record shows that of approximately 1,665 calls escalated to a call center supervisor during T.S. Irene, 67 percent of them were regarding ETRs (Exh. DPU 7-18). The Company provided ETR data for only 76 municipalities out of 170 with over 100 customers out of service (Exh. DPU 7-16, Att.). The record shows that from August 30 through September 2, the Company gave an ETR date of September 4 for most of these communities (Exh. DPU 7-16, Att.). The record also shows that most of these communities were actually restored on September 2 and September 3, one to two days ahead of the Company's ETR (Exh. DPU 7-16, Att.). The fact that a majority of these communities were given the same ETR throughout the event suggests that the ETRs were not localized and that instead the Company used a global ETR. Global ETRs can be problematic since they do not provide information for a particular community, resulting in planning issues for customers and confusion. In this case however, most

communities were actually restored on September 2 and September 3; one to two days before the ETR.

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages. 220 C.M.R. §19.03(3). Safe and reasonably prompt service restoration includes timely and effective communication with the public. Given the availability of communications technologies, the Department expects the Company to provide timely and accurate information to aid in the safe and reasonably prompt restoration of service. The Department finds that, in many respects, the Company used a variety of technologies to communicate with its customers. Despite the various forms of media that the Company used to communicate with the public, the record shows that in some respects the Company failed to communicate effectively with its customers during T.S. Irene, especially in the area of localized ETRs and the compromised ability of customers to access company representatives. Accordingly, we find that the Company's failure regarding communication with the public is a violation of the restoration of service standard requiring it to restore service in a safe and reasonably prompt manner. 220 C.M.R. §19.03(3); see also Fitchburg Gas and Electric Light Company d/b/a Unitil, D.P.U. 09-01-A at 125 (2009) (Department finds that the company failed to provide accurate and useful information to the public and that this failure was inconsistent with company's obligation to provide safe and reliable service to its customers).

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. Taking the factors into consideration and after a review of the record evidence in this case, we find that a $100,000 penalty per day for seven days, the length of time from when the storm began until restoration

was complete, is warranted. Accordingly, the Department assesses the Company a penalty of $700,000 ($100,000 per day for seven days).

For future emergency events, the Department directs the Company to develop a more effective communication system that addresses all of the concerns raised with respect to T.S. Irene. Finally, we further recommend that development of the above requirements be driven by and conform with the Management Audit that the Department is requiring of the Company (see Section IX).

c. October Snowstorm

i. Description

The table below provides communication methods utilized by the Company during the October Snowstorm.

Table 12: Communication resources utilized during the October Snowstorm
October 28, 2011 to November 6, 2011

Medium	Frequency	Activity
Facebook	Account was monitored from 7 a.m. to 11 p.m. every day during the storm – messages posted approximately every 2 hours – customer questions responded to throughout	605 new fans 317 posts
Twitter	Account was monitored from 7 a.m. to 11 p.m. every day during the storm – messages posted approximately every 30 minutes – customer questions responded to throughout	1,520 new followers 1,108 tweets
YouTube	Account was monitored from 7 a.m. to 11 p.m. every day during the storm – Company posted messages related to readiness, safety tips, outage status, and restoration process	
Company Website	Outage Central updated approximately every 20 minutes	40 changes/updates Maximum number of visitors: 15,886 on Oct. 31 at 11 a.m.

Texts/ Emails	Broadcast messages sent as determined necessary	0 emails sent 3 text messages sent 27,871 mobile opt-ins
Call Center	Call Center was staffed 24/7 throughout the storm, beginning Sunday, October 30; approximately 152 employees were assigned to the call center	Calls received: 118,275 live 198,944 IVR
PSAs	October 29 – November 6: one to three PSAs per day	16 total PSAs

Sources: Exhs. AG 1-7; AG 2-17 Att. (e); AG 2-28; AG 3-5; DOER 2-1; DPU 7-10; DPU 7-21; DPU 7-23; DPU 7-28, Att.; NG-2, at 23.

With respect to ETRs, National Grid provided the first global ETR during the October Snowstorm at midnight Sunday, October 30 (Exh. DPU 4-25; Tr. 4, at 871). Throughout the event, ETR information was shown on the interactive map of the Company's Outage Central webpage (Exh. NG-2, at 34). Additionally, National Grid posted information on its website listing ETRs by town, which it updated twice per day (Exh. NG-2, at 34). During the October Snowstorm event, National Grid utilized 13 spokespersons, responding to more than 300 media inquiries (Exh. DPU 3-10). The Company also provided ETR information to media outlets (Exh. NG-2, at 34).

ii. Positions of the Parties

(A) Attorney General

The Attorney General argues that the Company failed to ensure public safety and violated its ERP directives by not communicating effectively with its customers (Attorney General Brief at 15-17, citing Exhs. NG-2, at 23, App. A; NG-5, Section .113.1, at 195-196 ERP Guidelines at Section V.E.) The Attorney General specifically contends that the Company did not disclose to customers the severity of outages and the potential for restoration to take a week or more during the October Snowstorm (Attorney General Brief at 17-18, citing Exh. NG-2, at 23, App. A). The Attorney General asserts that since the Company's pre-planning clearly indicated

that an event was imminent, the Company was responsible for providing ETRs to customers on Friday, October 28 and Saturday, October 29 (Attorney General Reply Brief at 25). Based on the Company's failure to provide ETRs on October 28, 29, and 30, the Attorney General recommends a total penalty of $750,000, calculated as $250,000 for each of the three days (Attorney General Reply Brief at 25).

(B) DOER

DOER concludes that the Company failed to communicate restoration estimates in a timely manner as required by its ERP (DOER Brief at 7-8, citing Exh. DOER 1-1; Tr. 4, at 862-863; Tr. 5, at 952). DOER points to inadequate technology resources as one issue contributing to this failure (DOER Brief at 6-7). According to DOER, although the Company used texts for broadcast messaging, National Grid lacked mobile applications and texting functions that could have improved public communication by providing venues for customers to report outages and check ETRs (DOER Brief at 5-6, citing Exh. DOER 3-1). Additionally, DOER argues that communications with the public, as well as with officials were delayed and inaccurate because of insufficient damage assessor and wires-down resources (DOER Brief at 7-8, citing Exh. DOER 1-1; Tr. 4, at 633-634, 862-863; Tr. 5, at 956; ERP Guidelines at Section V.B.2).

