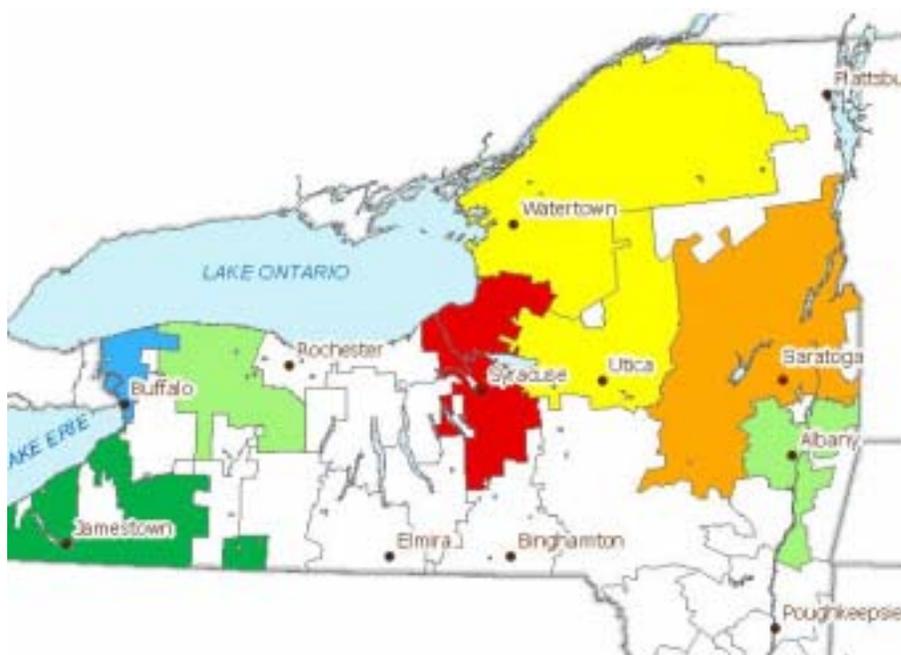


FEBRUARY 2006 WINDSTORM

A REPORT ON NATIONAL GRID'S PERFORMANCE



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EXECUTIVE SUMMARY

On February 17, 2006, a severe windstorm moved across New York State causing electric service interruptions in all utility service areas with the exception of Long Island. Niagara Mohawk Power Corporation, d/b/a National Grid (National Grid), was hit the hardest with interruptions experienced in every division of the company's service territory. Damage was most severe in its Eastern Division, with the restoration effort taking up to five days. This report provides Department of Public Service Staff's (Staff) assessment of the performance of National Grid before, during, and following the windstorm. Other utilities experienced much less storm damage, restored service to customers quickly, and are, therefore, not part of Staff's assessment.

The storm caused approximately 328,000 customers to experience electric service interruptions throughout New York State. About 211,000 National Grid customers lost their electric service. The storm initially hit western New York on Friday morning, February 17, 2006; as it crossed the State, it was expected to subside. Instead, it grew in intensity as it moved eastward, reaching a peak recorded wind speed of 98 miles-per-hour as measured at the Saratoga County Airport.

In New York, electric utilities subject to the jurisdiction of the Public Service Commission (Commission) that experience an emergency service restoration period exceeding three days are required to submit a report to the Commission assessing all aspects of their service restoration efforts.¹ National Grid complied with this requirement and provided several recommendations to improve its response to future storm events. The company's recommendations include: making improvements to its computerized outage management system, undertaking additional training initiatives, changing contractor schedules, and reviewing its storm plans to ensure that organizational changes are incorporated. After thorough review, Staff has concluded that, among other things, National Grid inadequately addressed staffing and communication issues. Staff has determined that National Grid's workforce staffing for day-to-day normal operational activities, including the supplemental use of contractors, leaves the company dependent on significant outside support when storms occur;

¹ 16NYCRR, Part 105.4(c)

therefore, National Grid needs to be more aggressive in the future when requesting mutual aid resources during emergency recovery actions.

The ability of customers to provide input on storm-related damage to the company and receive accurate information on the restoration progress is critical to an efficient outage recovery process. The company needs to improve the system it uses for recording outage locations and providing restoration time estimates. Likewise, information provided to media and public officials must be accurate and timely. National Grid also needs to do more to educate officials during non-storm periods regarding restoration priorities.

Staff expects National Grid to act on the recommendations provided herein. Staff will closely monitor National Grid's efforts to implement its own, as well as Staff's, recommendations in a timely manner. Where applicable, Staff's recommendations should be incorporated into National Grid's Electric Emergency Procedures.

National Grid should implement all recommendations by October 10, 2006, except those suggesting further study. The company should report to Staff by October 10 on its progress, and then every three months thereafter, as necessary. Staff will report to the Commission if any issues arise relating to this matter.

INTRODUCTION

On the morning of February 17, 2006, a massive storm front moved across New York State with gusting winds ranging from 48 mph in Western New York to 98 mph recorded at the Saratoga County Airport. The storm moved from Rochester to Boston, a distance of almost 400 miles, in six hours. High winds continued throughout the day and into Saturday, February 18. At the peak, there were approximately 328,000 customers Statewide without electric service.

