



A CMS Energy Company

May 15, 2017

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**Re: Case No. U-18346 – In the matter, on the Commission's own motion to review the response of CONSUMERS ENERGY COMPANY AND DTE ELECTRIC COMPANY to recent storm damage in their service territories.**

Dear Ms. Kale:

Enclosed for electronic filing, in the above-captioned case, please find **Consumers Energy Company's Report in Response to MPSC Order in Case No. U-18346 – March 2017 Wind Storm**. This is a paperless filing and is therefore being filed only in a PDF format.

Sincerely,

Gary A. Gensch, Jr.

**Consumers Energy Company's Report in Response to MPSC Order in  
Case No. U-18346 – March 2017 Wind Storm**



Photo courtesy MLive.

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## **I. MPSC Inquiry**

In the aftermath of the severe and unprecedented wind storm that impacted Michigan's Upper and Lower Peninsulas on March 7 through 8, 2017, the Michigan Public Service Commission ("MPSC" or the "Commission") issued an Order in Case No. U-18346 (March 28, 2017) initiating a review of the utilities' responses to the wind storm. The Commission required Consumers Energy Company ("Consumers Energy" or the "Company") and DTE Electric Company each file a report addressing the following issues:

- (1) How the wind storm affected the utilities' distribution systems;
- (2) How the utilities prepared for and responded to the storm;
- (3) Whether any changes could be implemented to reduce the potential for future power outages of the same magnitude;
- (4) Whether the utilities were properly prepared to receive and respond to customer calls to report outages and if the utilities' customer communications were adequate;
- (5) Whether the utilities sufficiently addressed all public safety concerns associated with downed power lines in a timely manner;
- (6) The accessibility of outage maps and how that could be improved; and
- (7) The performance of Advanced Metering Infrastructure ("AMI") meters and other online communications.

In this Report, Consumers Energy addresses each of the above issues identified by the Commission, and provides information regarding the severity of the wind storm, its impact, and Consumers Energy's significant and effective restoration efforts.

## **II. Storm Summary**

On Tuesday, March 7, 2017, a strong low pressure system entered Ontario and resided there into Wednesday, March 8, 2017. This area of low pressure induced strong westerly flow that brought three periods of high winds over the state of Michigan. Thunderstorms appeared along the cold front, which brought 40 – 55 mph gusts into mostly western and northern Michigan on Tuesday morning. On Wednesday, there was a secondary period of strong winds (40 – 53 mph) followed by widespread damaging winds (50 – 65 mph) across Lower Michigan. This storm caused significant customer outages due to near tropical storm strength winds accompanied by heavy rain impacting trees and equipment on Consumers Energy's electric system. This storm resulted in the 15<sup>th</sup> most customer outages in the Company's 130-year history and was an all-time combined record for Michigan residents. Figures 1 and 2 display images of the notification sent on March 7 from the National Weather Service and the wind path from Weather Sentry.

Figure 1 March 8 Wind Forecast from National Weather Service

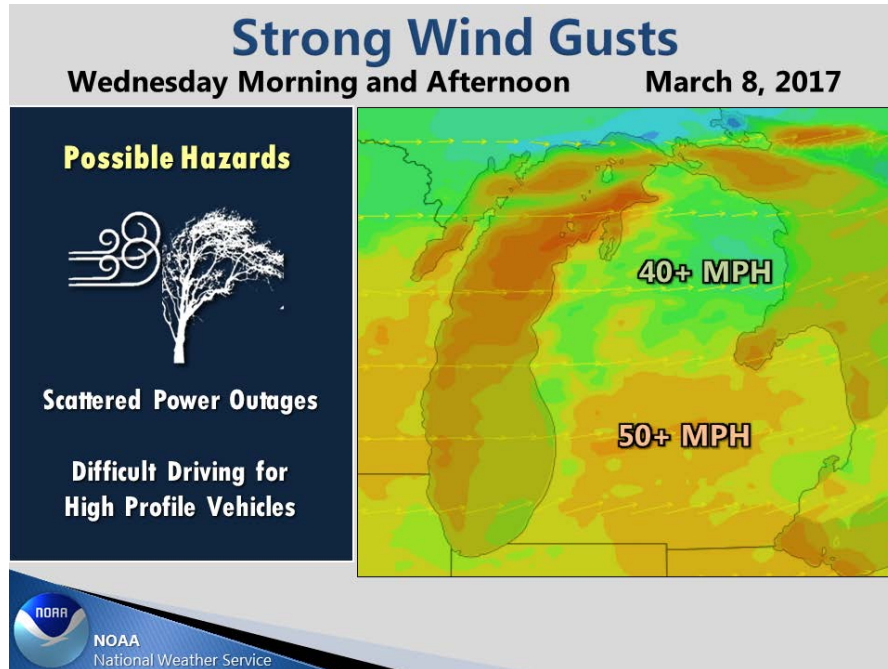
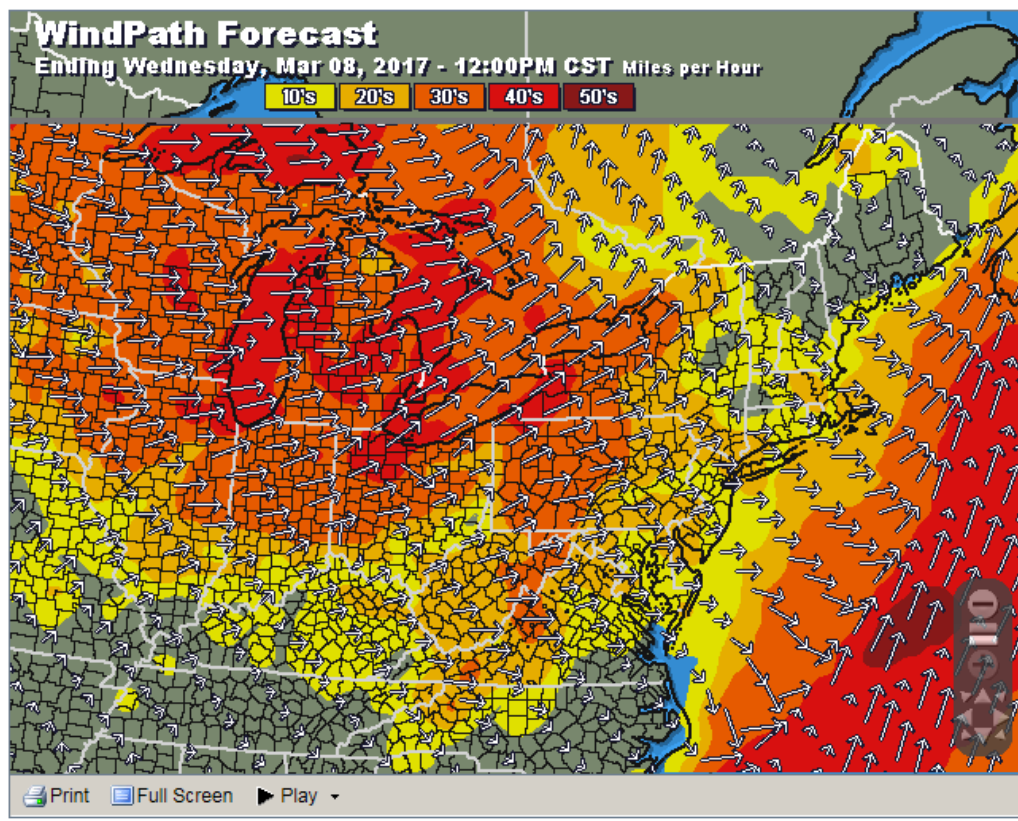


Figure 2 Weather Sentry Wind Pattern for March 8



Initial notification of the potential weather impact was communicated to Consumers Energy by Schneider Electric (weather vendor) during the Thursday, March 2 weather update, but confidence and

probabilities were still low at that time. Consumers Energy monitored the weather daily leading up to the event through calls and weather vendor e-mail notifications. Additional preemptive restoration planning began on Monday, March 6 after the initial weather call with the vendor meteorologist at 8:00 a.m. The Company took advantage of this opportunity to formally implement its Incident Command System (“ICS”) at the statewide level. ICS is primarily a command and control system delineating job responsibilities and organizational structure for the purpose of managing operations for all types of emergency incidents. ICS helps to ensure the safety of responders and the public, the achievement of tactical objectives, and effective and efficient use of resources.

Company, Contractor, and Mutual Assistance line crews and Forestry crews were mobilized to respond to this event. Office support and Field Leadership were established to provide 24-hour management of the restoration effort. In-state contracted line and Forestry crews were placed on call prior to the weather impacting the state. Expanded public communications via news releases, interviews, press conferences, and social media were employed on March 6 to inform customers of the weather situation, safety tips, and the Company’s restoration activities. Consumers Energy also engaged local and state emergency response organizations to coordinate communications, restoration activities, and public safety outreach.

The cumulative number of customers interrupted over the duration of the storm was approximately 358,000<sup>1</sup> (20% of Consumers Energy’s 1.8 million electric customers). From the start of the event on March 7 at 3:00 a.m., Consumers Energy restored 50% of the impacted customers within the first 55 hours, or by mid-morning on March 9, and 99% of the customers affected by the storm were restored by 6:00 p.m. Sunday, March 12. The total estimated cost for the restoration is \$33 million and estimated potential insurance recovery is between \$11 and \$18 million.

Consumers Energy recognizes that the storm’s magnitude and duration caused great challenges for its customers. Among these were:

- Being without power, heat, and in some instances water;
- Damage to their homes and neighborhoods from falling debris;
- Commercial/Industrial equipment impacts; and
- Interruption to business and production.

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<sup>1</sup> The original reported customer outage count for this storm was over 360,000. Post-storm outage management system data review and analysis identified and eliminated duplicate incidents and resulted in a revised customer outage count.



Fully aware of these challenges, Consumers Energy mobilized all available and qualified office and field resources to expedite the restoration. From March 7 through March 13, Consumers Energy employees, Contractors, and Mutual Assistance line crews worked around the clock to restore power to homes and businesses affected by the historic wind event. In total, approximately 4,058 field and office workers were engaged in the restoration, including Contractor and Mutual Assistance line crews and Forestry crews.

### **III. Impact on the Distribution System (MPSC Topic No. 1)**

The total number of customers impacted by the wind storm from Tuesday, March 7 through Sunday, March 12 was 357,965. The total number of outage incidents experienced was 9,538. The counties that had more than 10,000 customers impacted during the storm event were Kent, Jackson, Genesee, Kalamazoo, Barry, Lenawee, Calhoun, Ionia, Saginaw, and Allegan. Figure 3 displays customer impact by county.

**March 2017 Storm**

**Legend Percentage**

- 0.00% to 10.99%
- 11% to 19.99%
- 20.01% to 29.99%
- 30% to 39.99%
- 40% to 49.99%
- 50% to 69.99%
- 70% to 79.99%
- 80.00%

**ALCONA → COUNTY**  
4082 → Customers Impacted  
11522 → Total customers served  
35.24% → Percent of customers impacted

**MAP COMPILED BY:**  
**CONSUMERS ENERGY**  
**ELECTRIC - GEOSPATIAL**  
**MANAGEMENT & DATA QUALITY**  
For Questions Contact:  
Harry Pence 916.530-4344  
05/02/2017 NEK

30 15 0 30 Miles

rp0517-1-233

Figure 4 LVD System Impacts

| Low Voltage Distribution System Impacts |               |                  |
|---|---------------|------------------|
| Equipment Replaced                      | Cross Arms    | 845              |
|   | Poles         | 799 <sup>2</sup> |
|   | Transformers  | 236              |
| Hazards                                 | Wire Downs    | 5,906            |
|   | Trees on Line | 3,835            |

During this event, the HVD system experienced 17 line lock outs and 15 line trip and recloses (including six that later locked out). Fifteen lines were forced from service to perform repairs identified during the post-storm assessments including two that had locked out and seven that had tripped and reclosed. HVD substations experienced zero customer interruptions. However, the Elm Street Substation in Battle Creek had a transformer bank relay off due to a broken pole in the substation. The impact on the HVD system is summarized in Figure 5.

Figure 5 HVD System Impacts

| High Voltage Distribution System Impacts |                      |    |
|--|----------------------|----|
| Line Equipment Replaced                  | Poles                | 16 |
|  | Cross Arm Assemblies | 15 |
|  | Down Guy Wire        | 1  |
|  | Down Ground          | 2  |
|  | Conductor Tie        | 1  |
| Substation Equipment Replaced            | Broken Pole          | 1  |
| Hazards                                  | Tree on Line         | 14 |

<sup>2</sup> The number of damaged poles reported during the storm was approximately 1,400 based on information available at the time. Post-storm system data review identified and eliminated duplicate poles and resulted in a revised pole replacement count.

#### **IV. Consumers Energy Response**

Consumers Energy's restoration process for major weather events, including the March wind storm, consists of six primary elements:

- Continuous monitoring of weather to identify system threats;
- Preparation and planning for weather events and their impact on customers;
- Mobilizing office and field resources, including Mutual Assistance resources if necessary;
- Executing and monitoring the restoration plan:
  - Wire down management,
  - Damage assessment, and
  - Restoration and repair;
- Notifying and communicating throughout the event with public and governmental agencies as well as emergency managers; and
- Performing post-storm assessment to improve capabilities for future events.

##### **A. Pre-Storm Preparation and Storm Restoration (MPSC Topic No. 2)**

##### **Pre-Storm Preparation**

Consumers Energy relies on multiple weather services along with on-call meteorologist support to identify significant weather events prior to impacting the electric system. On a daily basis, Consumers Energy personnel monitor current and forecasted weather conditions with a contracted weather service (MxVision Weather Sentry Online by Schneider Electric) and other publicly available services (e.g. National Weather Service, Weather Underground, Weather Channel, etc.). At a minimum, weather calls are held weekly on Monday and Thursday, increasing to daily or multiple times per day when there is a potential for weather impact and during restoration activities. The calls are attended by individuals in key leadership roles, such as the Statewide Incident Commander, Operations Section Chiefs, Information Technology ("IT") representatives, Local Incident Commanders, and Restoration Management Team members, and serve as pre-planning events by themselves.