(C) Company

National Grid maintains that communication with customers during the storm event was consistent with the Company's ERP (Company Reply Brief at 20). The Company argues that it provided information regarding the anticipated snowstorm on the Company's website on Friday, October 28, and that it similarly posted storm information on its website and social media sites,

and began issuing PSAs the day of the storm (Company Brief at 124-125, citing Exhs. NG-2, App. A, Table B at 75-100; NG-2, App. G; Company Reply Brief at 20).

Regarding ETRs, the Company states that it made its first estimates public on October 31, at which time it gave an ETR of November 4 (Company Brief at 125, citing Exh. NG-2, App. A, Table B at 75-100; Company Reply Brief at 20). The Company objects to the Attorney General's recommendation of a penalty for failure to provide ETRs prior to the October Snowstorm since there were no outages at that time (Company Reply Brief at 29-30). During the time that the storm was in progress, on October 29 and October 30, the Company argues that it had no ability to quantify the damage or determine the number of outages (Company Reply Brief at 30). National Grid notes that, according to its ERP, damage assessment must begin within 24 hours of the end of a storm; therefore, the Company maintains that the earliest possible release of ETRs following the October Snowstorm would have been Monday, October 31 (Company Reply Brief at 30, citing Exh. NG-5, Section .107, at 147).

The Company notes that ETRs by definition are estimates and further contends that DOER's statement that the ETRs were "inaccurate" is false (Company Brief at 125-126). In response to DOER's argument that the addition of more damage assessment personnel might have allowed for more accurate and focused ETRs, the Company concedes that damage assessment might have been completed earlier with more staff, but maintains that the record does not support DOER's argument (Company Brief at 126). The Company maintains that damage assessors did not delay line crews, but rather that all available line resources were occupied with public safety or restoration assignments based on real-time OMS information during the time that damage assessment was being conducted (Company Brief at 126, citing Exh. AG 2-27).

iii. Analysis and Findings

The Department must determine whether the Company communicated with customers in compliance with the Company's ERP or as otherwise required to ensure safe and reasonably prompt restoration. Customers reported having similar issues communicating with National Grid during the October Snowstorm as they did during T.S. Irene. The primary frustrations expressed by those who testified or submitted written comments to the Department included a lack of ETRs and difficulty in reaching a Company representative on the phone (Tr. A at 73-79, 89-91, 93-96 (D.P.U. 11-119-A); Tr. B at 67-70; Tr. C at 66-75, 93-94 (D.P.U. 11-119-A); (D.P.U. 11-119-A); December 8, 2011 letter from Arlene Pitkin; December 15, 2011 letter from Anita Thomas; December 16 letter from Gertrude Smith). Records submitted by the Company show that average call wait time peaked during the October Snowstorm at approximately 12 minutes (Exh. DPU 4-7, Att.).

Both customers and public officials raised concerns at the public hearings about the accuracy and timeliness of ETRs. During the October Snowstorm, the number of calls escalated to a supervisor regarding ETRs rose from 67 percent during T.S. Irene to 83 percent of the approximately 1,700 escalated calls (Exh. DPU 7-19). National Grid provided day-by-day ETR data for each of the 95 municipalities (out of the 158 affected) with over 100 customers out of service (Exh. DPU 7-17, Att.). This data shows that the Company used an ETR of Thursday, November 3 for most of these communities from the start of the storm until November 3 (Exh. DPU 7-17, Att.). It was not until November 3 that the Company changed most of the remaining ETRs to Friday, November 4 (Exh. DPU 7-17, Att.). For the remaining days of restoration, it appears that National Grid extended the ETR at the end of the day if service had

not been restored (Exh. DPU 7-17, Att.). The Company acknowledges that it did not provide timely ETRs to customers during the October Snowstorm, stating "that many customers who were still without power on Thursday did not see updated ETRs reflecting that restoration would continue beyond Thursday evening until that time had come and gone" (Exh. NG-2, at 35).

The Company has the duty to restore service to its customers in a safe and reasonably prompt manner during all service interruptions and outages, which includes timely and effective communication with the public. Given the availability of communications technologies, the Department expects the Company to provide timely and accurate information to the public. The Department finds that, despite the various forms of media that the Company used to communicate with the public, the Company failed to communicate effectively with its customers during the October Snowstorm and, in fact, some aspects of communication were worse during the October Snowstorm as compared to T.S. Irene. Of particular concern is the Company's admitted failure to provide its customers with timely and accurate information regarding ETRs. Accordingly, we find that the Company's failure regarding communication with the public is a violation of the restoration of service standard requiring it to restore service in a safe and reasonably prompt manner. 220 C.M.R. §19.03(3); see also Fitchburg Gas and Electric Light Company d/b/a Unitil, D.P.U. 09-01-A at 125 (2009) (Department finds that the company failed to provide accurate and useful information to the public and that this failure was inconsistent with company's obligation to provide safe and reliable service to its customers).

In determining the amount of the penalty for this violation, we have taken into account the factors listed in 220 C.M.R. § 19.05(2), as well as other factors. We do note that the Company made some efforts, although not fully adequate ones, to improve communications

during the October Snowstorm as compared to communications during T.S. Irene, especially by improving the performance of its website, but there were also significantly worse problems during the October Snowstorm with regards to inaccurate ETRs. Taking the factors into consideration and after a review of the record evidence in this case, we find that a $150,000 penalty per day for nine days, the length of time from when the storm began until restoration was complete, is warranted. Accordingly, the Department assesses the Company a penalty of $1,350,000 ($150,000 per day for nine days).

For future emergency events, the Department directs the Company to develop a more effective communication system that addresses all of the concerns raised with respect to the October Snowstorm. Finally, we further recommend that development of the above requirements be driven by and conform with the Management Audit that the Department is requiring of the Company (see Section IX).

4. Communication with Life Support Customers

a. Introduction

The Company's ERP includes LSCs among the restoration priorities during an emergency event (Exh. NG-5, Section .106, at 140). National Grid's ERP also states that the Company shall contact LSCs before an anticipated storm, during an emergency event and after restoration (Exh. NG-5, Section .113.1 C, at 196).