By Saturday morning, February 18, most of the affected utilities had made significant progress in system restoration. Consolidated Edison Company of New York, Inc. (Con Edison) and Orange and Rockland Utilities, Inc. (O&R) completely restored their customers by Friday evening, February 17. Central Hudson Gas & Electric Corporation (CHG&E) and Rochester Gas and Electric Corporation (RG&E) customers

were fully restored on Saturday, February 18. New York State Electric & Gas Corporation (NYSEG) restoration efforts continued in the Plattsburgh, Geneva, and Mechanicville areas until Sunday, February 19. These utilities experienced much less storm damage than did National Grid and were able to restore service in less than three days. Table 1 below depicts the number of customers without power, by utility, at 4 PM on Friday, February 17:

Table 1

UTILITY	OUTAGES
National Grid	211,000
NYSEG	57,000
CHG&E	25,000
RG&E	25,000
O&R	9,000
Con Edison	1,000
TOTAL	328,000

Commission regulations require that utilities that experience service outages where the service restoration period exceeds three days must file self-assessment reports of their restoration efforts. Staff reviewed National Grid's report and performed its own independent storm preparation and recovery assessment. This report provides Staff's assessment of the performance of National Grid in restoring service to its customers. Because the other utilities experienced much less damage and restored service quickly, their restoration efforts were not addressed as part of this report. Staff's review process included submission of numerous interrogatories and review of responses, meetings with company personnel, conducting a public forum in Ticonderoga, and the gathering of other pertinent information.

NATIONAL GRID'S SELF-ASSESSMENT

National Grid's self-assessment report provided a chronology of events and considered many areas of its performance. The company's report identified several

weaknesses with its outage management system (PowerOn)² as deficiencies that need to be addressed, which include: the inability to handle the volume of calls experienced following the storm, estimated restoration time accuracy, program speed, the need to obtain additional software licenses to enable more personnel to use PowerOn, and increased personnel training. The company's report stated that the current operating practice of having line construction and repair contractor forces work four 10-hour day shifts per week, would be reviewed to consider providing coverage on the fifth workday. National Grid also proposed that additional training be required for the utility's staff that contact life-support customers and for employees performing other emergency restoration support activities. In addition, it proposed that each company division review its crew lodging capabilities and enhance its purchase agreements. Further, National Grid proposed that each company division review respective storm restoration plans to ensure that organizational changes made since National Grid took over the franchise are included in the emergency storm plans. Finally, it proposed that the company review its procedures and implement a more consistent process for safely managing downed wires.

ELECTRIC OPERATIONS

Storm Preparation

On Wednesday, February 15, 2006, weather reports received from forecasting sources predicted wind gusts up to 55 mph across the State on Friday, February 17. Forecasts predicted that wind gusts could be greatest in National Grid's Western Division Lakeshore area, less in the company's Central Division, and finally further diminished in the Eastern Division. At the corporate level, the company had a meeting among supervisors and managers of all three divisions to discuss staffing and required all contractor personnel to be available for storm restoration work.

² PowerOn is a software outage management system that facilitates storm restoration across National Grid's power system. As a predictive tool for locating distribution outages, PowerOn relies heavily on input from customer calls. PowerOn assists in the management of assigned and completed work as well as providing estimated restoration times for customers. Detailed information is available within the system for informing senior management as well as providing input data for the DPS Electric Outage Reporting System. Life-support customer notification is also managed in the PowerOn System.

Based on the weather forecasts, National Grid's corporate managers focused the company's primary preparation efforts on the Western and Central Divisions. The company planned to open the Western Division Storm Board³ at 6 PM Thursday, February 16, in preparation for the winds; the Central Division was to open its Storm Board at 7 AM, Friday morning; and the Eastern Division was to open its Storm Board by noon, Friday.

On Thursday afternoon, February 16, all New York utilities participated in a New York Mutual Assistance Group conference call with the Mid-Atlantic Mutual Assistance organization to determine crew availability.⁴ At that time, National Grid did not request any mutual aid from either the New York utilities or any other mutual assistance groups. With the forecast of potential weather damage affecting a significant portion of the Northeast, utilities did not know how many crews would be available for mutual assistance before the storm passed through their territory, or when their crews could be released to support other companies. Utilities that might have been willing to commit crews to National Grid prior to the storm would have been well outside the predicted weather pattern and had long travel times.

Later Thursday afternoon, the company scheduled 49 contractor line crews for stand-by duty. The contractors needed to be called in for Friday, February 17, because the contractor crews typically work 10-hour days, four days per week, Monday through Thursday. Subsequently, 15 additional contractor line crews were acquired and scheduled to report Friday. These 64 contractor line crews, plus the company crews, were to begin restoring service in the predicted hardest hit areas of the Western and Central Divisions as soon as they were needed.

National Grid prepared for the restoration effort in accordance with the procedures provided in its Emergency Plan. From the available weather forecasts, the company made reasonable pre-storm assessments to determine where to focus its

³ Storm Boards are decentralized restoration organizations that are located by division or operating area depending on the damaged area(s) within the company. Utility personnel with restoration management responsibilities are on duty at the Storm Board location and are prepared to coordinate restoration efforts.

