NTSB Information Request

Request 1: *Timeline of the electricity shutdown for Lawrence, Andover, and N. Andover on Sept. 13. In addition to times, please include:*

a. *Description of the process for shutting down electricity—who must be notified, and decision on which circuit districts to shut off; what information did National Grid need to shutdown safely?*
b. *Any challenges that arose during the process of shutting down, e.g., communication from the gas company or local officials; technology issues; feel free add whether something worked well in the process.*
c. *What are the general concerns with shutting down electrical power to a city or town? What/who is impacted? E.g. traffic lights, critical populations? How is this handled?*

Response 1:

Attachment 1 - NTSB Q1 provides the time when electricity was shut down for Lawrence, Andover and North Andover on September 13, 2018.

a. As part of its standard operating procedure, National Grid provides a dedicated priority phone number for Municipal First Responders. Requests to de-energize are typically received by the System Control Center from local Fire Department officials. Each request is evaluated on a case-by-case basis, but the information required for each request usually would include the specific location to be de-energized and the reason for the request.

   On September 13, 2018, National Grid received numerous requests to de-energize and each request was fulfilled, but required a case-by case resolution:

   - The initial request to de-energize power came from the Lawrence Director of Public Works, who was with the Mayor of Lawrence. They identified five schools that were being used for after school programs. At approximately 5:20 PM, they requested that National Grid de-energize the five schools in a cell phone conversation with National Grid's Community and Customer Manager, who then conferenced in National Grid employees in the New England Control Center. System Operators from the New England Control Center used the Outage Management System (OMS) to identify the supply feeders for those addresses and de-energized three of the five schools remotely at 5:33 PM. The two other schools were de-energized locally by sending a switch-person to open breakers at the substation.

   - The North Andover Fire Department used its dedicated priority phone number to request that National Grid to cut electrical service at the pole on Herrick Rd at about 6:10 PM. An overhead Troubleshooter subsequently arrived to disconnect the service at 7:13 PM.

- The remaining requests to de-energize areas came from Unified Command through the National Grid Senior Supervisor and Manager, all of whom were present at the Unified Command Center at the Lawrence Showcase Cinema. At approximately 6:36 PM, National Grid received a request from Unified Command to de-energize everything south of Merrimack Street in Lawrence. At approximately 7:26 PM, National Grid received requests to de-energize large geographic areas of Andover and North Andover. National Grid field personnel and the New England Control Center then worked together to determine which circuits needed to be de-energized.

b. The Company did face challenges in responding to the numerous requests to de-energize, but was prepared to respond and fulfilled all requests to de-energize without incident.

    - Each specific geographic area that made a request to de-energize involved multiple distribution feeders. Because the Company uses more than one distribution voltage and has multiple possible paths to serve customers in each area, several discussions were needed to understand the specific boundaries of each area to be de-energized.

    - Once the boundaries were identified, the Company used mapping tools to trace each feeder in the area to determine the source. Supply feeders originated from both within and outside the affected areas, making it a challenge to perform the traces.

    - Once the traces were completed and verified, the area was de-energized via a combination of remote control and switchmen in the field.

    - In addition, road traffic was another challenge to the Company, which slowed down crews who had to navigate through local and emergency traffic to open breakers.

    Numerous aspects of the response worked well:

    - National Grid's use of the Incident Command Structure;

    - Existing relationships and established communication lines between our Community and Customer Management team and First Responders;

    - Remote control capability for some of the electrical equipment; and

    - Experienced National Grid personnel in the field worked directly with community leadership.

c. The Company's main concern when shutting down power is public safety, specifically no traffic lights, loss of power to critical facilities like Police and Fire, hospitals, water and sewer treatment plants and critical care customers, among other things. These concerns

were addressed in coordination with local community officials, so that actions could be taken such as stationing police at major intersections.

Request 2: *Timeline of the electrical restoration process for Lawrence, Andover and N. Andover. In addition to times, please include:*

a. *Describe the process of restoring power to different neighborhoods—how did National Grid work together with the gas company and local officials to do this; what information did National Grid need to startup safely?*
b. *Any challenges that arose during the process of restoring power, e.g. communication between the gas company and local officials; technology issues; feel free add whether something worked well in the process.*

Response 2:

Attachment 2 - NTSB Q2 provides the timeline when electricity was restored for Lawrence, Andover and North Andover.

a. In order for National Grid to restore power safely to different neighborhoods, we needed to know from Columbia Gas and Fire personnel when each of the 8,570 Columbia Gas customers affected was safe to re-energize.