The Company maintains records of LSCs, who have demonstrated a medical need for electric service (Exh. DPU 5-14). These customers are coded as LSCs in National Grid's system upon submitting a Life Sustaining Equipment form, which includes their account number, address and contact information (Exh. DPU 5-4). The Company produces an up-to-date list of

LSCs from the customer database monthly and uses the list, which can also be generated at any time, to contact LSCs (Exhs. DPU 5-4; DPU 5-14). Automated messages are sent pre-event, directing LSCs to call 911 or their local public safety officials in the event of an emergency (Exh. DPU 5-14). During an event, the Company places manual daily "well-being" calls to affected LSCs to determine if they need emergency assistance and to connect them with public safety officials, if necessary (Exh. DPU 5-14). The Company may take additional steps, including field visits and/or notification to public safety officials, for those LSCs that Company call representatives cannot reach live or via voicemail (Exh. DPU 5-14).

b. T.S. Irene

i. Description

In the pre-event stage of T.S. Irene, National Grid made three automated broadcast calls to all 2,693 LSCs identified in its Massachusetts service territory (Exh. DPU 4-45). During the restoration and post-event phases of T.S. Irene, the Company contacted the 1,695 Massachusetts LSCs who experienced an outage due to T.S. Irene (Exh. DPU 4-45). The Company placed manual, daily calls to these customers until it confirmed that their power was restored (Exh. DPU 4-45). The Company contacted local officials and sent Company representatives to residences to perform "well-being" checks for the approximately 200 LSCs that National Grid could not reach by phone (Exhs. DPU 4-45; NG-1 at 42).

ii. Analysis and Findings

Prior to T.S Irene, the Company last updated its LSC list on August 7, and updated the list again on August 29 (Exh. DPU 4-45). The Company followed its ERP by reaching out to customers listed as LSCs with broadcast calls ahead of T.S. Irene, and by contacting those who

were affected throughout the storm and restoration period (Exhs. DPU 4-45; NG-5, Section .113.1 C, at 196). The Department concludes that National Grid communicated well with its LSCs during T.S. Irene, especially with respect to the Company's follow-up field visits and notification to local officials when it could not reach customers by phone (Exhs. DPU 4-45; DPU 5-4). The Department, therefore, finds that during T.S. Irene, the Company complied with the requirement to contact LSCs before an anticipated storm, during an emergency event and after restoration, in accordance with the Company's ERP (Exh. NG-5, Section .113.1 C, at 196).

c. October Snowstorm

i. Description

There were 2,719 LSCs in the Company's Massachusetts service territory at the time of the October Snowstorm (Exh. DPU 4-46). The Company placed automated calls to these customers prior to the storm, on Friday, October 28, and Saturday, October 29 (Exhs. AG 2-21; DPU 4-46). National Grid placed manual, daily "well being" calls to the 1,081 LSCs who lost power during the October Snowstorm until the Company was able to confirm that their power was restored (Exh. DPU 4-46). The Company conducted field checks and/or notified local public safety officials when Company call representatives received a busy signal or no answer in attempts to contact an LSC (Exh. DPU 4-46).

ii. Positions of the Parties

(A) Attorney General

The Attorney General asserts that National Grid did not reach out to its LSCs during the lengthy restoration process to provide any specific ETR information to these customers directly (Attorney General Brief at 18, citing Exh. NG-2, App. A).[70]

(B) Company

The Company refutes the Attorney General's allegation that it failed to reach out and provide specific ETR information to its LSCs (Company Brief at 144). The Company contends that it not only reached out to these customers directly, but also went above and beyond its ERP requirements by sending representatives to conduct field visits for those LSCs who were unreachable by phone (Company Brief at 144, citing Exhs. AG 1-4; DPU 4-46).

iii. Analysis and Findings

Prior to the October Snowstorm, the Company last updated its LSC list on October 2, and updated the LSC list again on October 31 (Exh. DPU 4-45). National Grid made broadcast calls to its LSCs prior to the October Snowstorm and made daily calls to these customers throughout the event, in compliance with its ERP (Exhs. DPU 4-46; NG-5, Section .113.1 C, at 196). Further, the Company sent representatives to residences when they were unable to reach an LSC (Exh. DPU 4-46). The Department concludes that National Grid's outreach to LSCs during the October Snowstorm was appropriate. The Department also finds there is no record evidence to support the Attorney General's claim that the Company failed to reach out to LSCs. The

[70] We note that the Attorney General was not specific in her brief regarding which emergency event that she was referring to when discussing LSCs. However, she cited only to record evidence regarding the October Snowstorm on this topic and, thus, we assume that she is not addressing LSCs in the T.S. Irene context.

Department, therefore, finds that during the October Snowstorm, the Company complied with the requirement to contact LSCs before an anticipated storm, during an emergency event and after restoration, in accordance with the Company's ERP (Exh. NG-5, Section .113.1 C, at 196).

VII. PREPARATION/PLANNING

A. Advance Planning and Training

1. Description

National Grid's ERP requires advance planning and training to ensure that the Company is prepared to respond to an emergency event (Exh. NG-5, Section .113, at 196-198, Section 118, at 208-209).[71] As part of this planning, the Company must hold at least one meeting annually with government officials to review the emergency plan and ensure effective coordination between the Company and officials during an event (Exh. NG-5, Section .113, at 196-198).

As part of its advance planning, the Company must also coordinate training sessions and conduct annual drills for all internal personnel with storm or emergency assignments (Exh. NG-5, Section .118, at 208-209). In addition, the ERP requires that notification of the drill and participation requests are sent to public officials and outside agencies with restoration responsibilities, as well as to the Department (Exh. NG-5, Section .118, at 208).

Additionally, the Company's ERP requires that it maintain updated contact lists to be used in emergency events, including information for municipal emergency managers, and state and local public safety officials as to LSCs and critical facilities (Exh. NG-5, Section .113, at 196-197). National Grid is further required to maintain contact information for all utility

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[71] The ERP Guidelines, which include the advance planning and training requirements, apply to all electric distribution companies. ERP Guidelines at Section VI.

personnel assigned event response positions, mutual aid companies and contractors, print and broadcast media, vendors, and facilities for employee lodging and meals. See ERP Guidelines at Section VI.D.