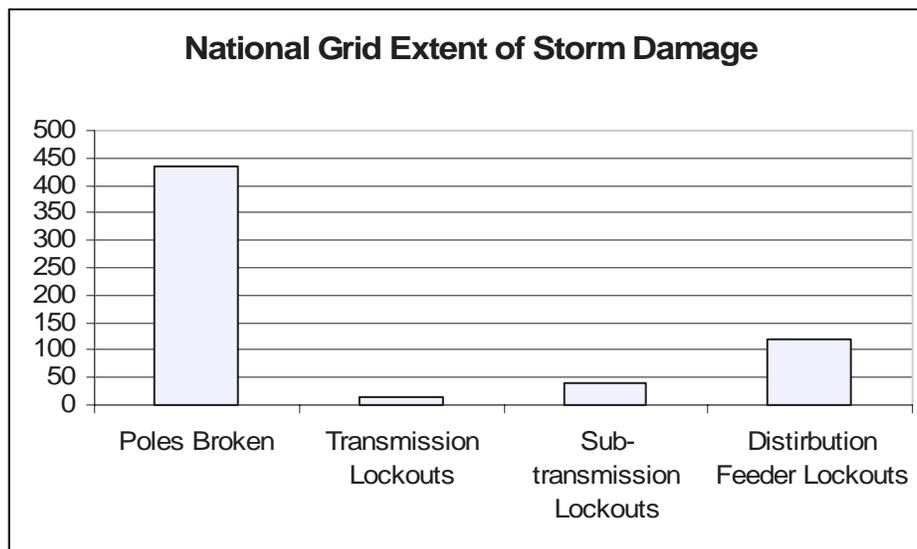
⁴ The New York Mutual Assistance Group consists of the seven major New York utilities to facilitate coordination of the sharing of line crew resources between utilities in the State during emergencies. The Mid-Atlantic Mutual Assistance is a similar organization involving the Mid-Atlantic States. Following the pre-storm call, additional conference calls were held during the restoration period.

initial restoration efforts, and to prepare its workforce in the Western Division to begin the restoration. Unfortunately, the storm did not occur as predicted which left other company divisions under-staffed considering the magnitude of the storm damage they received.

Damage Assessment

Damage to utility infrastructure was most extensive in the Eastern Division. The extent of damage to National Grid is shown in Figure 1. Of the over 425 poles broken company-wide, 240 were in the Eastern Division, 158 were in the Central Division, and only 27 were in the Western Division.

Figure 1



National Grid uses its outage management system, PowerOn, to manage restoration activities (unless there is major overhead facility damage). For major facility damage, National Grid's emergency plan requires that utility personnel undertake physical damage assessment surveys in two prioritized phases. Phase I is a physical survey/assessment of transmission, substations, and distribution primary line circuits. Phase II is a survey of the physical status of single primary distribution lines, low-voltage secondary lines, and customer-specific electrical services wires using the same surveyors after they have completed the Phase I surveys. The Western Division experienced less damage than expected and was able to rely upon its outage

management system for damage assessments throughout the storm restoration. The Eastern and Central Divisions, with considerably more damage, used both the outage management system and damage survey data.

The Eastern Division's efforts on Friday initially were focused on assessments of, and repairs to, the transmission system to eliminate transmission circuit failures. Some damage assessments of the distribution system started on Friday, but the number of assessments was limited. Due to continued high winds, a helicopter patrol of the Eastern Division transmission system was delayed until 9 AM Saturday. Winds dissipated considerably by early Friday evening in the east, but at nightfall the company suspended the distribution system assessments until first light on Saturday. As a result, the majority of Phase I distribution system damage assessments were not completed until Saturday, and the subsequent Phase II surveys were not completed until Sunday morning. In addition, National Grid does not perform damage assessment on distribution system facilities that are affected by transmission system outages until transmission service is restored to the distribution substations. Thus, no damage assessments were performed on distribution circuits affected by transmission outages until transmission service to the substations was restored on Saturday morning. Instead, crews continued to focus on transmission damage assessment and repairs throughout Friday night as a 24-hour operation and addressed only safety issues on the distribution system.

Early damage assessment is critical to an effective and efficient emergency restoration effort. The information gathered during the assessments is used to determine how many crews are needed and how best to use those crews. After the storm subsided, there were approximately 12 night-time hours during which there was no additional distribution system damage assessment information gathered for the restoration. The company, however, did continue its transmission restoration efforts throughout the night Friday. The company should have performed Phase I assessments on the distribution system during the night hours Friday to aid in dispatch of crews and to shorten the restoration duration.

Early Friday evening, and for a brief period Saturday afternoon, the outage management system was overwhelmed with calls and was incapable of providing

restoration management information, such as damage locations and estimated restoration times. This made the restoration coordination efforts harder to manage for the supervising personnel, and during the time the outage management system was overwhelmed, some customers were given erroneous estimated restoration times. The company identified several problems with its outage management system performance and proposes to take corrective actions.