The initial potential for a wind event was communicated in a five-day outlook on Thursday, March 2. Initial predictions indicated that isolated rain showers and thunderstorms were possible with the best chance on Monday night, March 6. There was a risk of isolated wind gusts during the storms near the lakeshore with winds peaking at 35 – 40 mph. This information was communicated to Consumers Energy's restoration representatives on the regular Thursday weekend pre-planning call. Additionally, as a result of this prediction, daily weather briefings were conducted up to the event to ensure the most

accurate and timely information available for planning purposes. On Friday, March 3, the weather update indicated continued risk of rain showers with embedded thunderstorms and low lightning intensity for Consumers Energy's Lakeshore, Grand Rapids, and Southwest areas, with peak gusts of 40 – 45 mph possible. Over the weekend the forecast was continuously refined including specific timing for the thunderstorms and the hazard gusts of 40 – 45 mph into Wednesday. It was not until the morning of Tuesday, March 7 that the forecast included frequent wind gusts in the 45 – 55 mph range with peak gusts in the 55 – 60 mph range.

After the forecast on Monday, March 6 at 8:00 a.m., Consumers Energy conducted a 12:30 p.m. pre-planning conference call with operations and support leadership roles. Prior to the call, the following tactics were implemented:

- Requested 24 contractor crews to be placed on call, along with 4 to 6 Field Supervisors to manage them;
- Placed two additional HVD crews on call;
- Extended coverage requested for Forestry crews in the evenings;
- Requested 24-hour coverage for all office support roles, including leadership;
- Prepared a media release to notify the public of preparation and potential for a weather event;
- Posted a proactive storm preparation message on the Company's social media pages;
- Confirmed critical material inventories in the major distribution centers and mobile storeroom vehicles;
- Notified emergency managers of preparation and potential for a weather event;
- Validated any maintenance needs for fleet vehicles including special equipment, such as flex tracks and back yard pole setters;
- Placed enhanced on call for the Contact Centers, which consisted of 12-hour coverage periods for all representatives and leadership, as well as 52 standby resources per day for the storm period; and
- Performed IT system health checks.

The pre-planning call validated the execution of the overall plan for restoration. Dispatch operations were expanded for the night of Monday, March 6 with activated statewide support in the Restoration Management Center ("RMC"), located in Jackson, on Tuesday, March 7 at 11:00 a.m. due to meeting the threshold of 10,000 total customers impacted and 200 active outages. The restoration process included the following:



- Scheduling and staffing 24-hour office and field operations;
- Deployment of wire guards and wire evaluators to secure downed wires and protect the public;
- Physical damage assessment by field personnel;
- Continuous analysis of system damage and customer outage levels;
- Resource allocation, logistics, and planning conference calls;
- Assessment and deployment of field resources to impacted areas;
- Clearing lines of trees in areas with system damage to allow for repair and restoration activities to occur;
- Assignment of outage incidents to line crews;
- Repair of system damage and service restoration to customers by line crews and service workers;
- Organizations supporting the primary response activities including Logistics, Supply Chain, Fleet, Security, and Information Technology; and
- Organizations providing critical information into the planning process including the Contact Centers, Business Center Operations, Public Information, and Emergency Management coordination.

### **Storm Restoration**

After the initial ramp up on March 7, Consumers Energy expanded the effort to a 24-hour operation until completion of the final restoration on Monday, March 13. A critical tool that Consumers Energy utilizes to manage restoration is a map-based Outage Management System (“OMS”). Customer outages, wire downs, hazards, and other key information are received into OMS via Consumers Energy’s Voice Response Unit (“VRU”), customer service representatives, or the Company website. OMS processes this information and, based on the timing of receipt, produces a probable location of where the electric system fault originated, or where a protective device may have operated, to clear the fault based on algorithmic modeling. This information provided by OMS is then used to enable employees to locate the problem, communicate information to customers, assign and manage resources to address wire downs, and restore power outages in a more informed, efficient, and timely manner.

On the morning of Wednesday, March 8, the hourly customers interrupted exceeded 50,000. This triggered issuance of the initial DOE-417 report, required by the U.S. Department of Energy in the event of a significant disruption to the electric system. The cumulative count of customers interrupted also exceeded the 50,000 level prompting the issuance of the first MPSC service restoration status report at 3:00 p.m. on March 8. The MPSC reports were issued twice daily through Sunday, March 12 with the

final report on Monday, March 13 at 8:00 a.m. Additionally, daily calls with MPSC staff members were held Tuesday, March 7 through Sunday, March 12 in order to provide updates on the restoration effort.

During restoration, Consumers Energy performed a progress analysis utilizing a resource balancing database, Catastrophic Crewing. This database is critical to successfully managing resource procurement and resource allocation among service territories, and tracking resource movements across the state based on the current work in the OMS. The Catastrophic Crewing database compares available crew resources to OMS demand to establish crewing deficiencies or surpluses. This promotes restoration decisions based on data and facts, allowing the Company to better serve its customers. Further information on Catastrophic Crewing is covered in Section V, Use of Technology. Consumers Energy actively engaged Company crews and In-state Contractor crews during the restoration event, as can be seen in Figure 6. The initial evaluation for the Mutual Assistance need was made on March 7 in preparation for the restoration event on March 8. An official request for Mutual Assistance line crews was made on Wednesday, March 8 at 10:00 a.m. for 250 field personnel, but was not fully filled due to companies holding crews as a result of the potential wind impact and restoration event. Additional Mutual Assistance requests occurred in the afternoon of Wednesday, March 8 for 350 field personnel. The first crews arrived between 6:00 p.m. and 9:00 p.m. on Wednesday, March 8 and began work on Thursday, March 9. Approximately 618 Mutual Assistance field employees from Wisconsin, Ohio, Indiana, Kentucky, Tennessee, Iowa, and Illinois worked through Sunday, March 12. The table below shows counts for Company, Contractor, and Mutual Assistance line crews by date during the March 7 storm event.

**Figure 6 Line Crews Working by Date**

| <b>Consumers Energy</b>             |                      |                                  |                                |                    |
|-------------------------------------|----------------------|----------------------------------|--------------------------------|--------------------|
| <b>Number of Line Crews by Date</b> |                      |                                  |                                |                    |
| <b>Date</b>                         | <b>Company Crews</b> | <b>In-state Contractor Crews</b> | <b>Mutual Assistance Crews</b> | <b>Total Crews</b> |
| 3/7/17                              | 39                   | 42                               | 0                              | 81                 |
| 3/8/17                              | 129                  | 94                               | 0                              | 223                |
| 3/9/17                              | 186                  | 116                              | 158                            | 460                |
| 3/10/17                             | 187                  | 119                              | 158                            | 464                |
| 3/11/17                             | 187                  | 133                              | 160                            | 480                |
| 3/12/17                             | 183                  | 135                              | 159                            | 477                |

During the March 7 event, Forestry Operations worked a 24-hour schedule and provided tree clearing activities in areas with system damage to allow for repair and restoration activities to occur. A Forestry crew normally consists of two qualified Forestry workers, one of which is in a Lead or Foreman role. Consumers Energy did not seek to obtain additional Mutual Assistance Forestry crews based on sufficient In-state Forestry crew staffing that is working on reliability improvement projects and maintenance clearing. Figure 7 shows counts for Forestry crews by date during the March storm event.

Figure 7 Forestry Crews Working by Date

| Consumers Energy<br>Number of Forestry Crews by Date |                      |
|--|----------------------|
| Date   | Total Forestry Crews |
| 3/7/17   | 20                   |
| 3/8/17   | 137                  |
| 3/9/17   | 185                  |
| 3/10/17  | 158                  |
| 3/11/17  | 159                  |
| 3/12/17  | 75                   |

Summaries of key operational activities prior to and during the restoration effort, and customers interrupted and restored, are shown in Figures 8 and 9 below.

Figure 8 Timeline of Planning and Restoration Activities

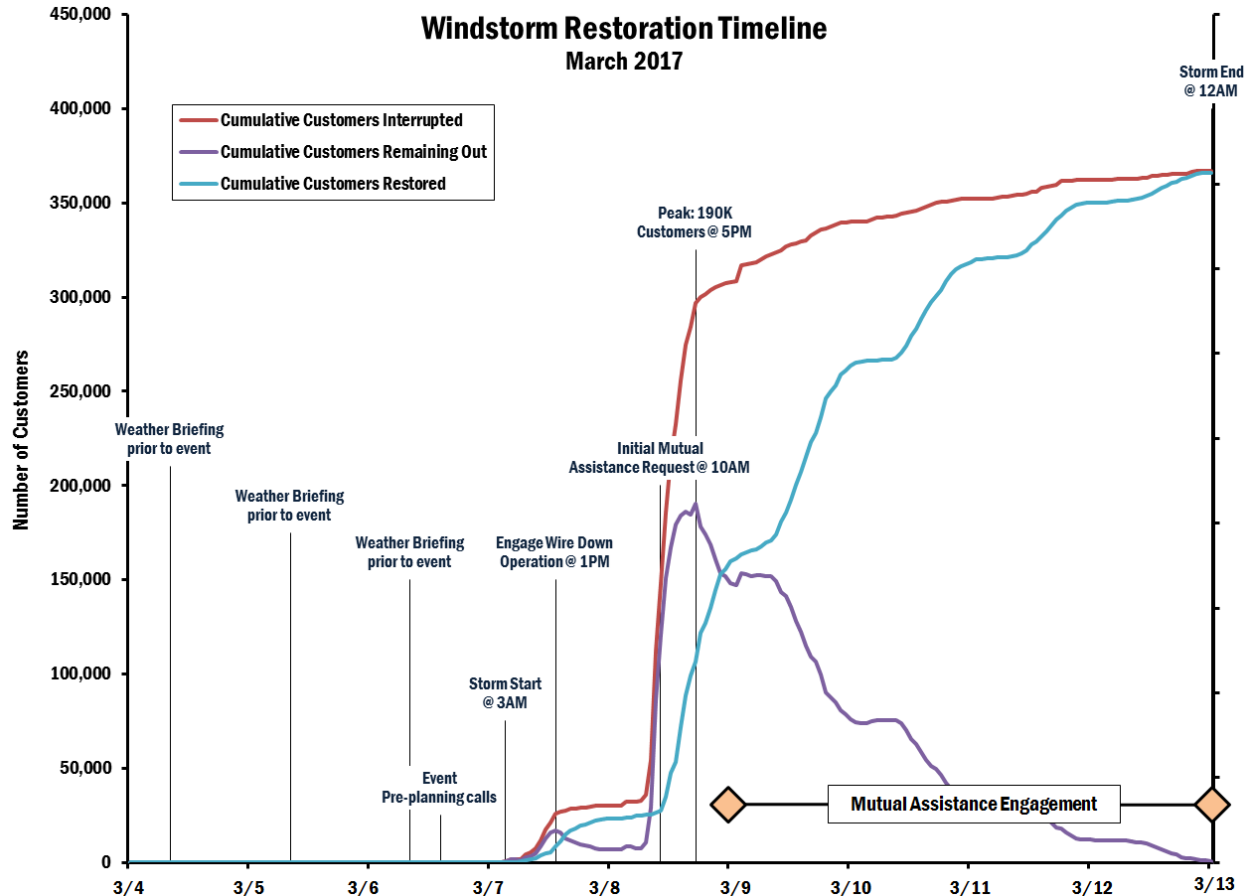


Figure 9 summarizes the number of interruptions and the number of customers interrupted by day based on the OMS data. Additionally, the table shows the number of interruptions that were restored and the number of customers restored on that day.

**Figure 9 Customers Interrupted and Restored by Date**

|                               | 3/7*   | 3/8     | 3/9     | 3/10   | 3/11   | 3/12*  |
|-------------------------------|--------|---------|---------|--------|--------|--------|
| <b>Interruptions</b>          | 756    | 5590    | 1,374   | 881    | 609    | 328    |
| <b>Restored Interruptions</b> | 579    | 1,343   | 1,794   | 2,263  | 1,932  | 1,480  |
| <b>Customers Interrupted</b>  | 29,862 | 275,351 | 31,228  | 11,983 | 9,750  | 4,690  |
| <b>Customers Restored</b>     | 22,984 | 130,091 | 104,097 | 55,717 | 32,443 | 15,977 |

\*Statistics starting at 3:00 a.m. on March 7 and ending at 12:00 a.m. on March 13.

The restoration event was supported by many employees across Consumers Energy as well as In-state Contractors and Mutual Assistance company employees. Figure 10 summarizes the resources that were utilized from March 7 through March 12.