2. Positions of the Parties

a. Company

National Grid asserts that it has complied with the Department's planning standards as set forth in 220 C.M.R. §§ 19.03 and its ERP (Company Brief at 2, 85). The Company states that it fulfilled all provisions of its ERP with regards to advance preparation prior to T.S. Irene and the October Snowstorm, including meetings with officials; training and drills; and maintenance of updated contact lists (Company Brief at 85, citing Exhs. DPU 4-29; DPU 4-30; DPU 4-37; DPU 4-38; DPU 4-38 (Att.); DPU 4-45; DPU 4-46; DPU 5-2; DPU 5-3; DPU 5-5; NG-1, at 22, Att. I; NG-2, at 24; NG-6; Tr. 3, at 324-328).

3. Analysis and Findings

On September 9, 2011, the Company filed its 2011 Emergency Response Plan Report, which outlines the Company's compliance with advance planning and training requirements (Exh. NG-6).[72] National Grid held meetings with government officials throughout its Massachusetts service territory in September and October, 2010 (Exhs. DPU 5-2 to 5-6; NG-6, at 1-68). The Company also held several internal training sessions throughout the year and performed an emergency response drill on July 19, 2011 (Exhs. DPU 5-7 to 5-12; NG-6, at 69-127). National Grid provided updated contact lists for all entities identified in the ERP

[72] The Department requires this annual filing from all electric distribution companies. ERP Guidelines at Sec. VII.

Guidelines (Exhs. DPU 5-15; NG-6, at 128-214).[73] There were two problems with contact lists and notifications during the 2011 storms with respect to both a contact list that was not properly updated and the content of the critical facilities list (Exhs. AG 1-4 Att. 1; AG 1-17; DPU 4-42 Att. (b); DPU 9-3). Both of these concerns are addressed in earlier sections. With the exception of these contact lists, the Department finds that National Grid complied with advance planning and training requirements.

B. Maintenance Issues

1. Vegetation Management

a. Description

The Company conducts the following vegetation management activities within its distribution vegetation management program: cycle tree pruning; enhanced hazard tree mitigation/management ("EHTM"); worst feeder hazard tree mitigation/management; interim/spot trimming; subtransmission trimming; and customer-requests trimming (Exhs. DPU 1-11; DPU 9-18; NG-Rebuttal at 6; Tr. 5, at 991-993). Cycle tree pruning is the cutting, clearing, pruning, tree removal and herbicide treatment of vegetation on a feeder basis on all miles of distribution lines, with trimming occurring on a five-year cycle (Exhs. AG 2-14, Att. (a), at 1; DPU 9-18; Tr. 5, at 991). The Company has conducted its cycle tree pruning on this schedule since 2003 (Exh. DPU 9-18). The EHTM program[74] removes high-risk trees that

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73 In lieu of providing lists, the Company included certifications of complete, updated contact information for LSCs and mutual aid companies in its Emergency Response Plan Report.

74 The Company segments costs for the EHTM program into on-cycle and off-cycle categories; the on-cycle category includes hazard tree removal work that is done on overhead lines during the five-year regular trimming cycle; the off-cycle category

(1) are located within falling distance of the Company's overhead lines and (2) have health or other structural issues that raise the likelihood that they may cause service interruptions (Exh. DPU 1-11; Tr. 5, at 991-992). The Company commenced its EHTM program in 2007 (Exh. DPU 9-18). The worst feeder program is a component of the hazard tree work that removes vegetation around the worst performing circuits and feeders on the system (Exh. NG-Rebuttal at 6; Tr. 5, at 992).[75] The spot trim program removes trees that require additional trimming before the next five-year cycle occurs (Exh. NG-Rebuttal at 6; Tr. 5, at 992). Subtransmission work removes vegetation, including hazard trees, around the Company's subtransmission lines located around the subtransmission voltage right-of-way (Exh. NG-Rebuttal at 6; Tr. 5, at 992). Last, the customer-request work includes tree trimming work done at the request of a customer (Exh. NG-Rebuttal at 6; Tr. 5, at 993). In 2011, the Company spent $18,501,304 on all vegetation management programs and associated expenses (Exh. NG-Rebuttal at 6).

b. Positions of the Parties

i. Attorney General

The Attorney General asserts that the Company's vegetation management program did not sufficiently address outages caused by broken limbs and falling trees in both storms (Attorney General Brief at 12). While the Attorney General's witnesses acknowledged that the Company's EHTM program as well as the five-year regular trimming cycle was a step in the

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includes work that is completed at a cycle different from the regular cycle pruning (NG-Rebuttal at 6; Tr. 5, at 991-992).

[75] The Massachusetts Worst Feeder Program identifies the poorest performing circuits.

right direction, the Attorney General argues that the Company's witness admitted that 82.5 percent of all circuits have not been treated by the EHTM program and that these untouched circuits affected and impacted the overwhelming number of outages and downed wires during both storms (Attorney General Brief at 13). In addition, the Attorney General claims that the Company never established that only the worst performing circuits targeted and trimmed, 17.5 percent of circuits, were representative of the circuits that experienced trouble in these storms (Attorney General Reply Brief at 13). The Attorney General also argues that the Company cannot conclude that increased spending on vegetation management over the last ten years produced fewer tree-related outages on its system during significant storms, as the Company did not consistently implement its vegetation management program across its service territory (Attorney General Reply Brief at 12). Last, the Attorney General asserts that the Department should not give any weight to the Company's claim that opposition from municipalities and customers impedes its vegetation management program, as the Company is both obligated to work out any such issues and no evidence of such issues exists in the record (Attorney General Reply Brief at 11-12).

ii. DOER

DOER argues that the Company failed to integrate telecommunications companies into storm preparation and response efforts (DOER Brief at 11). In support of this claim, DOER cites the Company's testimony that Verizon conducts no tree trimming around its wires or poles (DOER Brief at 11, citing Tr. 3, at 417). DOER argues that, pursuant to the Intercompany Operating Procedures to which the Company and Verizon have agreed, the Company must fully

exercise its rights to coordinate tree trimming and other maintenance so that costs attributable to telecommunications companies are not borne by ratepayers (DOER Brief at 11-12).