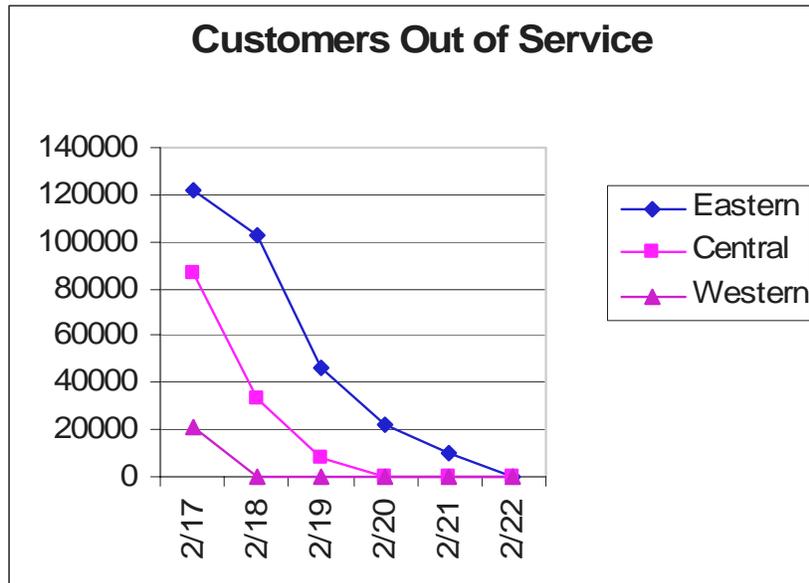
Recommendations:

- 1. National Grid should modify its distribution damage assessment survey criterion to ensure that night hours are used effectively when working conditions permit.***
- 2. National Grid should modify its emergency plan for damage survey procedures so that damage assessments on power distribution lines affected by power transmission failures are not delayed until the restoration of transmission service is complete.***
- 3. National Grid should correct its problems with the outage management system, fully test the system, and provide the results to Staff.***

Restoration

A graphic representation of customer outages and restoration times is shown in Figure 2. The Western Division was restored in one day, and the bulk of Central Division customers were restored within two days. Customer outages were greater and the restoration duration longer in the Eastern Division, with all customers being restored by February 22, five days after the storm.

Figure 2



The Western Division had 19,000 customers out-of-service at noon on Friday, February 17, with 114 crews restoring service, and increasing to 134 crews by 4 PM. Overall, the storm affected 20,654 customers in the Western Division. Service in this Division was completely restored by company and contractor crews by Saturday morning, February 18.

In the Central Division, 66,000 customers were out-of-service at noon on Friday, February 17, with 104 crews restoring service. By 4 PM, 169 crews were conducting restoration work in the Division. By Saturday noon, 257 crews were working to restore service to 33,000 customers. When 30 crews from the Western Division completed their storm restoration work Saturday afternoon, they were transferred to the Central Division. The storm affected service to 86,683 customers in the Central Division. Service was completely restored by Monday evening, February 20.

In the Eastern Division, initially 39,000 customers were reported out-of-service by noon Friday, February 17, with 81 crews assigned in the Division to restore service. Significant winds continued throughout Friday afternoon, and by 4 PM, 120,000 customers were without service, with 156 crews assigned and working on the restoration effort. Eastern Division management knew it still needed more crews on

Friday afternoon, and increased its morning pre-storm request to corporate staff for mutual aid (from other utilities) from 50 line crews to 100 line crews.

Nevertheless, National Grid (Corporate) only requested 50 line crews during New York Mutual Assistance Group conference calls, twice on Friday, and once on Saturday. New York's Mutual Assistance companies provided 20 company line crews, 7 contractor line crews, and 15 contractor tree crews arriving at National Grid on Saturday and Sunday. Eight O&R line crews and 15 contractor tree crews arrived in the Eastern Division Saturday morning. Twelve Con Edison line crews and 7 contractor line crews arrived Saturday night and Sunday. Additional crews were also requested from contractors; 70 contractor crews arrived in the Eastern Division on Saturday and Sunday. National Grid New York also received 46 crews on Saturday and Sunday from its sister companies in New England. The company had commitments from 301 line and tree crews for the restoration, most of them contractors, but roughly half of the crews did not arrive until Monday morning.

By noon on Saturday, 103,000 customers were still out-of-service in the Eastern Division. By 8 AM on Sunday, the transmission system had been restored and approximately 44,000 customers remained out-of-service in the Eastern Division. A substantial number of the customers remained out-of-service until approximately 5 PM on Sunday due to outages on the sub-transmission system. Ultimately, the storm affected 121,688 customers in the Eastern Division, and the restoration was complete late Wednesday, February 22. Staff found that because of the timing and circumstances of the storm, National Grid did not commence the Eastern Division distribution system restoration on Friday, February 17.