**Figure 10 Total Resources Dedicated to Storm Restoration**

|   |                      |        |
|---|----------------------|--------|
| Line Crews  | Consumers Energy     | 187    |
|   | In-state Contractors | 135    |
|   | Mutual Assistance    | 160    |
|   | Total crews          | 482    |
|   | Total employees      | ~1,460 |
| Forestry Crews  | In-state Contractors | 185    |
|   | Total employees      | ~370   |
| Damage Assessment                                       | Total employees      | 158    |
| Wire Down   | Field employees      | ~420   |
| Contact Center  | CE employees         | 190    |
|   | Contractor employees | 100    |
| Office/Management/Business Center/Other Field Resources | Total employees      | ~1,360 |
|   | Total personnel      | ~4058  |

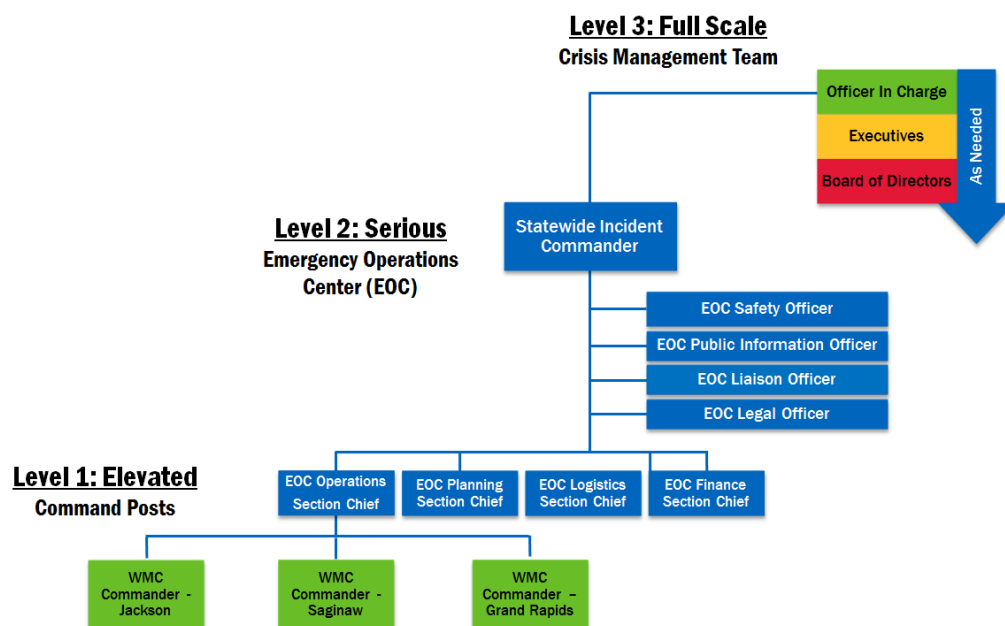


Consumers Energy has been implementing ICS principles for several years. One of the key principles is that storm events are managed at the lowest level possible. Accordingly, storm event classification levels are used to convey the response organization that is required to manage all aspects of the restoration. This event was categorized at the highest level, level 3 full-scale, under the Electric Emergency Response Plan (“EERP”). Full scale event requires statewide support implementation, including a Crisis Management Team and an Officer In Charge. Each position was staffed for 24-hour coverage during the restoration event. Consumers Energy also utilized three local command posts in Grand Rapids, Saginaw, and Jackson located within the Work Management Centers, where Dispatch Operations are managed. Employing the ICS provided several benefits:

- Increased safety messaging and focus for Consumers Energy employees and Contractors;
- Manageable span of control within the response organization;
- Clear lines of authority and reporting relationships, including an Officer In Charge that provided continuous oversight;
- A consistent operating picture throughout the event by management through objectives and priorities; and
- Efficient and clear communication by providing a single point of contact into the statewide support organization.

Figure 11 below shows the organizational structure that was implemented.

**Figure 11 ICS Organizational Structure Implemented**



The successful implementation of statewide ICS was a direct result of the Company's EERP that outlined the structure, roles and responsibilities, ICS principles, incident classification levels, and incident action planning approach. The Company continued to build upon the success of the March wind storm implementation of ICS in following restoration events, which included the April 6 snow and wind event, impacting approximately 94,000 customers. Consumers Energy strives for continuous improvement, and to that end, additional processes and training are being developed in order to implement the ICS at the local command posts. Additionally, with the implementation of the ICS, a point person was designated to manage customer complaints that were received during the wind storm event. The process allowed Consumers Energy to successfully respond within the complaint closure window to 92% of all outage complaints and 94% of the formal complaints while managing restoration. Formal complaints are those complaints submitted to the MPSC, a customer's legislators, or a Consumers Energy officer. This complaint response process was also utilized during the April restoration event and will continue to be leveraged for future full-scale restoration events in order to provide timely and accurate feedback to customers.

**B. Wire Down Management (MPSC Topic No. 5)**

The first step in Consumers Energy's restoration philosophy is to ensure public and employee safety by securing wire down hazards.

Downed wires are evaluated to determine if a hazard exists to the public and are secured by:

- A qualified Consumers Energy employee confirming that all phases of an upstream device are open;
- Removing the hazard; or
- Placing qualified personnel at the site to keep the public away and safe.

In addition to crewing field resources, Consumers Energy utilizes wire evaluators and wire guards to secure wire down hazards during a storm event. Wire evaluators are trained to identify electrical utility hazards versus non-electrical utility hazards such as phone and cable TV wires. Wire guards are trained to barricade a downed wire and stay on site to keep the public away and safe. A wire guard stays at the location until a qualified employee can secure the wire down hazard. The Company offers annual certification training and conducts annual recertification for wire guards and wire evaluators. The current trained pool of wire down resources is 2,146 and includes wire guards, wire evaluators, Damage Assessors, and Electric Service Workers who are trained to perform this function.

As the storm developed, Consumers Energy activated the Wire Down program to manage 5,906 wire downs during the March 7 to March 13 timeframe. Initial callouts for wire down field resources were completed on March 7 at 1:00 p.m. with additional callouts on March 8 at 12:30 p.m. to maximize resource availability. Consumers Energy continued to secure wire down field resources throughout the event until March 11. During the restoration event, approximately 350 employees were dedicated to securing wire down hazards with 72 office resources managing wire down field activities by analyzing orders and assigning and maintaining locations of field resources. In addition, 70 Electric Service Workers, Journeyman Line Worker employees with at least two years of experience, and 158 Damage Assessors were utilized in the field to secure wire down hazards. At the peak of restoration, a total of 578 field resources were responding to the wire downs in addition to the wire down hazards that were being addressed by Company, Contractor, and Mutual Assistance crews. The Company also offered two wire guard training sessions on March 9 to train and newly certify 41 employees that volunteered. Current office staffing capacity can safely support 225 wire down field resources and is a limiting factor in deploying the number of field resources closer to the number of wire downs. The current plan is to implement a Wire Down Task Force within the ICS structure to increase the number of field employees that can be managed by office resources.

Average response time inside Major Metropolitan Statistical Area (“MMSA”) for relieving police and fire on site was 390 minutes and average response time outside MMSA for relieving police and fire on site was 368 minutes. Overall average wire down response was 949 minutes. Figures 12 and 13 show the progression of unsecured wire downs throughout the restoration event.

Figure 12 Wire Down Progression Graph

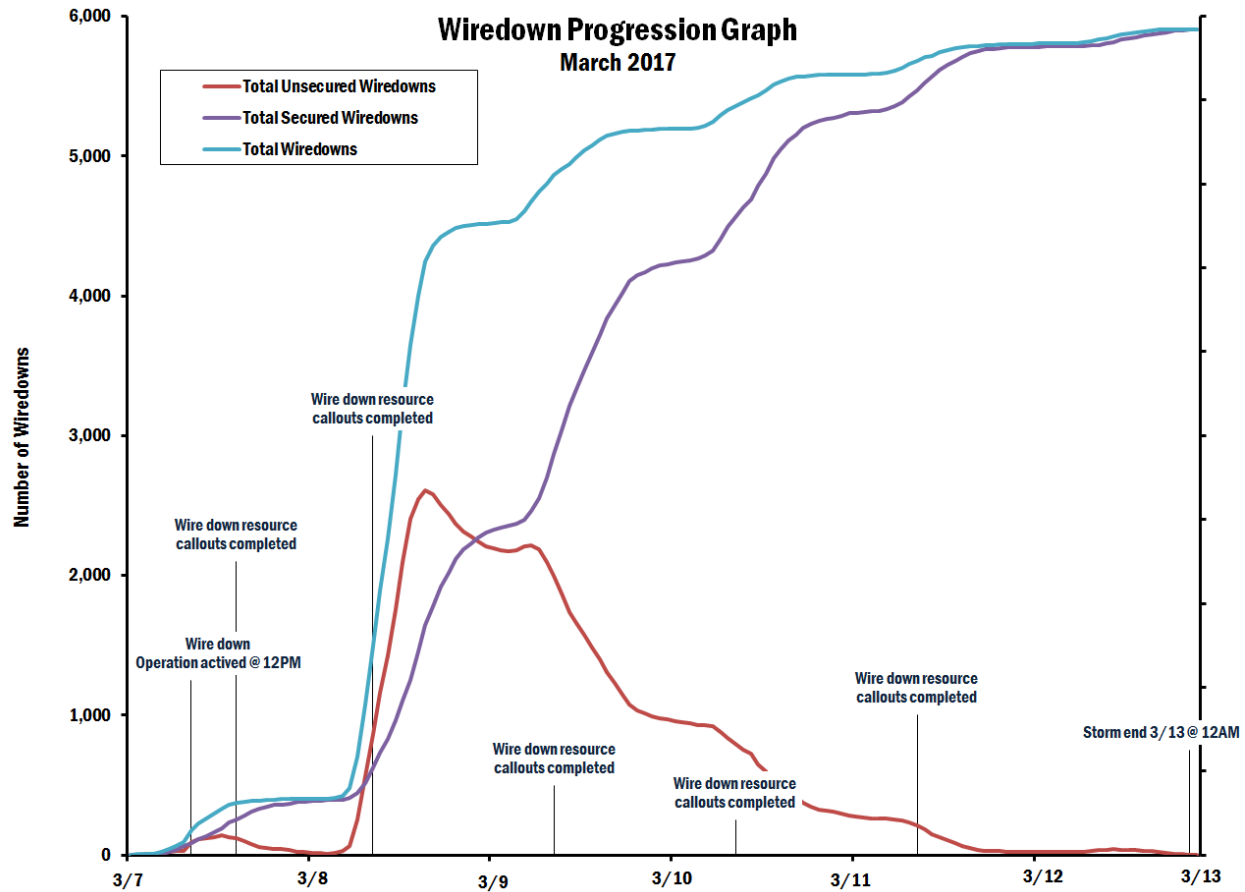


Figure 13 Wire Down Progression by Date

|                     | 3/7* | 3/8   | 3/9   | 3/10  | 3/11 | 3/12* |
|---------------------|------|-------|-------|-------|------|-------|
| Wire downs received | 399  | 4,101 | 686   | 396   | 218  | 106   |
| Wire downs secured  | 359  | 1,826 | 1,985 | 1,094 | 511  | 129   |

\*Statistics starting at 3:00 a.m. on March 7 and ending at 12:00 a.m. on March 13.

To enhance public awareness of the potential hazards associated with downed wires the Company ran 8,528 wire down safety ads on the radio in 34 of the 68 Lower Peninsula counties where the Company operates. Wire down ads ran up to four days during restoration and total amount spent on safety related advertising in the March storm was just shy of \$1 million. Additionally social media posts were leveraged during the same time frame to increase public awareness. The Public Safety Outreach Team was critical in serving as a conduit to help prioritize safety concerns from fire chiefs, police chiefs, and emergency managers. Although the wire down resource deployment was greater than in previous storms, the sheer volume of reported wire downs was difficult to manage safely and effectively.

Consumers Energy recognizes how critical this component is to public safety and will continue to enhance the effectiveness of the wire down program.

### **C. Post-Storm Process Improvements**

After every restoration event greater than 10,000 customers and 200 outages, Consumers Energy conducts an after-action review across the various departments involved. The after-action review is focused on the items that worked well and opportunities for improvement. The follow up action items are assigned an owner and due date and are tracked for progress by the Restoration Management Team. After the March storm, the Company conducted several reviews focused on different areas for improvement including:

- ICS implementation;
- IT storm restoration support; and
- Overall cross-functional restoration process.

During formal debrief discussions the Company was able to identify several opportunities for future improvement. One such opportunity is enhancement of the Wire Down management process by implementing a Wire Down Task Force as part of the transition to ICS. This will enable office staff to support 325% more field resources that can be utilized to secure wire down hazards to ensure public safety during restoration. Today's organizational structure limits span of control to 15 field employees per team. As the Company progresses toward full utilization of the ICS, additional training, job aids, and checklists will be developed for the various roles.

Additionally the Company identified the following continuous improvement opportunities:

- Partnering with emergency managers to identify critical county locations;
- Developing further capabilities for wire down, logistics, and vehicle management within the Catastrophic Crewing database; and
- Conducting cross functional storm simulation exercises to enhance response readiness and capabilities.

Estimated Time of Restoration ("ETR") is another area that the Company will continue to focus on as part of future improvements. Providing timely and accurate ETR information is valuable to customers and directly impacts their decisions not only at home, but also for managing businesses. ETR information is provided through many channels to our customers: outage map, website, outage alerts, the interactive voice response system, or Contact Center representatives. During the wind storm there



were a total of approximately 245,000 outage alerts sent to approximately 66,000 customers. Based on the total volume, 47% of the alerts were via text, 15% were via email and 37% were automated call (voice) alerts.

In the early stages of a storm event, Consumers Energy enters a regional ETR based on current damage that has been identified. The regional ETR is refined during the restoration event, which results in several communication updates to the customers. An outage focus team has been assembled to benchmark other utilities and identify solutions to improve ETR accuracy during restoration. Additionally, the Company is developing an office-based role that will manage ETRs during storm restoration. This role was piloted during the March and April storms resulting in refined process documentation that will be used for training development.

Consumers Energy understands that preparedness is a continuous cycle of planning, organizing, equipping, training, exercising, evaluating, and taking corrective actions and is committed to delivering on the electric emergency preparedness and response improvements.

#### **D. Investments to Reduce and Manage Outages (MPSC Topic No. 3)**

The Company's investments over the last several years to improve the reliability of its distribution system helped to lessen the impact of the wind storm on customers. Multiple approaches are combined in this effort that includes equipment and infrastructure programs and Forestry trim cycles. Consumers Energy has invested over \$500 million in HVD and LVD reliability programs such as pole replacements, line rebuilds, and pole top rehabilitation over the last five years. The Company also began adding LVD automation loops during this timeframe. These loops provide automated fault isolation and quicker restoration and contributed to 2.6 million minutes saved during the event. These investments helped to minimize the extent of damage and reduce both the number and duration of outages due to the wind storm. The post-storm assessment and repairs, additional distribution automation, and planned investment of over \$17 million in HVD lines reliability in 2017, and \$54 million in LVD lines reliability in 2017, will further reduce the potential for future power outages of the same magnitude. The necessity for these programs is discussed in the Company's present rate case (MPSC Case No. U-18322), which indicates that the Company plans to invest \$432 million through 2018 in reliability-based programs, including Grid Modernization.