iii. Company

The Company contends that the Attorney General has failed to provide any objective criteria or evidence on which to conclude that the Company's vegetation management program is inadequate (Company Reply Brief at 11). The Company argues that the Attorney General's premise that it should apply EHTM to every circuit rather than on a targeted basis for poor performing circuits is flawed because it would be less cost-effective and practical than the Company's approach (Company Brief at 14-15). In addition, the Company claims that it would not be practical to expect the Company's customers, property owners, municipal officials and the public to accept the change in treescape that would occur if the Company expanded the EHTM program[76] (Company Brief at 15). The Company also contends that the severe damage to its infrastructure from both T.S. Irene and the October Snowstorm was the result of trees falling from outside the Company's normal pruning zone due to wind and other causes that would not have been prevented under the EHTM program (Company Brief at 16). For the October Snowstorm in particular the Company contends that the amount and consistency of the snowfall caused structural failures of multiple branches or full trees (Company Brief at 16).

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[76] The Company claims that at least one community has informed the Company that it will not allow any EHTM (Company Brief at 15, citing Exh. NG-Rebuttal at 10). The Company states that it received 311 requests for light or no-trim vegetation management from private landowners and/or municipalities in 2011 (Company Brief at 15, citing Exh. NG-Rebuttal at 10).

c. Analysis and Findings

In Investigation by the Department of Public Utilities on its own Motion concerning the Emergency Plans and Procedures Implemented by Electric and Telephone Companies Subject to the Jurisdiction of the Department for Restoration of Service Interruptions by Hurricane Bob on August 19, 1991, D.P.U. 91-228, at 12 (1992), the Department found that comprehensive monitoring of tree growth along power lines is an essential element of any tree trimming program, and that such monitoring allows companies the opportunity to identify, in advance, potential problem areas. The Department directed all companies to conduct annual meetings with the local tree wardens of each municipality within its service territory. D.P.U. 91-228, at 12. The Department directed the companies to conduct educational campaigns to inform the public about the potential dangers from trees to service lines and to instruct customers how to report any tree-related problems to the Companies. D.P.U. 91-228, at 12.

The Company has developed multifaceted vegetation management activities within its distribution vegetation management program, which include cycle tree pruning; enhanced hazard tree mitigation/management; worst feeder hazard tree mitigation/management; interim/spot trimming; sub-transmission trimming; and customer-requests trimming (Exhs. DPU 1-11; AG 4-11; DPU 9-18; NG-Rebuttal at 6; Tr. 5, at 991-993). The tree pruning covers the whole system on a five-year cyclical basis, whereas the other programs are focused on defined criteria (Exhs. DPU 1-5; AG 4-11; AG 4-12). Furthermore, the record shows that the Company increased its spending on vegetation management over the last several years and targeted its spending through the development of specific criteria (such as those included in the EHTM and

worst feeder tree mitigation/management programs) (Exhs. AG 4-12 Att. (a); NG-Rebuttal at 6). The Department finds that this is a reasonable approach.

While the Company and other parties disagree as to whether the damage to Company infrastructure from both T.S. Irene and the October Snowstorm was the result of trees falling from outside the Company's normal pruning zone, the record contains insufficient data to distinguish damage caused by trees and limbs that would have been included in the Company's distribution system vegetation management program from damage caused by trees and limbs outside of the Company's control (i.e., vegetation outside of the Company's trim zone). Overall, the Department finds that the National Grid vegetation management program is reasonable and consistent with acceptable industry practices.

Regarding the participation of telecommunication companies in maintenance tree trimming, while those companies may or may not have need for maintenance tree trimming, electric companies are obligated to perform appropriate vegetation management on their systems to ensure reliable service to electric customers. We urge the Company to work with the telecommunication companies to establish fair and equitable responsibility of costs. Further, any costs attributable to Verizon under the joint ownership agreement with respect to tree trimming will not be recoverable from Company ratepayers. See Western Massachusetts Electric Company, D.P.U. 10-70, at 68 (2011); D.P.U. 09-39, at 212-213.

2. Infrastructure: Distribution Automation

a. Description

Infrastructure hardening involves the improvement of the electrical systems (both transmission and distribution) prior to the occurrence of an event. Companies design and build

their systems to minimize the outage impact on customers of storms, in particular through the use of fuses, cutouts and automatic switching devices at appropriate locations throughout the network. Distribution automation technology allows companies to monitor and control their networks remotely and may allow faster response in an emergency.

Remote monitoring and control capabilities enabled by distribution automation technologies provide the companies greater intelligence on the status of their distribution network and may in some instances help facilitate storm restoration efforts (Tr. 1, at 105-107). On the 1,345 distribution circuits 34.5 kV or less in its Massachusetts distribution system, the Company has installed the following three-phase distribution automation technologies: 1,014 primary overhead reclosers; 72 primary underground reclosers; five primary overhead sectionalizers; 17 primary underground sectionalizers; and three primary underground switch gears (Exh. AG 4-17). In addition, the Company has installed one single-phase recloser (Exh. AG 4-17). Also, 34 feeders have automatic switching through loop sectionalizing recloser schemes (RR-DPU-5). The Company plans to implement advanced distribution automation in the Worcester area as part of its 2012 Smart Grid Pilot, D.P.U. 11-129 (Exhs. DOER 2-6; NG-Rebuttal at 15).

b. Positions of the Parties

i. Attorney General

The Attorney General's witnesses contend that more extensive use of distribution automation would enable the Company to restore power more quickly and speed the process of damage assessment in the early stages of restoration (Attorney General Brief at 14). National Grid, the Attorney General's witnesses argue, has implemented distribution automation to a far

lesser degree than Western Massachusetts Electric Company and NSTAR Electric Company (Attorney General Brief at 14). The Attorney General claims that the Company has conceded in its rebuttal testimony that advanced distribution automation may facilitate its restoration efforts and that it is making every effort to implement more distribution automation as evidenced by its "Smart Grid Pilot program" filing, D.P.U. 11-129 (Attorney General Brief at 14). Further, the Attorney General asserts that while its witnesses never stated that distribution automation would prevent storm-related damage from occurring, they opine that more pervasive use of distribution automation would have facilitated the Company's restoration efforts (Attorney General Reply Brief at 14).