The company adhered to its priority for restoring service to customers as outlined in its electric emergency plan. The plan's first priority is transmission facilities, then substations, critical customers (i.e., telephone company facilities, nursing homes, radio and TV stations, etc.), life-support customers, distribution circuits, and streetlighting circuits. The distribution system priority is substations, three-phase primary circuits, single-phase primary circuits/taps, secondary circuits, and service lines. This restoration priority meets the goal of restoring service to the greatest number of people as soon as possible. National Grid's practice is for crews to restore three-phase

portions of distribution circuits first, and leave customers on single-phase circuits and tap portions out-of-service for longer periods. The application of crews in such a priority sequence has, at times, caused confusion among customers. Additional discussion follows later in this report. See recommendation #11.

The company followed its emergency plan for crew work schedules, which provides that crews should work mostly during daylight hours, and a majority of the crews should rest at night to maximize the crews' efforts. Many utilities use a similar restoration framework, and consider nighttime restoration less efficient than during daylight hours. For smaller storm restorations, National Grid will conduct a 24-hour distribution restoration operation where the work can be completed in approximately 24 hours or less. That was not the case, however, for the restoration of the distribution system after the February storm. When crews reached the end of their 17-hour shift, at approximately 11 PM, the restoration stopped and was scheduled to commence again at 6 AM. Between the hours of 11 PM and 6 AM, skeleton crews were on duty only responding to emergencies. In this restoration effort, the transmission repairs were a 24-hour operation.

Staff understands the efficiency benefits resulting from crews working during daylight hours. However, when there is sufficient work and crews are available, it is reasonable that additional progress can be made by working around-the-clock. This would apply to all storm restorations when sufficient work is available. The lack of available crews on Friday in the Eastern Division's restoration may not have given the company an opportunity to utilize the nighttime hours. However, when other New York companies had completed their restorations on Saturday and Sunday, additional crews should have been available, and National Grid should have made another request. Staff believes National Grid should have brought in more crews during the restoration efforts to enable the restoration operation to progress through the nighttime hours until the restoration was completed.

Recommendations:

- 4. National Grid needs to be more aggressive in the future and request more mutual aid resources during emergency recovery actions.***

5. *National Grid needs to make better use of nighttime hours to conduct restoration activities when work conditions permit to expedite the overall recovery effort.*

National Grid Workforce

Over the last seven years, the company's line crew workforce has changed considerably. The company had a decline in its qualified linemen (most experienced) from 659 (1999) to 550 (2004), down 16.5%. At the same time, the number of unqualified linemen (less experienced) increased from 17 to 116.

Staff meets with the company periodically for status updates on line crew staffing and to discuss concerns over the declining number of experienced personnel and company plans to replace an aging workforce (50-year-old average). In 2005, the company reported that qualified linemen declined to 536, but were supplemented with 108 qualified contracted linemen and 46 one person company crews. The contractors and one person line crews, however, are not one-for-one replacements for qualified company line crews. The contractors are qualified line crews, but they currently only work four 10-hour weekdays Monday through Thursday and are not required to have a residency within the operating region in which they work. Staff is concerned that these contractors have to be recalled in to work on Fridays and that they often have to travel further distances to the restoration area than company crews. National Grid's storm report acknowledges the lack of contractor crews available on Friday to respond to storm restoration and has recommended a review of the issue. The one person crews serve useful and efficient functions during storm restoration, but they are not qualified to work on all types of distribution system configurations alone and, thus, are limited in their role in aiding restoration efforts. They cannot be counted as a fully contributing line crew for the purpose of determining the appropriate crew staffing for emergency recovery.

All utilities are reducing company linemen and supplementing them with contractors. During large regional storm restorations, like the February 17 storm, all companies are vying for the same pool of contractor and mutual assistance resources. As National Grid has identified in its storm report, this reduces the number of crews that can quickly respond to restoration efforts. The utility industry, as well as National Grid,

balances its line workforce between day-to-day operational efficiencies, and having an adequate workforce available for storm restorations. Staff is concerned about skilled linemen and crew resource efficiency cuts, and that utilities seem to be increasingly struggling with storm restorations. National Grid's storm report did not have any recommendations concerning the lack of available restoration crews. If crews are not available early in the restoration process, the result will be longer storm restoration periods.

Recommendation:

- 6. National Grid should review its overall linemen needs and make the appropriate adjustments to improve its storm restoration response time and reliability. Also, National Grid should review the number of available mutual aid crews from companies it normally requests assistance and from other companies in close proximity to its franchise areas. The company should submit a comprehensive report to Staff on its workforce review with respect to storm restorations, normal operations maintenance activities, and reliability work.***

Essex County Restoration and Other Outlying Customer Areas

At the request of Essex County officials, a public hearing was held by the Department to get input on customer concerns. Among the concerns raised were the lack of National Grid's presence after the storm, estimated restoration times of 4-5 days, and the overall reliability of the electric system in their area. Additional discussion of customer service issues appear later in this report.

The low customer outage density in Essex County did not meet the company's top restoration priority profile compared to more densely populated areas, such as Saratoga and Glens Falls. As a result, crews were focused on restoring service to the largest number of customers as quickly as possible. This restoration scenario is not unique as other less densely populated areas across National Grid's territory would be restored in the same priority protocol under the same circumstances. Staff recognizes that low customer density areas and customers at the end of circuits will experience longer restoration times, but outlying storm damage areas should still

receive a timely restoration effort, especially for essential support services within the area.