In addition, the Company has been combining data on electric reliability performance and customer satisfaction to prioritize and plan for reliability investments. One of the ways this is being done is by

leveraging a lean approach to create a collaboration area, known as the Electric Reliability Rally Room. This room provides a space for employees across the Company to coordinate efforts, better define areas of opportunity, align on the plan, check performance against the plan, and adjust as necessary. This allows for quick action on countermeasures and drives accountability while facilitating cross-functional communication and challenging assumptions based on data. The Company has seen success in several areas through employee efforts in the Electric Reliability Rally Room, including:

- Holistic investment on the worst performing circuits by finishing line clearing and equipment investment as part of one project; and
- Process improvement work for outage response.

### **Pole Inspection Program Overview**

Consumers Energy has three inspection programs that evaluate pole condition. Replacement of poles identified during these inspections hardens the system to better withstand adverse weather conditions. These programs include the following:

- The HVD pole inspection program is completed on an approximate 12-year cycle using trained contractors;
- The LVD pole inspection program, which began in 2010 to inspect 35-ft poles with primary, was planned to be completed on an approximate 12-year cycle using trained Consumers Energy employees. This program was expanded in August 2011 to include all pole configurations using trained contractors. The program continued into 2015 with the use of trained contractors, moving towards an approximate 12-year inspection cycle. Due to the amount of rejected poles found during that period, the inspections have been placed on hold to allow the replacement of rejected poles to be completed. LVD pole inspections are expected to resume in 2018; and
- The LVD overhead line inspection program is completed on a 6-year cycle by Company employees. The overhead line inspection program evaluates all equipment on a structure, including poles, through a visual inspection process.

By replacing rejected HVD and LVD poles, the Company increases public safety and improves service reliability by providing decreased System Average Interruption Duration Index (“SAIDI”) (2-3 minutes/customer) over a year.

### **HVD Line Rebuilding and Pole Top Rehabilitation Overview**

Consumers Energy has invested in pole top rehabilitation and rebuilding of poor performing lines. These projects replace deteriorated cross arms and poles, which results in a more resilient system. Below is a brief summary of these programs:

- Pole top rehabilitation, which includes replacement of cross arms and insulators, is undertaken on poor performing lines with standard construction. Poles are inspected within the section to be rehabilitated and any rejected poles are replaced, along with the pole top equipment. Consumers Energy has completed 130 miles of HVD pole top rehabilitation since 2015 and an additional 50 miles are planned for 2017; and
- Lines that are of older construction, especially if unshielded, are candidates for complete rebuild if performing poorly. Consumers Energy has rebuilt 219 miles of HVD lines since 2011 and an additional 65 miles are planned for 2017.

### **Post-Storm Assessment**

After restoration was complete, HVD, LVD, and Forestry Planning teams assessed the system for potential hazards that still existed, which had not resulted in an interruption. The goal of the assessments was to identify those locations, resolve the hazard, and return the system to normal operating condition.

### **HVD**

- The Company assessed the lines by helicopter and ground inspections to identify imminent failures (Priority 1) and system deficiencies (Priority 2), which threaten to cause customer outages within 30 days;
- Number of line assessments completed:
  - Helicopter – 26 lines that had locked out, tripped and reclosed, and/or were forced from service to perform repairs, and
  - Ground inspections (No Fly Zones) - 372 miles impacting 303 line segments;
- Construction prioritization criteria:
  - Imminent failures were repaired/replaced within 24 hours; and
  - Priority 2 anomalies were repaired/replaced within 5 business days.

### **LVD**

- The Company assessed impacted circuits by completing driving ground inspections to identify imminent failures (Priority 1) and system deficiencies (Priority 2), which threaten to cause customer outages within 30 days, and Priority 3 and 4 system deficiencies, which threaten to cause customer outages within 6 months.
- The number of line assessments completed was approximately 22,000 miles impacting 520 circuits.
- The following construction prioritization criteria were used:
  - Imminent failures were repaired/replaced within 24 hours;
  - Priority 2 anomalies were repaired/replaced within 5 business days; and

- Priority 3 and 4 anomalies will be repaired/replaced within 3 months and the Company is targeting beginning of June.

### **Items Identified during HVD and LVD Assessments**

Figure 14 below represents the types of hazards found during the assessments. The hazards are listed by the priority code for the anomaly. The post-storm assessment identified 124 Priority 1 and 2,927 Priority 2 through 4 anomalies through helicopter and ground patrols.

**Figure 14 Hazards Identified Post Restoration**

| <b>Code</b>  | <b>Description</b>                | <b>Code</b>                            | <b>Description</b>                              |
|--|-----------------------------------|--|---|
| <b>P1 - Public Safety</b>                          |                                   | <b>P2 - Imminent Failure</b>           |   |
| P1A  | Safety Code Violation             | P2A                                    | Floating Phase / Neutral                        |
| P1B  | Unusual Public Hazard             | P2B                                    | Broken / Severely Cracked Cross arm             |
|  |                                   | P2C                                    | Damaged / Cracked Cutout                        |
|  |                                   | P2D                                    | Damaged / Cracked Insulators                    |
|  |                                   | P2E                                    | Pole: Needing Immediate Replacement             |
| <b>P3 - Failure Expected in Less Than 6 Months</b> |                                   | <b>P4 - Heightened Risk of Failure</b> |   |
| P3A  | Pin Pulling from Cross arm / Pole | P4A                                    | Broken/Missing Cross arm Braces                 |
| P3B  | Cracked Cross arm                 | P4B                                    | Failed Arrester                                 |
| P3C  | Broken Guy - Leaning Pole         | P4C                                    | Broken Guy - Non-Leaning Pole                   |
| P3D  | Pole: Damaged                     | P4D                                    | Damaged Equipment (Transformer, Recloser, Etc.) |
|  |                                   | P4E                                    | Lightning/Flashover Burn Marks                  |
|  |                                   | P4F                                    | Poorly Sagged Line                              |

## **Vegetation Management**

In the 2016 MPSC Order (Case No. U-17735), the Company received authorization to begin an outside of right-of-way hazard tree clearing program (“Hazard Tree Program”). In 2016, Consumers Energy addressed an average of nine hazard trees per mile of circuit cleared under the full circuit maintenance and repetitive outage clearing programs. Although the Hazard Tree Program was implemented in April 2016, it accounted for an additional 9% of work by volume (40,397 hazard trees) for that year.

In 2016, Consumers Energy spent \$51.8 million (\$3.3 million over spend authorized in rates) on tree clearing, including \$4.3 million for hazard tree removal outside of the right-of-way. During the March catastrophic storm, approximately 395 circuits experienced tree related outages (approximately 22% of all circuits). Seven of those circuits (1.8% of storm damaged circuits) were cleared in 2016, but only one circuit (0.2% of storm damaged circuits) was cleared after the Hazard Tree Program began. Prior to the storm, 104 circuits had been cleared since April 2016 including hazard tree removals. For comparison, 1% of hazard tree cleared circuits were affected by the storm while 22% of circuits not yet cleared of hazard trees were affected.

Immediately following the storm, Forestry Operations conducted a thorough review of the 45 circuits (approximately 3,000 miles) most affected by tree related outages and individual reports of damaged trees on other circuits. Additional storm damaged trees that had not yet caused outages were identified and cleared in the three weeks following the storm. It is standard practice within Forestry Operations to conduct post-storm assessments after storms that cause significant damage to trees, such as wind and ice storms. Forestry related anomalies were also identified by assessors on HVD and LVD lines and were later addressed by Forestry Operations.

## **LVD Automation Loops**

Consumers Energy has been deploying automated reclosers on the LVD system for eight years into automation “loops.” These loops detect when an outage occurs and attempt to restore as many customers as possible from an alternate source. The Company has increased deployment of these loops statewide over the past few years. As of April 2017, 22 automation loops have been placed in service.

With the increased deployment rate, a new method for determining loop sites has been implemented. Historically, distribution automation was installed to address repetitive outage issues. The new methodology increases focus on reducing customer outage minutes (SAIDI). This ensures program invested dollars are being spent to provide the greatest improvement to reliability.



Consumers Energy's automation loops had seven successful transfers during the March 2017 wind storm. As a result of the seven operations, the Company realized a savings of 2.6 million customer outage minutes, 1.4 SAIDI minutes, and 2,100 avoided customer outages. In addition to improving reliability, the Interruption Cost Estimate<sup>3</sup> ("ICE") calculation indicates that the loop operations from this wind storm saved over \$4 million for Michigan families and businesses.

The Company plans to continue building on the success of the automation loop program by accelerating deployment in the coming years. Eight additional loops are planned for installation in 2017. By 2021, the automation loop program plans to have 85 additional loops in service with a projected 15-20 minute/customer annual SAIDI reduction.

### **Distribution Supervisory Control and Data Acquisition**

The Distribution Supervisory Control and Data Acquisition ("DSCADA") system provides real-time system monitoring and remote control of distribution substation devices. This system is key to enabling energy optimization applications, but also has an important role in improving reliability. Consumers Energy has been deploying Supervisory Control and Data Acquisition in distribution substations since 2012. As of April 2017, 220 DSCADA substations have been activated.

DSCADA impacts customer outages by decreasing response time and reducing the need for substation personnel to respond on site. During the March 7 wind storm, there were eleven circuit lockouts that were resolved faster due to DSCADA. This resulted in a savings of 170,175 customer outage minutes (approximately 0.1 minute SAIDI impact). Consumers Energy was also able to remotely restore nine circuit lockouts with an estimated savings of 163,540 customer outage minutes (approximately 0.1 minute SAIDI impact).

### **E. Customer Contacts and Communications (MPSC Topic No. 4)**

Consumers Energy was extremely active in communicating with its customers, the media, and the public during the catastrophic March wind storm. The Company's efforts enabled customers to interact with

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<sup>3</sup> The ICE calculator is an online tool designed for electric reliability planners at utilities, government organizations, or other entities that are interested in estimating interruption costs and/or the benefits associated with reliability improvements. The ICE calculator is based on a set of data valuing the service reliability for electric utility customers in the United States and was produced by Lawrence Berkeley National Laboratory and the Office of Electricity Delivery and Energy Reliability of the United States Department of Energy (<http://www.icecalculator.com/>).

employees and receive communications in a multitude of ways. A statewide news release and social media post were issued on Monday, March 6 to:

- Notify reporters that severe weather was on its way;
- Describe the type of weather expected and when it would arrive;
- Explain the Company's plan to monitor the storm and mobilize resources; and
- Detail where customers could find safety tips on what to do before, during, and after the storm.

Once there were more than 50,000 customers without power, Consumers Energy began a cadence of sending four daily news releases to mirror the broadcast TV schedule and reporters' deadlines. In total, 15 news releases were e-mailed statewide at 4:00 a.m., 11:00 a.m., 4:00 p.m., and 9:00 p.m. from Wednesday, March 8 through Sunday, March 12, providing updates on:

- Total number of customers without power;
- Number of crews in the field;
- Total number of poles/wires down;
- Safety tips; and
- Information about our online outage map.

As the news releases were issued, Consumers Energy responded to more than 150 media inquiries. Company Officers were interviewed in media markets of the hardest hit communities (Metro Grand Rapids, Genesee County, Mid-Michigan, and Metro Detroit) to provide updates on the restoration effort. The Consumers Energy Senior Officer Team was actively involved in communicating the progress of the Company's restoration efforts.

Two news conferences were held with Gov. Rick Snyder during the restoration effort. The first, held on Thursday, March 9, featured Consumers Energy President and CEO Patricia Poppe, Gov. Snyder, and DTE Energy President and CEO Jerry Norcia. The second was held on Saturday, March 11 in Jackson, Michigan at Consumers Energy's Mobile Command Center. It featured a tour of the Mobile Command Center and a local job site visit with Consumers Energy Senior Vice President of Distribution and Customer Operations, Garrick Rochow, Gov. Snyder, the Michigan Agency for Energy ("MAE") Executive Director, and MPSC Commissioners. After the press conference, Consumers Energy's Vice President of Energy Delivery, Mary Palkovich, and Ray Klavon, Executive Director of Grid Management, led the MPSC Commissioners and MAE's Executive