ii. Company

The Company contends that the Attorney General's claim that the Company had installed an insufficient level of distribution automation prior to T.S. Irene and the October Snowstorm is merely a hypothesis and offers no basis to conclude that additional distribution automation would have expedited restoration in either storm (Company Reply Brief at 11). The Company argues that distribution automation would not prevent the type of damage that caused the widespread customer interruptions during T.S. Irene and the October Snowstorm – and that the Attorney General has not provided any evidence to correlate the scope and scale of its distribution automation with the time necessary to restore service (Company Brief at 16, 21). While the Company acknowledges that distribution automation works effectively in small, localized events, it claims that distribution automation would not facilitate restoration or be able to transfer a customer to another circuit when a substation or transmission line is out of service, as occurred during T.S. Irene and the October Snowstorm (Company Brief at 17). In addition,

the Company argues that it would not have any justification for installing automatic or remotely controlled devices on a circuit that is already highly reliable (Company Brief at 17).

c. Analysis and Findings

National Grid's transmission and distribution system operators have the ability to operate field equipment remotely from the transmission and distribution control centers (Exh. DPU 4-11).

In 2008, the Company reviewed its system in Massachusetts and New York, and developed a fusing strategy that is in the process of being implemented (Exh. AG 4-6, Att. (a)). The Company is currently reviewing its fusing as part of its feeder hardening and engineering reliability review of distribution feeders (Exh. AG 4-6, Att. (a)).

While National Grid is implementing more fusing to limit the number of customers impacted by a fault, its implementation of distribution level automation, such as sectionalizers, reclosers, automatic switching units, and back-up feeders, has been limited. The Company is in the process of installing more distribution automation throughout its system. Finally, the Company plans to conduct a trial of an advanced distribution automation ("ADA") system in Worcester as part of its 2012 Smart Grid Pilot (Exh. DOER 2-6).[77] The ADA system will use local protection and control logic that can be programmed remotely to enable autonomous operation of switching devices (utilizing peer-to-peer communications) in response to system contingencies (Exh. DOER 2-6).[78]

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[77] The Department approved the Company's program in its Smart Grid Pilot program filing, D.P.U. 11-129.

[78] Peer-to-peer communication, i.e., communication between automated devices, allows for this method of operation.

The Company recognizes that an ADA system may facilitate its restoration efforts and is making an effort to increase the installation of ADA on its distribution system. While we note that it is outside the scope of this proceeding for the Department to make findings on the exact nature of distribution automation on National Grid's system, increased storm hardening and distribution automation can minimize the outage impact on customers during both normal operations and storm events. Therefore, we encourage the Company to continue with its activities relating to storm hardening and appropriate distribution automation improvements.

C. At-Risk Communities

1. DOER Proposal

DOER recommends that the Department adopt a concept referred to as "at-risk communities" ("ARCs") into the Company's ERP (DOER Brief at 12). This concept would require development of metrics for National Grid to use to evaluate the communities that have the most vulnerable distribution systems (DOER Brief at 12). DOER posits that the pattern of outages from T.S. Irene and the October Snowstorm indicates that some of the same towns experienced more outages than others in both storms (DOER Brief at 13, citing Exhs. DOER 1-23(a); DOER 1-23(b); DOER 1-24(a); DOER 1-24(b)). Therefore, DOER claims that by developing ARC metrics the Company will be able to identify the communities that are more at risk of outages during emergency events (DOER Brief at 14). DOER recommends that the Company include these high-risk municipalities on a list of ARCs, in order to (1) signal to the Company the towns that may require increased budgets to improve storm performance; (2) identify the poorly ranked towns to receive enhanced communications and municipal

outreach; and (3) allow National Grid to take additional preventive measures to reduce the impacts on poorly ranked towns (DOER Brief at 14).[79]

2. Analysis and Findings

DOER recommends for the first time on brief that the Department require National Grid to incorporate an ARC concept in its ERP. Currently, the Department requires each company to establish and describe in detail procedures for restoring service, including, but not limited to, event evaluation, damage assessment, and restoration priorities and coordination. D.P.U. 10-02-A at 3-12. While National Grid could, in conjunction with the procedures incorporated in its ERP, use an ARC list to determine where widespread outages and damage may occur, such a requirement might unduly constrain the Company in responding to an emergency event. The Department finds that placing heightened reliance on an ARC list could shift the focus of a company's restoration efforts and resources to areas that may be unaffected by a particular emergency event and away from those areas that have sustained outages and damage. Proper weather tracking, event classification and allocation of resources to the most affected areas during a particular emergency event, as required by the Company's ERP, is a better restoration strategy. Finally, electric companies have an ongoing obligation to design and maintain their systems to provide reliable service. Accordingly, the Department declines to require National Grid to implement DOER's proposed ARC concept.

The Department notes that electric companies currently track their service quality performance as part of their obligations under the Department's Service Quality Guidelines, D.P.U. 04-116-C Appendix at 3 (2007). Specifically, companies track service interruption

[79] The Company did not file a response to DOER's proposal to establish an ARC concept.

duration and frequency by circuit, and this information is available to communities in the annual service quality reports. In addition, the Department is opening a proceeding to review utilities' service quality and our existing Service Quality Guidelines. The Department invites DOER to participate in that proceeding.

VIII. REPORTING

Pursuant to 220 C.M.R. § 19.03(4)(a), each company is required to file an annual report demonstrating that it has complied with advance planning and training requirements for emergency events. During an emergency event, each company is required to provide periodic reports to the Department, regional MEMA representatives and municipal emergency managers, or their designees, that contain detailed information related to emergency conditions and restoration performance for each affected city and town. 220 C.M.R. § 19.03(4)(b). Following an emergency event, each company is required to submit a detailed report with supporting documentation to the Department on its restoration performance, including lessons learned. 220 C.M.R. § 19.03(4)(c); see also ERP Guidelines at Section VII. The frequency and contents of the necessary reports during the storm events is outlined in the ERP Guidelines, Attachment 3. The Company filed the required advance planning and training report, detailing meetings, trainings and an emergency drill, on September 9, 2011 (Exh. NG-6).