Staff found that service to most customers in Essex County was restored by Sunday evening, nearly three days sooner than some other customers in the Eastern Division. The longer restoration time estimates of 4-5 days given to the customers on Saturday created customer confusion.

Customers in Westport, Essex County, also had concerns regarding overall poor reliability. The reliability in Essex County from 2000 to 2005 saw a significant decline in performance in 2004 and 2005. Customers experienced more and longer interruptions during this time than in previous years. National Grid reports deteriorated equipment, interruptions caused by trees, and increased lightning strikes as the major causes of the decline in reliability performance. The company has a plan to improve reliability in this area and reports reliability enhancements are targeted for transmission, sub-transmission, and distribution systems serving Essex County. Improvements include augmenting tree trimming, danger tree removal, right-of-way clearing, increasing equipment replacement (pole, cross-arms, insulators, etc), replacing a substation transformer, rebuilding transmission and distribution lines, adding reclosers, improving fuse coordination, and improving a mobile substation connection.

Some customers raised the possibility of a distribution tie to NYSEG, which serves Elizabethtown, approximately seven miles away, that appeared to have better reliability than Westport. National Grid previously did an assessment with NYSEG on the feasibility of constructing a tie between Westport and Elizabethtown. National Grid determined that while the tie can be completed, the reliability impact on Westport would not be significantly improved by the tie. Staff is in the process of reviewing the company's assessment of the tie to Westport.

Recommendation:

- 7. National Grid should submit to Staff quarterly status reports on the planned reliability maintenance and improvements in Essex County until they are completed.***

Transmission Right-of-Way Maintenance

Transmission, for this component of the investigation, included voltage classes from 34.5 kV to 345 kV. Staff focused its rights-of-way (ROW) management storm investigation in four areas:

- Adequacy of ROW maintenance practices in view of sustained storm damages,
- Accessibility of ROW in regard to repair crew response,
- Condition of vegetation on and along the ROW relative to the degree of storm damage, and
- Changes that may improve system stability against storm impacts in the future.

National Grid's ROW maintenance program is governed by its ROW Maintenance Plan approved by the New York State Public Service Commission (PSC) under Part 84 of the Commission's Rules and Regulations. National Grid has adopted increasingly aggressive ROW maintenance practices over recent years and specifically in response to the Commission's ROW Management Order issued in 2005 in Case 04-E-0822. Two key conditions contained in this Order deal directly with electric transmission line storm resistance; one condition deals with the treatment of all undesirable vegetation within ROW limits and the other addresses implementing a robust danger tree management program.

There were transmission outages in National Grid's Central and Eastern Divisions caused by trees. The majority of the outages were on 34.5 kV and 46 kV lines. Only three outages occurred on 115 kV lines. There were no tree-caused outages on 230 kV or above lines. Staff field employees inspected approximately half of the ROW sites where outages occurred from tree contact. The majority of the trees that contacted the lines were located outside the ROW (for the lines that had established ROW limits either in fee or easement) and had uprooted and fallen over. The remaining outages were caused by large tree branches falling onto the wires. For each line that was interrupted, Staff requested information as to when that line was trimmed or widened, and when danger trees were removed, in addition to the vegetation removal rights or ROW width of each ROW. All of the affected lines had some work

done on them, i.e., danger tree removal, trimming, or widening within the last five years. Of all the lines impacted, the Gloversville to Canajoharie #6, Chestertown to North Creek #2, and the Browns Falls to Colony to Newton Falls #22 have had the least amount of work performed. The only obvious correlation tying the amount and timing of tree work and ROW width to the degree of storm damage sustained is on the 69 kV Gloversville to Canajoharie #6 line. This line had numerous tree contacts during the storm. The company reported that this line received some trimming work in 2000, but had not received any danger tree or widening work. Beyond the aforementioned line outages on the Gloversville to Canajoharie line, Staff did not find any other instances where ROW maintenance activities, or lack thereof, or unreasonably narrow ROW widths, significantly contributed to the degree of tree contacts.

ROW widths play a distinct role in the ability of a particular line to withstand storm impacts from vegetation. A ROW that is cleared of trees that would be able to reach the electric conductors will almost never have an outage from trees. ROW widths, or more importantly vegetation management rights, vary among and between voltage classes. Most of the outages were on 34.5 kV and 46 kV lines (sub-transmission). These lines usually have narrower ROWs than higher voltage lines due to clearance specifications and construction needs. Often, these poles are shorter, being the same size as distribution poles, about 35-40 feet in height. Therefore, these lines are more susceptible to tree contacts than higher voltage lines. Moreover, when budgeting for tree clearance work, these lines are generally managed with the following rules-of-thumb in mind:

- That these lines are not usually radial feeds and, therefore, can withstand a certain amount of impact without affecting customer reliability;
- Given the expansiveness of National Grid's 34.5 kV and 46 kV system, resources can become exhausted if extensive tree removals are performed; and,
- Tree clearance rights for the lines can be weaker/narrower than on larger voltage transmission ROW.