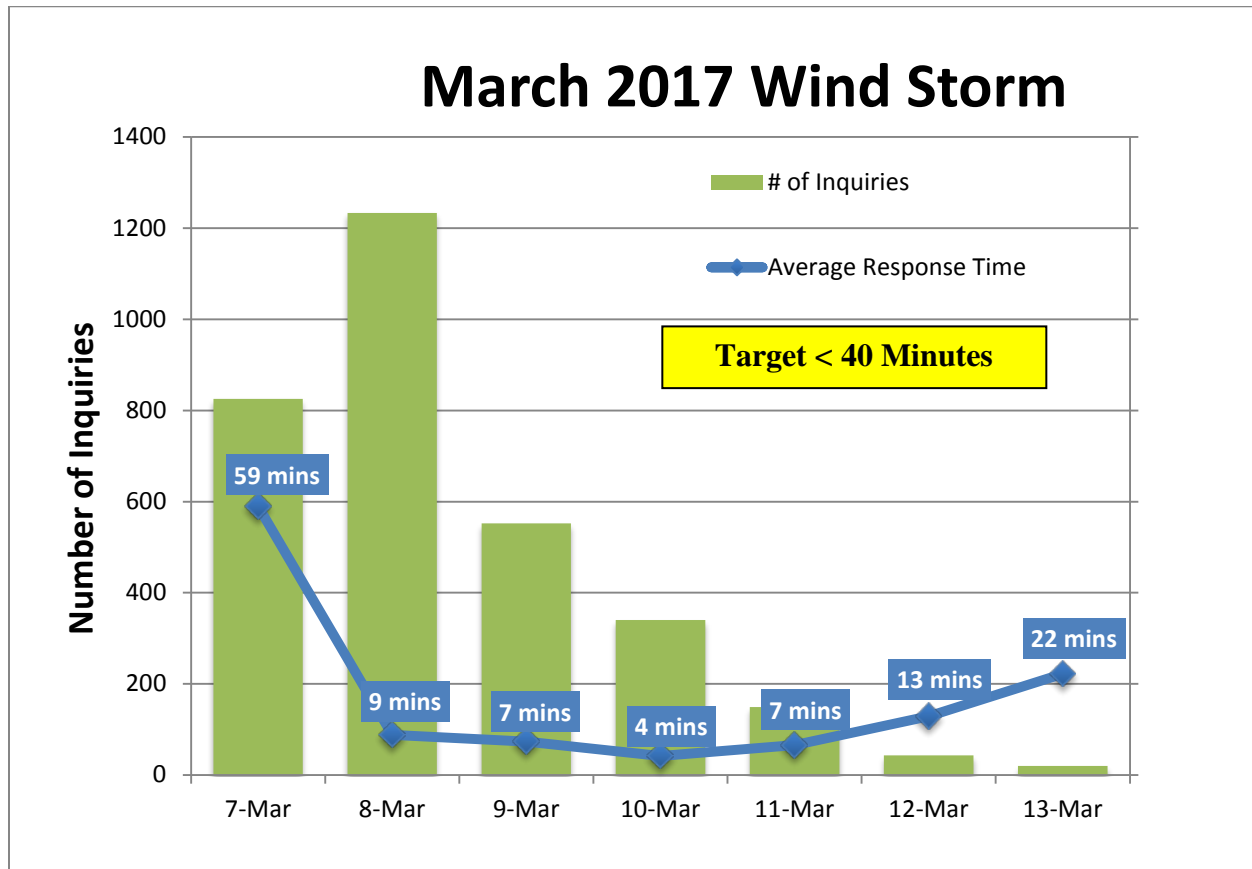
Director on a tour of Restoration Management and System Control Centers to gain a better understanding of how crews, outages, and hazards are managed during restoration.

**Figure 15 Garrick Rochow and Gov. Snyder on site at the Company's Mobile Command Center**



From Monday, March 6 through Sunday, March 12, nine social media posts were created for Facebook and Twitter to provide preparation tips, outage restoration updates, and safety reminders. The Company responded to 4,990 customer inquiries during the March wind storm compared to 1,100 following the December 2013 ice storm. The graph below in Figure 16 shows average response times for customers using this channel.

Figure 16 Average Customer Response Times on Social Media



Consumers Energy reached 1,327,644 users using social media during the restoration effort.

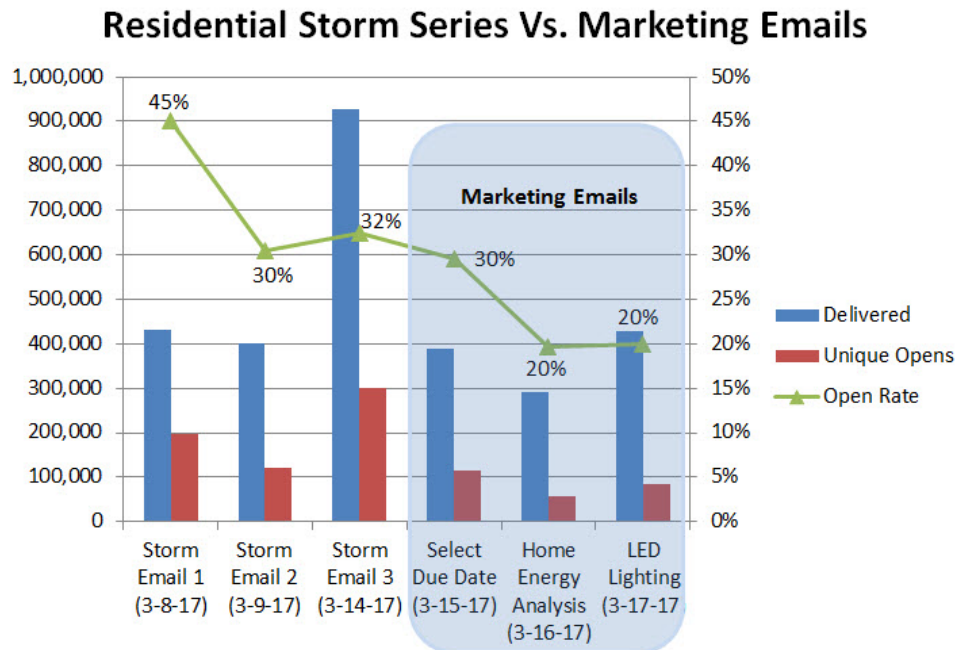
Three days after the storm, Consumers Energy conducted a residential and business customer survey to measure the effectiveness of the outage restoration messages and channel selections, such as e-mails, text messages, or radio advertisements. Among its findings:

- On-line messages performed better than other channels;
- Message content needs to be updated to reflect current restoration work and customized for specific geographic regions in Michigan; and
- Customer patience about the outage was relatively stable until after 2 days, when satisfaction declined.

Six informational e-mails were disseminated to business customers in counties with 5% or more without electricity. Residential customers also received two e-mails from Consumers Energy during storm restoration. The first email was delivered to more than 432,600 e-Bill customers and received an open rate of 45% – best in class for utilities as measured by Questline. The second e-mail went to residential customers in counties with 5% or more customers without electricity, for a total delivery of just under

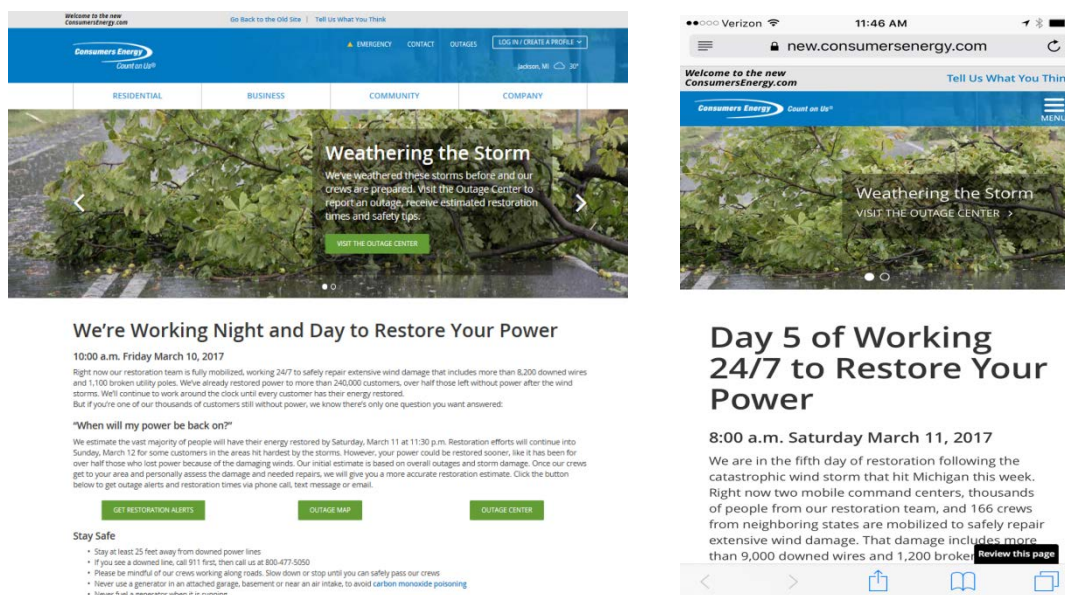
400,000 customers and an open rate of 30%. This demonstrates that customers are more engaged during storms and are actively seeking information from the Company regarding restoration efforts.

**Figure 17 Storm vs. Marketing E-mail Open Rates**



To remain consistent with the standard of communicating with customers through a variety of channels, it was a priority to keep the website updated throughout the storm. Roughly 24 hours into the event, storm communications became the main topic on the Company’s website homepage. The homepage was also updated based on news releases issued for both mobile and desktop platforms. Information along with a link was also added to the homepage about electric outage credits that eligible customers could apply to receive.

**Figure 18 Screenshot of Consumers Energy Website Homepage During the Storm**



Consumers Energy followed its standard practice of communicating with key stakeholders during the storm restoration effort. There were 17 communications with state legislators and 12 with federal elected officials representing the hardest hit communities throughout Michigan. These contacts proactively provided them with information and assistance to use when responding to calls from constituents.

The Company also provided each legislative office and the MAE with information on warming centers in various communities along with Consumers Energy press releases highlighting the restoration counts and safety tips for customers.

### **Business Center**

On March 6, as indications of possible high wind conditions escalated, Business Customer Care implemented enhanced after-hour coverage and expanded normal day hour preparations. As customer outages increased on Wednesday March 8, three business customer communication teams were established to more efficiently and effectively communicate and respond to business customers. This was the first time this approach was utilized and teams were separated as follows:

- Outage coordination and restoration of priority business customers;
- Proactive customer outreach; and
- Reactive response to incoming calls.

The goal of this approach was to provide business customers with the most current information available, including estimated restoration times, in the most efficient manner. Customers were also directed to on-line tools and resources available to them. Additionally, the outage coordination team developed a standardized priority customer outage report as part of the Company's transition to the ICS. This report was shared at regular intervals with the Operations Section Chief to assist with priority and critical customer restoration. As a result of the improved performance in communicating with business customers, this approach will be incorporated into the response protocol for all future major weather events.

### **Customer Contact Center**

The Customer Contact Center aims to serve customers in an efficient and timely manner. This year, Consumers Energy has challenged itself to deliver speedy and reliable service to our customers each and every day. The same level of service is expected during a storm. To ensure sufficient coverage during the greatest time of need, Customer Contact Center leadership initiated the storm planning call on the afternoon of March 7. This marked the first of a series of storm planning calls for the event. The result was swift execution of both voluntary and mandatory staff overtime for all Contact Center employees, along with 24-hour on call for front-line leadership coverage. During the course of the storm, a total of 7,310 Customer Contact Center hours were logged to provide support to customers as shown in Figure 19.

**Figure 19 Contact Center Hours Logged by Date**

| <b>3/7/2017</b> | <b>3/8/2017</b> | <b>3/9/2017</b> | <b>3/10/2017</b> | <b>3/11/2017</b> | <b>3/12/2017</b> | <b>3/13/2017</b> | <b>3/14/2017</b> | <b>Total</b> |
|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|--------------|
| 24.3            | 2,154.40        | 2,299.50        | 1,920.70         | 544.8            | 198              | 131.4            | 37               | 7,310.10     |

Improved communication with Customer Service Representatives contributed to improved customer interactions. Regular email communications from both Customer Contact Center leadership and Resource Planning provided transparency regarding staffing projections and overtime needs to meet customers' expectations of service. As a result, Customer Contact Center employees were able to better plan and make arrangements at home in order to support the restoration effort.

**Figure 20 Call Volume and Average Speed of Answer by Date**

| Date                              | Average Speed of Answer<br>("ASA")* (sec) | Total Volume Handled |
|-----------------------------------|---|----------------------|
| Tuesday, March 7, 2017 (from 3am) | 9   | 40,563               |
| Wednesday, March 8, 2017          | 21  | 191,523              |
| Thursday, March 9, 2017           | 31  | 106,857              |
| Friday, March 10, 2017            | 9   | 67,830               |
| Saturday, March 11, 2017          | 32  | 30,978               |
| Sunday, March 12, 2017            | 17  | 124,540              |
| Total                             | 21  | 562,291              |

\* Includes Live ASA and IVR Contained Calls

- Average Speed of Answer ("ASA"): 21 seconds against < 90 second target; and
- Total call volume handled: 562,291.

The Customer Contact Center has embarked on a journey of culture change to deliver a consistent and improved level of service to customers. The following process and technology changes have been implemented to help achieve this goal:

- SAP system updates to allow sustained performance in an effort to reduce blocked calls;
- Screen view redesign to only display 3 - 6 months of data as the default;
- Performed a system data purge and archiving for the first time ever; and
- Introduced Customer Service Level ("CSL") and consistency metrics, which include:
  - CSL target of 99% of calls answered  $\leq 6$  minutes; and
  - ASA Consistency target of 60% of calls answered between 0 and 120 seconds.
    - 2017 YTD performance is 91.06%.

As a result of SAP system updates, the Company reduced the number of blocked calls from 282,840 during the 2013 ice storm to 4,535 during the 2017 wind storm.

Continuous efforts are underway to improve Contact Center Technology. On April 21, 2017, the Company upgraded its Genesys Technology phone system and network infrastructure, which included 100% call recording and improved data analytics. These additional, quality focused tools will help increase first contact resolution for customers and increase overall system stability.