For T.S. Irene, the Company filed all required pre-event stage reports with the Department (Exhs. DPU 4-19; DPU 7-31 Att.). National Grid issued the first pre-event report on Thursday, August 25 at 5:34 p.m. (Exhs. DPU 4-19; DPU 7-31 Att.). The Company subsequently produced two to three reports per day through Saturday, August 27 for a total of eight pre-event reports (Exhs. DPU 4-19; DPU 7-31 Att.). During the service restoration phase

of T.S. Irene, National Grid submitted reports every four hours and every six hours as required by the ERP Guidelines (Exhs. DPU 2-1; DPU 2-2). The Company submitted its Final Event Report to the Department on October 3, 2011 (Exh. NG-1).

For the October Snowstorm, National Grid issued two pre-event stage reports on Friday, October 28 at 3:58 p.m. and on Saturday, October 29 at 8:45 a.m. (Exhs. DPU 4-20; DPU 7-32 Att.). During the service restoration phase, the Company submitted reports to the Department every four hours and every six hours as required by the ERP Guidelines (Exhs. DPU 3-1; DPU 3-2). National Grid submitted its Final Event Report to the Department on December 20, 2011 (Exh. NG-2).

Based on the above, the Department finds that the Company complied with the reporting requirements set forth in its ERP, 220 C.M.R. § 19.03(4), and the ERP Guidelines.

IX. MANAGEMENT AUDIT

A. DOER Proposal

On December 27, 2011, DOER filed comments recommending that the Department order a statewide investor-owned utility audit ("DOER Comments" at 5). DOER states that the audit should assess existing conditions, identify critical issues, and formulate recommendations that focus on, but are not limited to, employing new technology and high-level safety management techniques (DOER Comments at 5, citing Commonwealth Electric Company, D.P.U. 89-114/90-331/91-80 Phase One, at 197-198 (1991)). DOER urges the Department to require the utilities to engage various stakeholders, MEMA, and the municipalities in the assessment process (DOER Comments at 5). DOER states that the cost of this audit and the

resulting implementation measures should not be charged to the ratepayers, but rather imposed on the Company's shareholders and officers (DOER Comments at 5).

B. Analysis and Findings

The evidence demonstrates several overarching themes in National Grid's systematic failures in preparation and response to T.S. Irene and the October Snowstorm.[80] Therefore, the Department finds that the Company and ratepayers would benefit from a comprehensive independent management audit of the Company's management practices with regards to emergency planning, outage management and restoration. Pursuant to the Department's supervisory authority over National Grid, we order the Company to submit for Department approval a draft request for proposals ("RFP") which shall include a full description of the goals and processes associated with an independent management audit that would be comprehensive in scope and at a minimum would address: (1) emergency management systems, protocols and plans; (2) preparation for and management of restoration efforts with respect to emergency events; (3) the Company's emergency response resources and allocation of those resources during an emergency event; (4) communications with state, municipal and public safety officials

80 The Department notes that these are the not the first storms to which the Company has had a poor response. As mentioned above, the Department opened an investigation into National Grid's performance with respect to Winter Storm 2010. Although the Department accepted a settlement agreement in that case, we noted that the evidence demonstrated multiple failures by National Grid. D.P.U. 11-03, at 13 (2011). National Grid's response to four storms in 2006 contributed to its poor service quality performance in 2006, subjecting it to more than eight million dollars in penalties, the largest service quality penalty the Department has issued to date. Massachusetts Electric Company and Nantucket Electric Company 2006 Service Quality Reports, D.T.E./D.P.U. 07-22, at 25 n.25 (2009).

and with the Department; (5) dissemination of timely information to the public; and (6) identification of management recommendations.

The Company shall submit its draft RFP to the Department within 45 days of the issuance of this Order. The Department will accept comments on the RFP from intervening parties for ten business days from the date of the submission of the RFP. Within 30 days of Department approval of the RFP, the Company will issue the RFP to at least ten firms. Within 60 days of issuing the RFP, the Company will submit to the Department a filing that includes (1) copies of all bids, (2) the Company's proposed short list that includes at least three bidders, and (3) the Company's justification for its proposed short list. The Department will make the final selection from among the bidders or, finding no suitable bidder, the Department may direct the Company to re-issue the RFP. The Company shall submit a copy of the completed audit to the Department and the intervenors in this case.

X. CONCLUSIONS REGARDING PENALTIES AND RECOVERY OF COSTS

A. Summary of Penalties

The Department has found that the Company violated the Department's standards of acceptable performance for restoration of service by failing to restore service to its customers in a safe and reasonably prompt manner. The Department imposed a penalty of $8,150,000 for the Company's performance with respect to T.S. Irene, and of $10,575,000 for its performance with respect to the October Snowstorm. The total penalty to be paid by National Grid is $18,725,000.

B. Penalties Credited Back to Company Customers

1. Chapter 216 of the Acts of 2012

Chapter 216 of the Acts of 2012 took effect on August 6, 2012, after the close of the briefing period in this matter. Section 3 of Chapter 216, which amends G.L. c. 164 by adding Section 1K, states:

> Any penalty levied by the department against an investor-owned electric distribution, transmission or natural gas distribution company for any violation of the department's standards of acceptable performance for emergency preparation and restoration of service for electric and gas distribution companies shall be credited back to the company's customers in a manner determined by the department.

Acts of 2012, Chapter 216, § 3 ("Chapter 216, Section 3").

2. Attorney General's Motion

On November 1, 2012, the Attorney General filed a Motion for Leave to Supplement Reply Briefs ("Motion"). In her Motion, the Attorney General requests leave to supplement her reply brief to argue that any penalties the Department may impose in this proceeding should be refunded to ratepayers pursuant to Chapter 216, Section 3. In support of her Motion, the Attorney General argues that leave to supplement her reply brief should be granted for the following reasons: (a) a new and express legislative mandate to the Department was enacted after the close of the briefing period; (b) Section 3 is directly applicable to this proceeding; (c) the statute's effect on this proceeding could not have been briefed during the time established for briefs; and (d) considering the effect of the new law will protect the Company's customers (Motion at 3).