It is reasonable, therefore, to expect a higher incidence of tree contacts on the lower voltage transmission lines during major storms. Nonetheless, National Grid

should review its line clearance and danger tree program specifications relative to the reliability importance of each 34.5 kV and 46 kV circuit and determine the best use of maintenance dollars.

Recommendation:

- 8. National Grid should review its line clearance and danger tree program specifications relative to the reliability importance of each 34.5 kV and 46 kV circuit and determine the best use of maintenance dollars.***

CUSTOMER SERVICE

Staff reviewed National Grid's communications activities with its customers, the media, public officials, and life-support customers. Staff also reviewed National Grid's communications operating procedures, complaint information, and information it provided to the company's Contact Center. To gain direct input from residents of Essex County, Staff held a public forum in Ticonderoga on March 30, 2006, and attendees' comments are incorporated in this report. In addition, Staff interviewed public officials from the North Country and conducted a telephone survey of a random sample of life-support customers.

Communications

As part of National Grid's general storm preparations, it communicates with its customers throughout the year regarding storm preparedness. In its July/August 2005 and November/ December 2005 bill inserts, National Grid notified customers of how to view on its web-site, or otherwise order, the brochure, "How to Prepare for and Respond to Power Outages," but does not, as a matter of course, provide copies to customers. When National Grid meets with customers or municipal officials, its safety and storm restoration procedures are typically discussed. Also, when National Grid provides exhibits at community events, its Emergency Preparedness brochure is usually available.

During and following the February windstorm, National Grid was unable to live up to its customers' expectations to provide them with outage information and accurate estimates as to when power would be restored. Customers need this

information to enable them to make critical decisions as to whether to stay in their homes to protect them from damage or to secure them from possible vandalism, to provide for special needs of their family members, and to decide how best to care for family pets.

Due to the high volume of information being put into the system and the number of customer calls being received, National Grid's outage management system⁵ failed on a number of occasions during the restoration period as discussed earlier. As a result, the Customer Contact Center representatives were unable to supply accurate restoration information to customers during those periods. The February 2006 storm event was the largest storm to occur since its new outage management system was implemented. The storm response process revealed several gaps in the system's performance that require attention. The Customer Contact Center representatives were unable to supply accurate restoration information to customers during those periods.

National Grid's Customer Contact Center staff participated in divisional and system-wide conference calls with its Operations group two or three times a day during the duration of the storm restoration period. Information from the conference calls and other sources was summarized in "outage notes" and provided to the customer service representatives. This data was also used in recorded phone messages that provided callers with information about the status of restoration in specific locations. Account managers also used e-mails to forewarn customers and public officials prior to the storm. National Grid admitted, however, that communications with customers who telephoned the contact center were not adequate because of the problems experienced with its outage management system, since representatives lacked the ability to provide accurate information on estimated restoration times. National Grid indicated in its storm report that it is working to make its outage management system better able to provide restoration information.

Recommendation:

- 9. National Grid should provide a copy of its emergency preparedness brochure, "How to Prepare for and Respond to Power Outages," annually to all customers.***

⁵ See footnote 1 for description of National Grid's outage management system.

Contact with Public Officials

As part of its review, Staff contacted public officials at different levels of government in the outage areas, including several mayors and town supervisors. Staff found that the company did not initiate contact with many of these officials, but rather, some officials had to contact the company. The officials told Staff that they obtained information about restoration of service in different ways; one official spoke with National Grid crews while they were taking breaks at a local convenience store, while another got his information from the local news. Another official stated that his phone calls to the company were not returned.

Once contacted, however, the company did answer questions and provide information. The public officials stated that the information, although not always good news, was helpful because many of their constituents had contacted them for information about when service was expected to be restored. One official said that after speaking with the company and learning that his town could be without service for several more days, he decided to open a shelter for his town's citizens.

The company indicated it also makes additional official contacts, as deemed appropriate, based on the intensity and expected duration of the outage. During the February windstorm, members of the New York State Senate and Assembly whose areas were most affected were also called.

Some public officials told Staff that they believe there is a need to improve the company's communication and, according to one elected official, poor communication was the biggest problem. These officials believe that the company was not proactive enough and did not provide these officials with important information. Other officials reported satisfactory communications with the company.

After service was restored, Staff met with the company to discuss the communications difficulties encountered by some public officials. Staff recommended that National Grid consider holding daily conference calls to brief public officials during a major event, as NYSEG did when its service territory was hit by a windstorm in January. National Grid has agreed to conduct these types of briefings during future major events.

Recommendations:

10. ***National Grid should be consistent and proactive in providing information, including holding daily conference calls, to brief public officials during a major event.***

11. ***National Grid should educate its customers and public officials about the restoration process, including restoration priorities.***

Public Forum in Ticonderoga

In March, at the request of Dan Connell, Supervisor, Town of Westport, the Department held a public forum in Ticonderoga. The forum provided an opportunity to comment on the impact of the windstorm and issues related to National Grid's general response and restoration efforts, communications with customers during and after the storm, care of customers who use life-support equipment, communications with emergency service providers and critical care facilities, and communications with elected officials. Speakers at the Forum included: Supervisors from the Towns of Moriah, Westport, and Ticonderoga; the President of the Westport Chamber of Commerce; the Westport Superintendent of Schools; the Westport Town Clerk; the President of the Community Power Network of NYS; a representative of the North Warren School District; and several residents of the Town of Westport.