In an effort to curtail normal call volume during the storm, the Customer Contact Center experimented with different approaches to leverage internal partnerships wherever possible. In partnership with

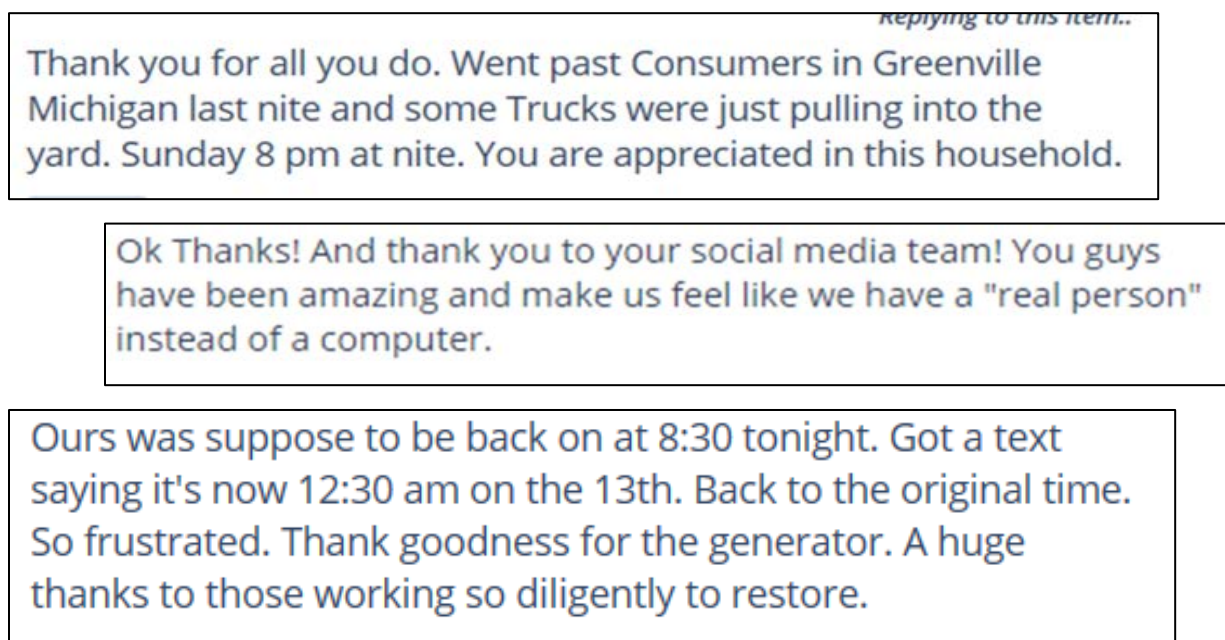


Revenue Operations, it was decided to cease disconnects for non-payment during the course of the storm. Additionally, a proactive Interactive Voice Response (“IVR”) message was activated to inform customers they were not at risk from March 7 to March 12. The IVR communication was utilized intermittently to alleviate credit related calls during peak periods. This resulted in decreases in call volumes and allowed Customer Contact Center agents to respond primarily to critical customer calls.

### **Customer Feedback**

Customer feedback post-storm was positive. Customers were appreciative of the various communication avenues Consumers Energy made available to them. Social media proved a very effective channel for communication. The social media team was extremely responsive in providing customers with an alternative form of non-emergent communication. As part of a standard review process, Consumers Energy reviewed customer feedback to prioritize a primary area of focus for future improvements. The key focus was identified as the need for improved ETR accuracy and the customer communication process. A countermeasure was established in partnership with Electric Operations to conduct an in-depth review of customer feedback received during quality surveys, specifically for outage related calls.

**Figure 21 Verbatim Customer Contact Center Feedback**



Throughout the storm the team documented process improvement opportunities in order to develop a plan to deliver improved service and results. Some such opportunities were standardizing front-line communications and the need for designating critical process owners. For example, a set of e-mail

templates have been created for ready access during storm events to streamline staff communications. Focus is also being placed on documenting and standardizing core processes to deliver increasingly responsible workforce planning.

**F. Emergency Management and Interagency Coordination**

Consumers Energy has identified certain core capabilities that are critical to effective emergency response during utility related emergencies impacting our communities. The core capability of Interagency Coordination is defined as the Company's ability to effectively coordinate with local, county, and state emergency management officials before, during, and after emergencies. During this storm, this coordination included direct and regular communications with these key stakeholders to ensure awareness of the current storm impact (situational summary), impact to their specific jurisdictions, and the timely resolution of local areas of concern and risk.

Over the last three years, the Company's Public Safety Outreach ("PSO") and Emergency Management teams have established solid relationships with members of the Michigan State Police ("MSP") Emergency Management Division, relevant County emergency managers, 911 dispatch centers, and the American Red Cross. These efforts have included regular meetings and correspondence with the MSP Emergency Management Division and County emergency managers. Consumers Energy participates in annual conferences, which include the Michigan Emergency Management Association, National Emergency Number Association, Michigan Association of Fire Chiefs, Michigan Association of Chiefs of Police, and hundreds of facilitated trainings on how to respond safely to utility emergencies with police and fire departments across the state.

Additionally, the Company's adoption of the ICS provided the structure and process for this coordination to route through the Liaison Officer role. This structure and pre-established relationships provided for solid communications and coordination throughout the event at both the state and local levels.

**Michigan State Police – State Emergency Operations Center**

Consumers Energy Emergency Management team members were physically stationed at the State Emergency Operations Center ("SEOC") located at the MSP, 7150 Harris Drive, Dimondale, for multiple days allowing for real time coordination between the SEOC Commander and corresponding SEOC Operations and Planning section chiefs. Consumers Energy provided updates on a daily basis as part of the SEOC daily operations briefings on outage status, highest impacted counties, and estimated

restoration times. These updates were also posted into the MSP Critical Incident Management System database (“MICIMS”) to share statewide along with current contact information for the on-duty Consumers Energy Liaison officers for both day and night shifts. From Wednesday, March 8 to Sunday, March 12, 17 posts were entered into MICIMS. In addition, the Liaison officers were present in the SEOC for over 20 cumulative hours of direct coordination over two days.

### **Local County Emergency Managers and 911 Dispatch Centers**

Consumers Energy’s PSO team members served as Assistant Liaison Officers to the designated Emergency Operation Center (Statewide) Liaison Officer within the Statewide ICS. These individuals were responsible for monitoring outage status for designated counties and making at least twice daily outreach contacts with impacted county emergency managers and 911 dispatch centers. In total, these Assistant Liaison officers (PSO team) documented 475 phone calls and text messages to emergency officials resulting in the identification and resolution of 63 individual concerns. This proactive outreach provided a mechanism for emergent local concerns to be escalated for a timely response in order to mitigate impact to their respective communities.

The concerns received ranged from wire downs and broken pole hazards to critical power outages. The critical outage concerns usually presented themselves through communications with emergency managers. Some examples included: nursing homes, hospitals, jails, water treatment plants, water towers, lift stations, and 911 communication towers. Upon receipt of a concern, the Assistant Liaison Officers documented and elevated the issue for priority handling. Whenever possible, feedback was provided to the emergency official on the status of the response. Emergency officials expressed gratitude for the proactive outreach calls and texts whereby they were able to convey items of particular concern. The 911 dispatchers expressed appreciation for being able to contact someone for information about estimated arrival times for their first responders who often have other calls requiring their response.

As a result of this daily outreach, priority concerns, as identified by county emergency managers and 911 dispatch centers, were identified and prioritized with the Company’s incident objectives.

Some examples of concerns mitigated are as follows:

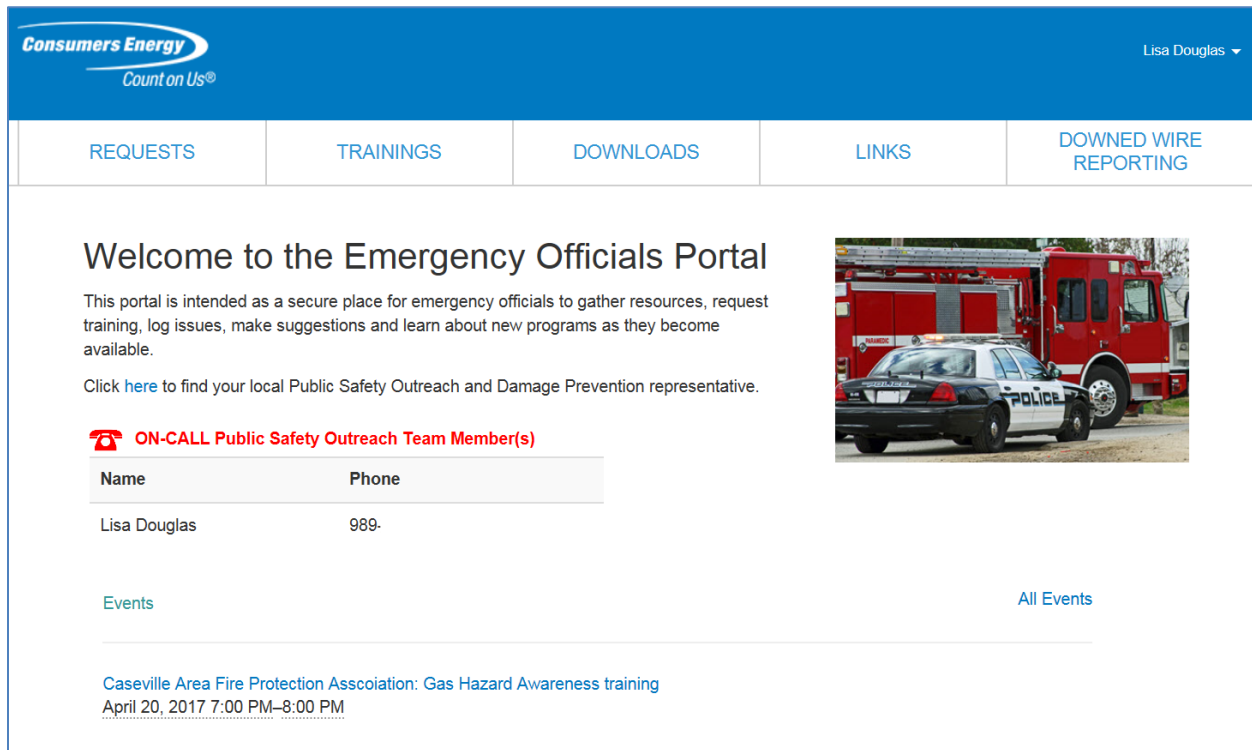
- Calhoun County: Grace Medical Center on generator power and experiencing issues;
- Midland County: City of Coleman lift station without power; and
- Jackson County: 911 Communications Tower affected by power outage.

### **Process Improvements Utilized in the March Wind Storm**

In 2016, the PSO team began enhancing storm communications and support for emergency officials and put them to good use during the March wind storm. One such improvement was the use of standardized and systematic e-mail communication to emergency managers, 911 dispatch centers, American Red Cross, and MSP before, during, and after storms. Those e-mails were also sent to the Company's contract staking company to ensure proper staffing for emergent MISS DIG staking needed by crews. The team sent e-mails in advance of the storm and throughout restoration activities to share key information including the Liaison officers (PSO team) on call. The emergency managers have commented that they appreciated receiving the regular communications which provide the latest outages by county. The central dispatch centers have commented that they appreciate knowing the name of the on-call PSO member. In the March wind storm, 30 documented e-mail communications were sent.

A recent enhancement prior to the March wind storm was the addition of the PSO on-call contact information being shared on the Consumers Energy Emergency Officials Portal as seen in Figure 22. This suggestion was submitted by a fire department during a recent Consumers Energy Hazard Awareness Training. This portal is exclusively designed for emergency officials. There they can quickly see the names and phone numbers for the on-call Liaison/PSO team member. In addition, they can access safety bulletins, system maps, methods to report wire downs, and other free resources. Staffing for this storm primarily consisted of two Assistant Liaison Officers at any given time.

Figure 22 Emergency Officials Portal



A recent recordkeeping improvement is the tracking of outreach events (e.g., telephone calls, text messaging, and e-mails) by the PSO team in the Company’s customer relationship management database. As the PSO team continues to engage and communicate with these local emergency officials, documenting these interactions will continue to be of vital importance. Having the history on training records, contact information, meetings, concerns, resolutions, and feedback in general, will enable Consumers Energy to serve these stakeholders with even greater efficiency and effectiveness.

During this storm, Consumers Energy deployed the Company’s two Mobile Command Centers for multiple days to augment liaison capabilities in the field for storm monitoring, communications, and field support. These two Mobile Command Centers were deployed for the following timeframes:

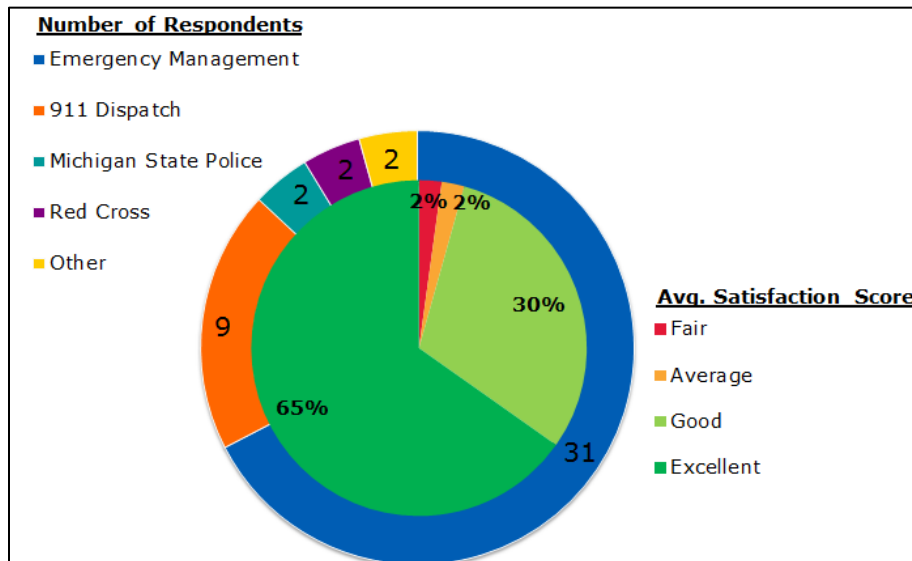
- Rockford (Wednesday, March 8 – Friday, March 10) and Napoleon (Friday, March 10 – Sunday, March 13); and
- Flint (Wednesday, March 8 – Saturday, March 12).

### **Post-Storm Interagency Coordination Survey Results**

Subsequent to the Company’s restoration efforts, Interagency Coordination surveys were distributed to all county emergency managers and other stakeholders.

Forty-six survey responses were received providing feedback on the Company’s coordination efforts with an average score of 4.5 out of a 5 point scale. See Figure 23 below for a summary of survey results.

**Figure 23 Post-Storm Interagency Coordination Survey Results**



Most of the responses from key stakeholders were positive and validated the approach of strengthening relationships and communications before, during, and after emergencies.