3. Analysis and Findings

The Department's procedural rules provide that deviation from the Department's procedural rules may be permitted for good cause shown and where to permit such deviation is not contrary to statute. 220 C.M.R. § 1.01(4). The Department finds that the Attorney General has shown good cause for considering her Motion because the amendment to G.L. c. 164 was made after the conclusion of the briefing period in this matter and could not previously been addressed (Motion at 1-2).

4. Attorney General's Supplemental Reply

In her Supplemental Reply, the Attorney General argues that even though Chapter 216, Section 3, was enacted after this docket was opened, the Department should apply Chapter 216, Section 3, retroactively to this case (Motion at 4). The Attorney General asserts that while statutes generally apply prospectively, those that have procedural or remedial effect, and do not affect substantive rights, operate retroactively and apply to pending cases (Motion at 5). The Attorney General contends that Section 3 is procedural in nature because it merely changes the disposition (and not the dollar amount) of the assessed monetary penalty (Motion at 5-6). Thus, she argues that any penalties imposed on the Company should be credited to the Company's customers (Motion at 6).

5. Analysis and Findings

We agree with the Attorney General that Chapter 216, Section 3, applies in this case and that the penalties levied by the Department in this Order must be credited back to the Company's customers in a manner the Department determines. Our reasoning, however, differs from the Attorney General's. We do not view this as a question of whether Section 3 should be applied

retroactively. Rather, the issue addressed by this statute – whether penalty money should go into the Commonwealth's General Fund or be credited back to ratepayers – only becomes ripe after the Department issues its final order in this proceeding. That is, the Department is issuing this Order after August 6, 2012, the date that Chapter 216, Section 3, went into effect and, thus, that statute is controlling. Unlike a situation where a statutory change impacts the rights or duties of a party in a Department case, this statutory change does not affect any of the parties and does not require them to do anything. Rather, the responsibility of properly placing the penalty money is the Department's and it is a responsibility the Department will exercise after it issues its final Order in this case.[81]

Chapter 216, Section 3, requires the Department to determine the manner by which the penalty money will be credited back to ratepayers. Thus, the Department directs the Company to submit a compliance filing within 30 days of the issuance of this Order, proposing a method for crediting the penalty monies to the Company's customers.

C. Recovery of Storm Costs

Pursuant to G.L. c. 164, § 85B if the Department finds that, as a result of the failure of the Company to implement its ERP, the length of the service interruptions or outages was materially longer than it would have been but for the Company's failure, the Department may deny the recovery of all, or any part of, the service restoration costs through distribution rates, commensurate with the degree and impact of the service interruptions or outages. To the extent the Company seeks recovery of storm costs in a future Department proceeding, the Department

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81 To the extent there is a question regarding retroactive application of the statute, the Department agrees with the Attorney General that Chapter 216, Section 3, is remedial in nature and, therefore, should be applied retroactively.

will address G.L. c. 164, § 85B and determine whether the Company's storm expenses were prudently incurred. D.P.U. 09-01-A at 195; Boston Gas Company, D.P.U. 93-60, at 24 (1993). The Department will consider in that proceeding whether or not to deny any of the Company's storm related expenses.

XI. NEXT STEPS

The Department is committed to taking every possible action to ensure that utilities provide safe and reliable service, both during emergency events and on a daily basis. Thus, the Department is taking various actions to further address utilities' emergency preparation and response and service quality.

First, the Department is opening a rulemaking to implement the new emergency response and vegetation management provisions set forth in Chapter 216 of the Acts of 2012. Among other changes, the Department will be modifying its regulations to (1) expand the specified information that companies must include in their ERPs; (2) require additional communication protocols; (3) expand companies' reporting requirements; and (4) specify certain vegetation maintenance activities.

Second, the Department has opened a proceeding to review the Company's existing ERP, D.P.U. 12-ERP-09. In this proceeding, the Department will review the Company's ERP to ensure that it meets all statutory and regulatory requirements, is consistent with the Department's guidelines, and incorporates lessons learned from these emergency events and other recent events.

Third, the Department will be reviewing its ERP Guidelines to ensure they are consistent with recent legislation and incorporate lessons learned since the Department's review in D.P.U. 10-02-A.

Fourth, the Department is opening a proceeding to review utilities' service quality. This proceeding will include a review of the Department's Service Quality Guidelines, D.P.U. 04-116-C Appendix (2007), which are used to measure the overall service quality of utility companies on a daily basis, rather than during emergency events. Service Quality Guidelines, D.P.U. 04-116-C Appendix at 3 (2007). The Service Quality Guidelines establish performance benchmarks for gas and electric companies on multiple measures relating to reliability, safety, customer service, and customer satisfaction. These Guidelines also set monetary penalties for poor performance for certain measures. The Department periodically reviews service quality and the governing guidelines to determine if any changes are necessary to improve the quality of service provided to customers. Service Quality Guidelines, D.P.U. 04-116, at 1-2 (2004). The Department will consider modifications to its Service Quality Guidelines to ensure that utilities are providing quality customer service and to identify areas for improvement.

Finally, on October 2, 2012, the Department opened an inquiry to investigate policies that will enable Massachusetts electric distribution companies and their customers to take advantage of grid modernization opportunities. Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid, D.P.U. 12-76, at 1 (October 2, 2012). In this proceeding, the Department is conducting a broad stakeholder process to ensure that electric distribution companies adopt grid modernization technologies and practices that, among other

benefits, will enhance the reliability of electricity service by helping to minimize outages and other disruptions to the electric grid.

XII. ORDER

Accordingly, after due notice, hearing and consideration, it is

ORDERED: That Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid shall pay a penalty of $18,725,000 to be credited back to customers; and it is

FURTHER ORDERED: That Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid shall submit a proposal, 30 days from the date of this Order, detailing how it intends to credit the penalty money back to its customers; and it is

FURTHER ORDERED: That Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid shall comply with all directives contained in this Order.

By Order of the Department,

/s/
Ann G. Berwick, Chair

/s/
Jolette A. Westbrook, Commissioner

/s/
David W. Cash, Commissioner

An appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part. Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. G.L. c. 25, § 5.