Generally, the comments were either about the restoration of services or the reliability issues in the Town of Westport. The comments about the windstorm included: the company's inability to provide specific restoration times; the length of time it took to restore service; the company's inability to explain why only one-half of the Town of Ticonderoga had service, criticism of the reduction in the number of crews, and the lack of expertise of National Grid crews. The Town of Westport comments concerned general on-going problems experienced with frequent outages, unreliable service and the resulting effects.

Following the restoration of service, the company has communicated with customers in Essex County by running an ad in the Plattsburgh Press-Republican and four area weeklies with information about the work being done to improve the day-to-day service to the electrical system in Essex County and the surrounding

counties, as well as improving on their storm response communications. It has written twice to its customers who spoke at the forum in Ticonderoga to update them on the company plans and progress. In addition, the company met in June with the County Board of Supervisors. At that meeting, the company described the projects either currently underway or in the plans.

Customer Contact Centers

Prior to the storm, National Grid had implemented changes to its call routing process so that all calls would go through its Interactive Voice Response (IVR) system.⁶ More than 150,000 calls were received by the IVR; 65% of the people who heard the messages on the IVR did not opt to speak with a representative to get additional information. The calls from people who wanted to speak with a representative were placed into a queue. National Grid's Service Quality Standard for average speed of answer is 76% of calls answered in less than 30 seconds. During the five-day storm period, company representatives answered 85% of those calls in less than 30 seconds. During and following the storm, 74,219 calls were placed into its queue and 70,418 were answered.

National Grid provided 24-hour phone coverage for all divisions at its Customer Contact Centers in Syracuse and Buffalo. Its ability to communicate with its customers calling in to the phone center was generally adequate. During one period (less than one hour), the Syracuse Contact Center experienced an overload of its trunk capacity resulting in a trunk busy-signal condition, which restricted the number of calls that could reach the Center. Another problem occurred when the Buffalo Contact Center lost computers for 40 minutes.

Recommendation:

- 12. National Grid should identify and correct the cause for the overload of its trunk capacity in Syracuse and the loss of computers at the Buffalo Contact Center.***

⁶ Customers could listen to a message on the IVR about the restoration of service, and if they wished, they had the option to speak with a representative.

Media

From Friday, February 17 through Wednesday, February 22, the company made available recorded briefings that could be accessed by the media calling a dedicated phone line. These briefings were updated during the day to accommodate the news cycle. The recordings provided information about the numbers of customers who had no service, when restoration was expected, and suggested customer tips to follow after the windstorm.⁷ In addition, more than 200 media interviews were conducted by the company's Corporate Communications Department. Staff finds that this meets acceptable levels of performance and has no recommendations for improvements in this area.

Life-support Customers

Throughout the windstorm outage, the company maintained contact with its 140 Life-support Equipment (LSE) customers. National Grid's outage management system facilitates the identification of LSE customers experiencing outages. In addition, after power in the LSE customers' areas is restored, company representatives call them to confirm that their individual service has been restored.

Staff contacted 10 percent of the LSE customers. Many of them said that they usually initiate a telephone call to the company when they lose power, pre-empting the company representatives calling them. Others, however, did report that National Grid always calls when there is a power outage. All those contacted reported that they appreciated the service, but would have liked more accurate restoration information and earlier service restoration. Staff has no further recommendations for improvements to these efforts.

CONCLUSION

Based on the analysis of the information developed, Staff has identified a number of areas where National Grid needs to improve its storm restoration performance. National Grid needs to improve its acquisition and use of crews, both

⁷ For example, never touch fallen power lines and only burn approved materials in fireplaces, and if using a portable space heater for warmth during the outage, be careful to check periodically to be sure nearby objects do not feel hot as some heaters can become hot enough to ignite draperies, carpets, etc.

internal to the company and from outside sources. Timely deployment of resources for damage assessment and restoration are necessary to get the most customers returned to service as quickly as possible.

The company needs to improve the system used for recording outage locations and providing restoration time estimates. Receiving information from customers and providing them with accurate information is critical to outage restoration success. Likewise, information provided to the media and public officials must be accurate and timely. National Grid can do more to educate officials during non-storm periods regarding restoration priorities so that there is less confusion during storm events.

There have been many storms across the State this year and more storms are probable. Therefore, it is important that Staff's recommendations be implemented as soon as possible. National Grid should implement all recommendations by October 10, 2006, except those suggesting further study. The company should report to Staff by October 10 on its progress, and then every three months thereafter, as necessary. Additionally, Staff's recommendations should be formalized through incorporation into the company's emergency plan, as appropriate. Staff will report to the Commission if any issues arise relating to this matter.