Some positive excerpts from the survey results and other correspondence are as follows:

“I am writing to express gratitude and appreciation for the partnership that has developed between Consumers Energy and the Michigan State Police, Emergency Management and Homeland Security Division. During the wind storms in March of this year, your participation and involvement were instrumental in enhancing our abilities to strategize and provide crucial information to all involved. Your presence in the State Emergency Operations Center made it possible for us to get real time data concerning your efforts during the restoration process, which made us better able to provide targeted assistance to meet the needs of our citizens. The relationship between the Michigan State Police and Consumers Energy is a clear example of people working together to make Michigan a great place to live and work.”

~ Captain Chris Kelenske; Commander – Michigan State Police; Deputy State Director of Emergency Management and Homeland Security

*What did we do well?* “Frequent updates.” *How can we improve?* “Keep it up! There has been an obvious effort on your part the last few years to

keep Emergency Management and 911 at the local level informed. That helps us plan and helps us keep our jurisdictions informed. Thank you!"

~ Doug Sanford; Hillsdale County; Emergency Management

*What did we do well?* "The communication and outreach with local Emergency Management and 911 Centers was great. Someone was available to help expedite key critical infrastructure restoration assessments when we called. All in all, it was a great effort by everyone involved." *How can we improve?* "For online wire down reporting, it would be more efficient to allow for multiple addresses/areas to be reported on one form, instead of doing a separate form for each. If this is not possible, perhaps an auto-fill option would help this process along."

~ Jason Breining; Jackson County; Emergency Management

Some areas for improvement identified in the survey responses were grouped in the following areas:

- Improvements/enhancements are needed to streamline the reporting of wire downs. Six respondents identified the lengthy process to report wire downs through the Company's Contact Center, including the Company's required safety "script" that was identified as problematic; and
- Improvements/enhancements to the Company's online outage map to improve availability and provide greater level of detail (wire down status, restoration status) by County.

PSO team members have been meeting with those respondents who had identified areas for improvement to discuss additional solutions to address concerns.

### **Identified Improvement Priorities**

As a result of the Interagency feedback, Consumers Energy has identified the following opportunities for improvement during future storm events.

- Follow up with county emergency managers on priority Infrastructure: PSO will facilitate discussions with County emergency managers to review priority infrastructure for their jurisdictions and incorporate those into Consumers Energy critical and priority designation for improved alignment during electric outages;
- Address police and fire coding inaccuracies: Proactive outreach by the PSO team identified some issues regarding the priority coding related to wire downs involving police/fire standing by on scene. A cross functional committee has been formed to review identified incidents of incorrect coding, determine the root cause, and implement corrective actions;
- Streamline the wire down reporting process for 911 dispatch centers: Consumers Energy will coordinate internally with Contact Center leadership, legal, and other stakeholders to

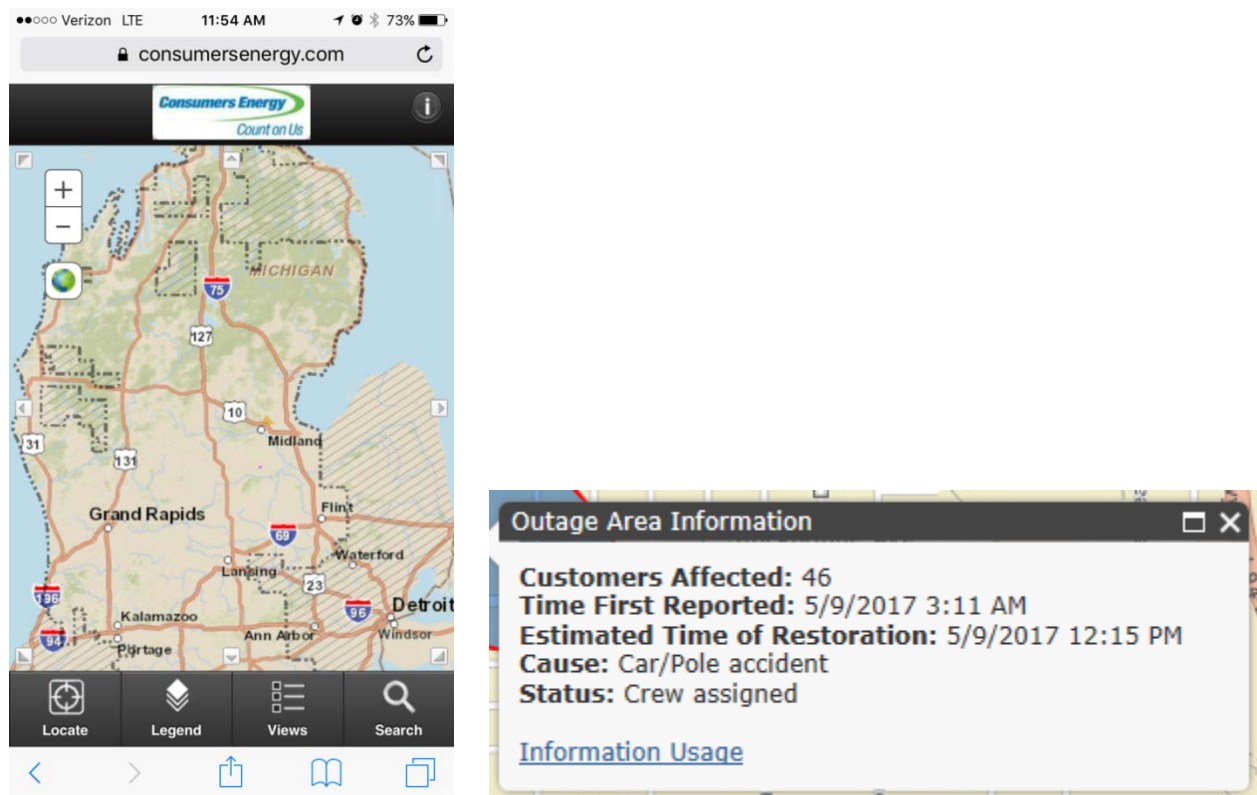
- identify opportunities to streamline the required script readings to 911 dispatch operators reporting wire downs; and
- Streamline e-mail communications: The PSO team will be tailoring the proactive e-mail communications template to include some suggested format changes.

## V. Use of Technology

### A. Outage Map Accessibility (MPSC Topic No. 6)

The Outage Map is a Consumers Energy developed public facing web application that displays information about outages to customers and the general public. Each outage is represented as a polygon that identifies the approximate customer locations included in the outage (see Figure 24). Clicking on the polygon provides information about the outage, including whether a crew is assigned, the ETR, and the outage cause if available. There is a full website map and a mobile version of the web page. The Outage Map has additional views that show the outage information consolidated up to the city level and the county level as shown in Figures 26 and 27. The public can access the outage map by either navigating to it through the Consumers Energy website or directly at <http://consumersenergy.com/outagemap>.

Figure 24 Consumers Energy Website Outage Map





The Outage Map was developed in 2012. Its usage capacity in the original design was based on customer data, historical storm data, and usage growth projections translating to 165 requests per second. During implementation, capacity was tested and confirmed at 236 requests per second. After last year's upgrade to the hosting software and ArcGIS Server, application capacity improved to 300 requests per second. A request per second measure is the application's ability to handle the user load at any instance. This is a threshold for application performance and when breached causes negative impact to application response.

### **High Level Statistics - Outage Map Usage During the Wind Storm**

On March 8, the second day of the storm, the Outage Map website experienced record high demand since its inception. There were 8.9 million page views that day, which was 61 times more views than a 'general traffic day' (approximately 144,000 page views) and 24 times more views than March 7 (375,000 page views). The excessive demand resulted in users experiencing substantial performance degradation. There were reports of some users having to wait three to five minutes to see results on the web page. The performance issue was confined to March 8 and lasted six hours from 12:00 p.m. to 6:00 p.m. The performance threshold (requests per second) consistently exceeded 400 during that timeframe. The Outage Map returned to normal operating performance after the six hour period on March 8 and remained available to customers for the duration of the event.

**Figure 25 Outage Map Usage - March 2017 Storm**

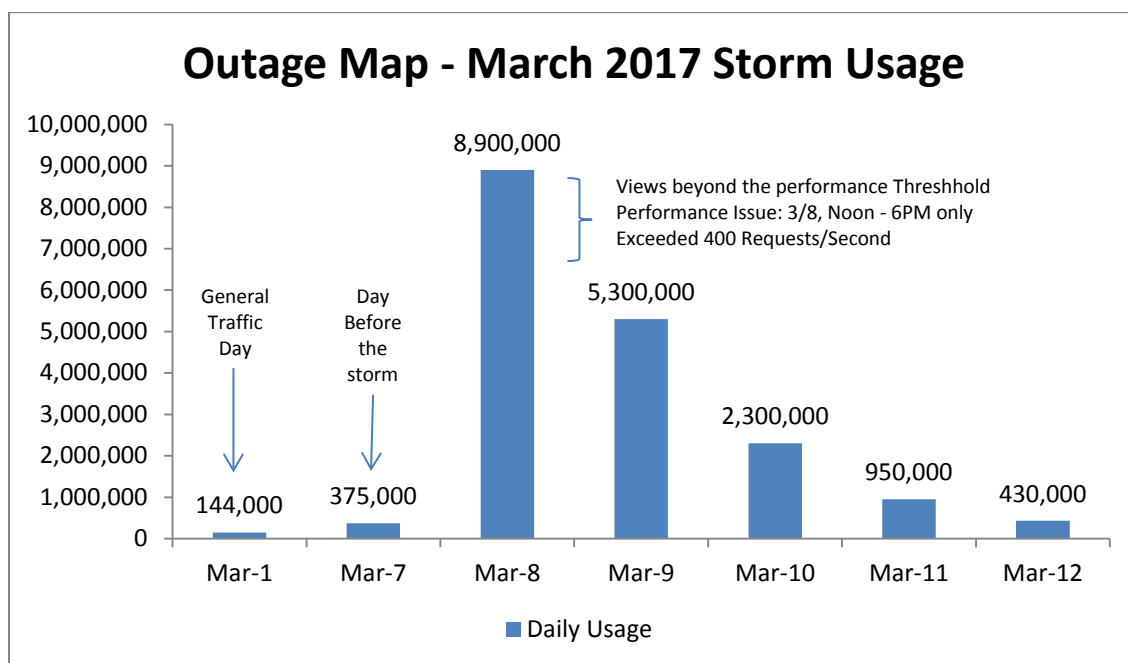


Figure 26 Outage Map on March 9, 2017 at 8:59 am (zip code view)