   The overall process included several steps. Columbia Gas needed to shut "off" and "clear" each location. "Off" and "clear" are technical terms: "off" indicates that the gas meter has been turned off and "clear" indicates that the property has been physically inspected and that no gas is present. Eversource verbally notified the Company when specific streets were "off and clear." We then compared that information to our electric print to determine when we could re-energize a neighborhood. After making that determination, the Electric Branch Director would call the appropriate community Fire Chief to get final clearance to re-energize. The Fire Chief, as a precaution, would send apparatus to the neighborhood about to be energized in case of a structure fire.

   As part of this process, the Company needed to accomplish several additional steps. First, National Grid needed a map of the Columbia Gas LP (Low Pressure) system on which we manually overlaid our 32 feeders. Second, the Company received lists of damaged structures from the various local Fire Chiefs and disconnected approximately 70 structures that were damaged. Third, we manually patrolled our feeders to ensure that there was no damage to our infrastructure. Fourth, we manually disconnected service to approximately 270 structures that Columbia Gas was unable to inspect to "clear". Fifth, we manually highlighted streets on the Columbia Gas LP map as they were deemed "off and clear" and compared that to our manually created map in step one. The Company made every attempt to re-energize at a street level, but that was not always possible based on the configuration of its electric feeders. Lastly, once we determined that an area could be restored, a call was made to the local Fire Chief for approval.

Once given the approval, we contacted the System Control Center to either close the feeder circuit breaker or give the overhead crew(s) a switching order to close field device(s).

b. The major challenge for National Grid was the time required for areas to be deemed "off and clear". Numerous steps in the process to restore electrical power went well:

- National Grid worked out of the Columbia Gas facility on Marston Street in order to facilitate the required communication;
- National Grid provided Columbia Gas and Eversource a prioritized list of streets to get "off and clear" that would maximize the speed of restoring power; and
- National Grid had Community and Customer Management personnel in the field with the Fire Chiefs.

Request 3: *Copy of the latest emergency response plan for the Lawrence, Andover and N. Andover area. If there is anything confidential, please stamp/label accordingly.*

a. Were any exercises/drills done with these local jurisdictions? If so, when was the date of the last one?

Response 3:

Attachment 3 - 2018 FINAL Redacted MA Electric ERP is National Grid's Electric Emergency Response Plan for Massachusetts (the ERP). The plan is updated yearly and is filed with the Massachusetts Department of Public Utilities.

a. We conduct an annual meeting for First Responders to review the ERP, review the previous year's incidents and any relevant emergency preparedness information. The Merrimack Valley annual Electric meeting, which includes Lawrence, Andover and North Andover, was conducted on June 13, 2018.

The following people attended from Lawrence, Andover and North Andover:

Lawrence:
Roy Vasque- Lawrence Police Chief
Tom Cuddy- Detective – Special Assistant to the Chief
Laura Alefantis- Lawrence Administrative Assistant
Martha Velez- Director, Lawrence Senior Center
Scott McNamara- Police Captain

Andover:
Patrick Keefe- Police Chief/EMD

Michael Mansfield- Fire chief
Frank Fitzgerald- Andover Police

North Andover:
William McCarthy- North Andover Fire Chief
Graham Rowe- North Andover Fire Department

We also conduct an annual drill, which may include some selected community First Responders. National Grid conducted a table top drill on May 24, 2018, that included Fire Chief William McCarthy of North Andover. The drill focused on the recent March storms and National Grid's performance of the ERP. The drill was used to conduct an After Action Review (AAR).

Request 4: *How many circuit districts are in the Lawrence, Andover, and N. Andover area?*

Response 4:

Please see our response to Question 1, as discussed with and agreed to by Rachael Gunaratnam on Tuesday, October 9th.

Request 5: *Did National Grid send over a representative on September 13 to join Unified Command? If so, what was the title of the person sent over.*

Response 5:

Yes, National Grid sent two people to join Unified Command at the Lawrence Showcase Cinemas on September 13th,: a Senior Supervisor of Overhead Operations and a Manager of Overhead Operations. In addition, National Grid sent two additional Senior Supervisors of Operations to the impacted area. One went to the Andover Emergency Command Center located at Andover High School and the other went to the North Andover Emergency Command Center located at the North Andover High School. All four National Grid field employees were in contact with each other and other supporting functions.

Request 6: *What was unique about this incident compared to other types of incidents like a natural disaster? What did National Grid have to do differently?*

Response 6:

This situation was unique insofar as there was no damage to the electric infrastructure. We were requested to de-energize our customers due to the Columbia Gas incident and, therefore, had to wait for others to clear the area before being able to re-energize safely. We normally control the entire restoration process (assess damage, clear faults and restore power) and, in this case, we did not.

We did several things differently than we would in a natural disaster:

- We worked out of the Columbia Gas building;
- We needed to get clearance from Fire Chiefs before re-energizing; and
- We needed to utilize Columbia Gas maps to determine an appropriate restoration plan.

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