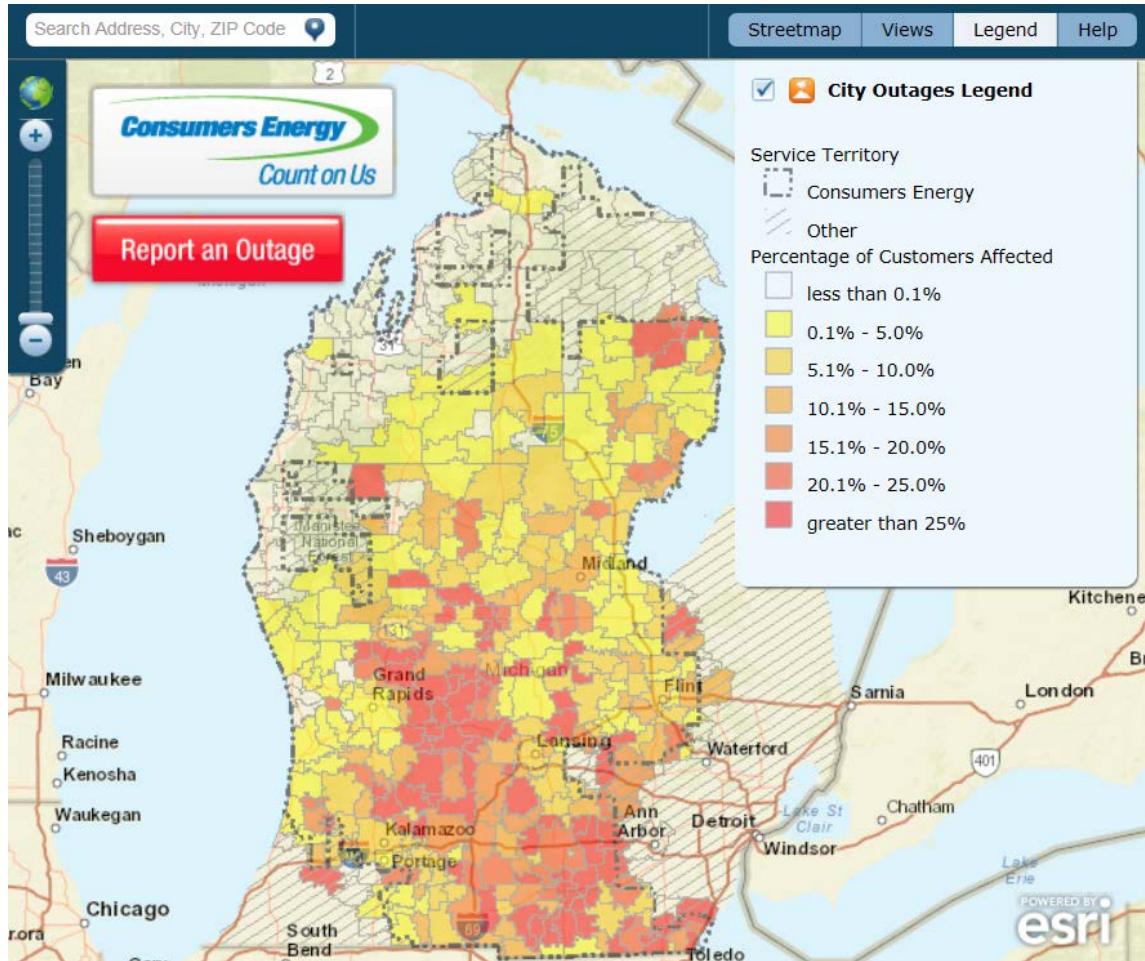
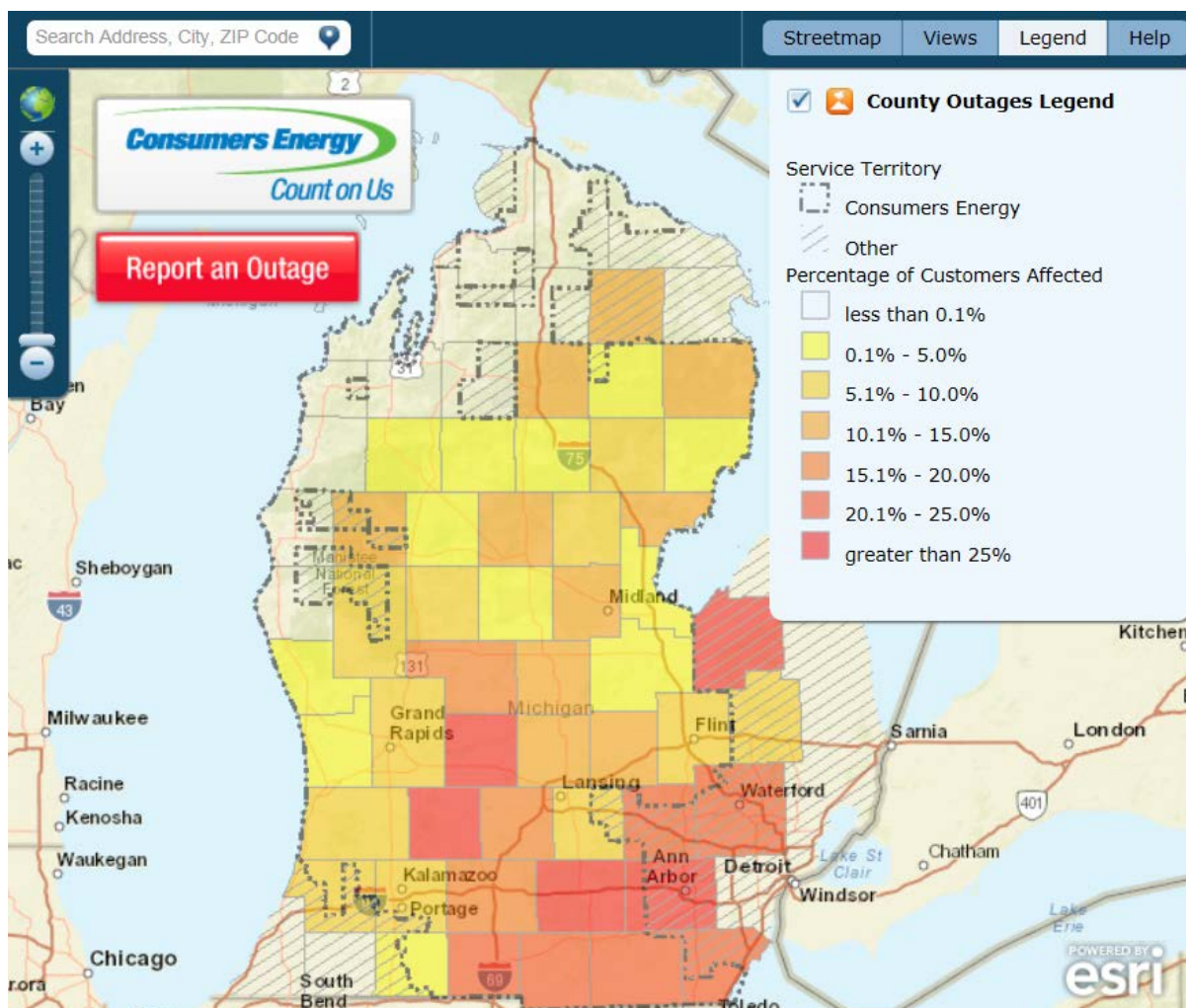


Figure 27 Outage Map on March 9, 2017 at 9:01 AM (County View)



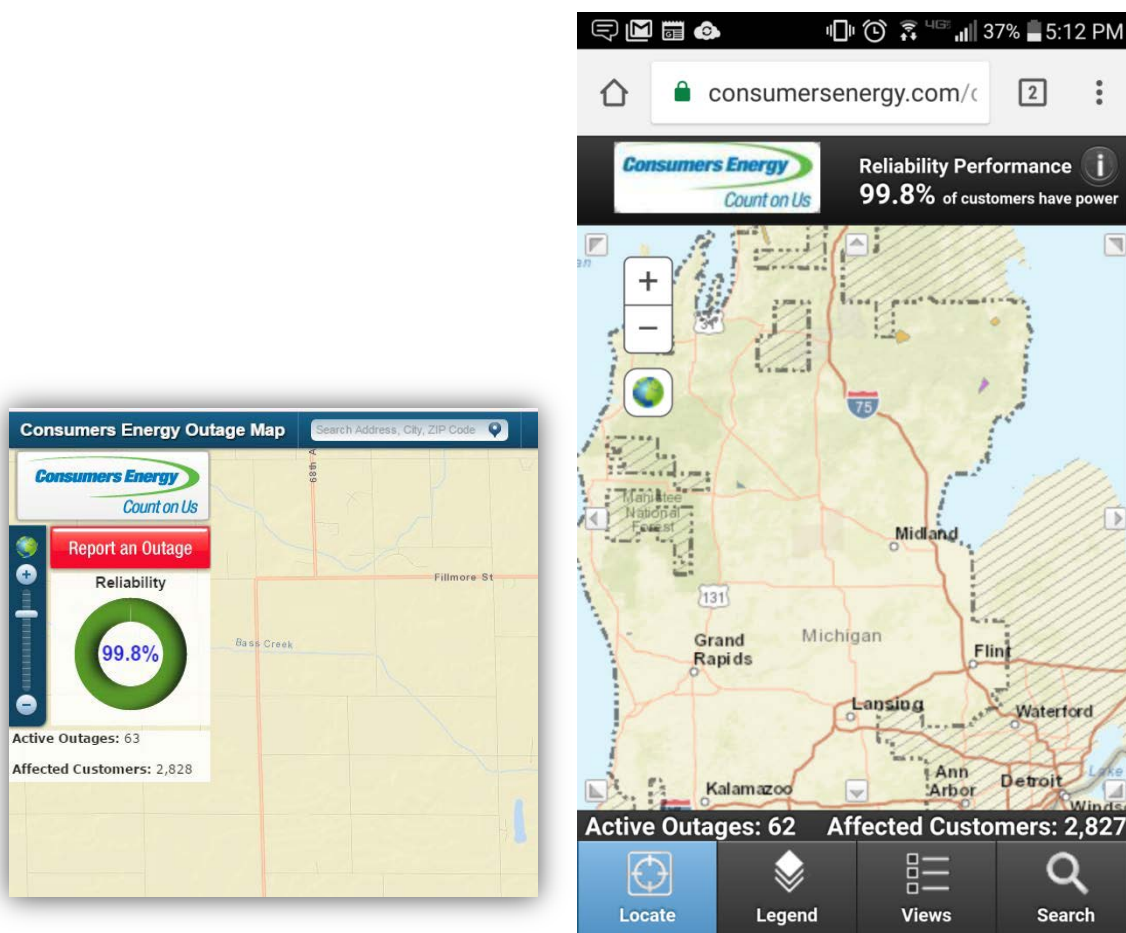
### **Future Accessibility Improvements**

Accessibility to the Outage Map will be improved in multiple stages. A software fix to improve user accessibility by reducing the number of automatic map refreshes was implemented April 27, 2017. This lessens the load on the database during periods of high usage. An upgrade to the underlying database is scheduled for the third quarter of 2017, which is targeted to further improve performance and user accessibility. Along with the database upgrade, the Company will revisit the design of the Outage Map technology to ensure it is scalable and architected for peak use and future growth.

## **Functional Improvements**

Reliability metrics were added to both the mobile and desktop versions on April 27, 2017 and display the percentage of customers that have power, the number of active outages, and the number of affected customers on the main screen. Users will no longer need to click through the city or county views to obtain that information.

**Figure 28 Outage Map Reliability Metrics**



### **B. Performance of AMI Meters and Online Communications (MPSC Topic No. 7)**

Over the last two years, Consumers Energy has been focused on the integration of the AMI meter events with the OMS. This integration and other system enhancements were implemented on May 3, 2017. During the March wind storm, AMI meters were not used to receive notification of customer outages. However, in the future OMS will receive power down events via AMI meters. This will provide the Company with immediate knowledge of customer outages prior to customers making contact. This increased volume of outage information will allow the system to better analyze the locations of system

problems as well as customer impact. As a result, Consumers Energy will be able to more efficiently route crews to trouble areas.

Although OMS/AMI integration was not implemented at the time of the March storm, the Company was still able to leverage AMI meters to help determine which customers were still without power. On March 12, the Smart Energy Operations Center pinged 23,641 customer meters to determine whether they had been restored to validate work order processing. This resulted in approximately 1,500 saved truck rolls to customers who were already restored and an estimated savings of \$300,000. These bulk meter pings also resulted in correction of device outage locations allowing for more accurate crew routing and timely response to outages. The Company further leveraged this capability during the April 6 snow and wind event, which impacted approximately 94,000 customers. A total of 21,059 meters were pinged during that event, resulting in completion of 159 work orders without sending field resources to the locations unnecessarily.

Coinciding with the bulk meter pings, Dispatch Operations and the OMS analysis team also pinged individual meters through SAP to validate restoration. The number of individual meter pings from these teams is not quantifiable as meters can be pinged through SAP at any time during an event.

### **C. Catastrophic Crewing Database**

The Catastrophic Crewing database is a tool that was internally developed in 2013 and is used to compare the statewide outage and hazard workload against available workforce and is utilized in each storm event. As discussed below, Consumers Energy used this tool during the March wind storm to balance our workload and workforce statewide and locally against a global restoration target for the wind storm.

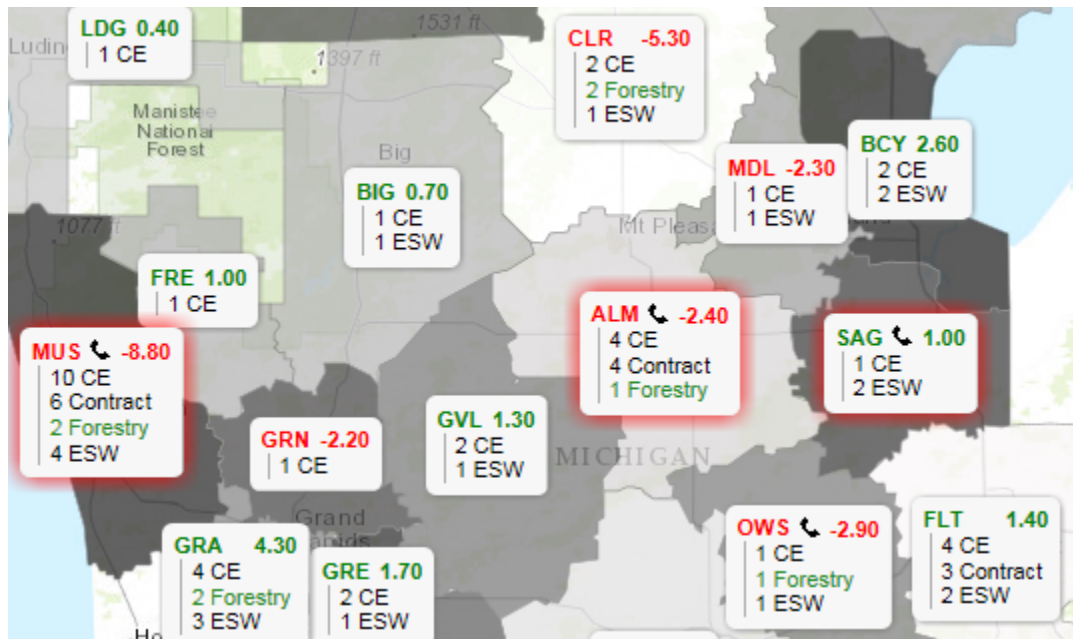
Outages, wire downs, and broken poles are assigned a workload estimate based on historic averages. Distribution Crews and Electric Service Workers nominally provide 16 hours of work in each 24-hour period. This is in adherence to the standard for safe, efficient, and timely customer restoration.

In November of 2016, the Company completed an upgrade of the Catastrophic Crewing database by enhancing crewing, logistics, and wire down management. Utilizing the crewing report within the Catastrophic Crewing database allows for data-driven resource allocations, providing an overview to our statewide structure level to balance resources for our service territory to address the areas of greatest need. The crewing report map identifies resource surpluses, deficiencies, and requests for additional resources within a given territory. The red, negative numbers in Figure 27 below indicate a deficiency



of resources in that region. Conversely, a green number indicates a surplus in that region. The phone symbol indicates that an area has conducted a system call-out requesting additional Company resources. The figure below shows a sample of the map and is not representative of the data from the March wind storm.

**Figure 29 Catastrophic Crewing Database – Crewing Report Map**



Based on the crewing report, resources were reallocated during the wind storm among service territories as necessary. The report further provides the ability to manage the “16/8 work/rest cycle” to track not only how many total resources are working and available, but how many are resting at any point during the restoration effort. There are also features that allow users to determine statewide and service territory estimated restoration dates and times, as well as additional resources needed to meet those estimates.

Consumers Energy also utilizes specialized equipment during storm events, like mobile command posts and storage trailers. Determining the best locations for such resources can only be done with data provided by the Catastrophic Crewing database. Communicating their placement to field resources will be enhanced with future improvements to the system.

Sharing information among multiple work groups during a storm can be challenging. From declaring storm to final restoration, the Catastrophic Crewing database enables communication and storage of key

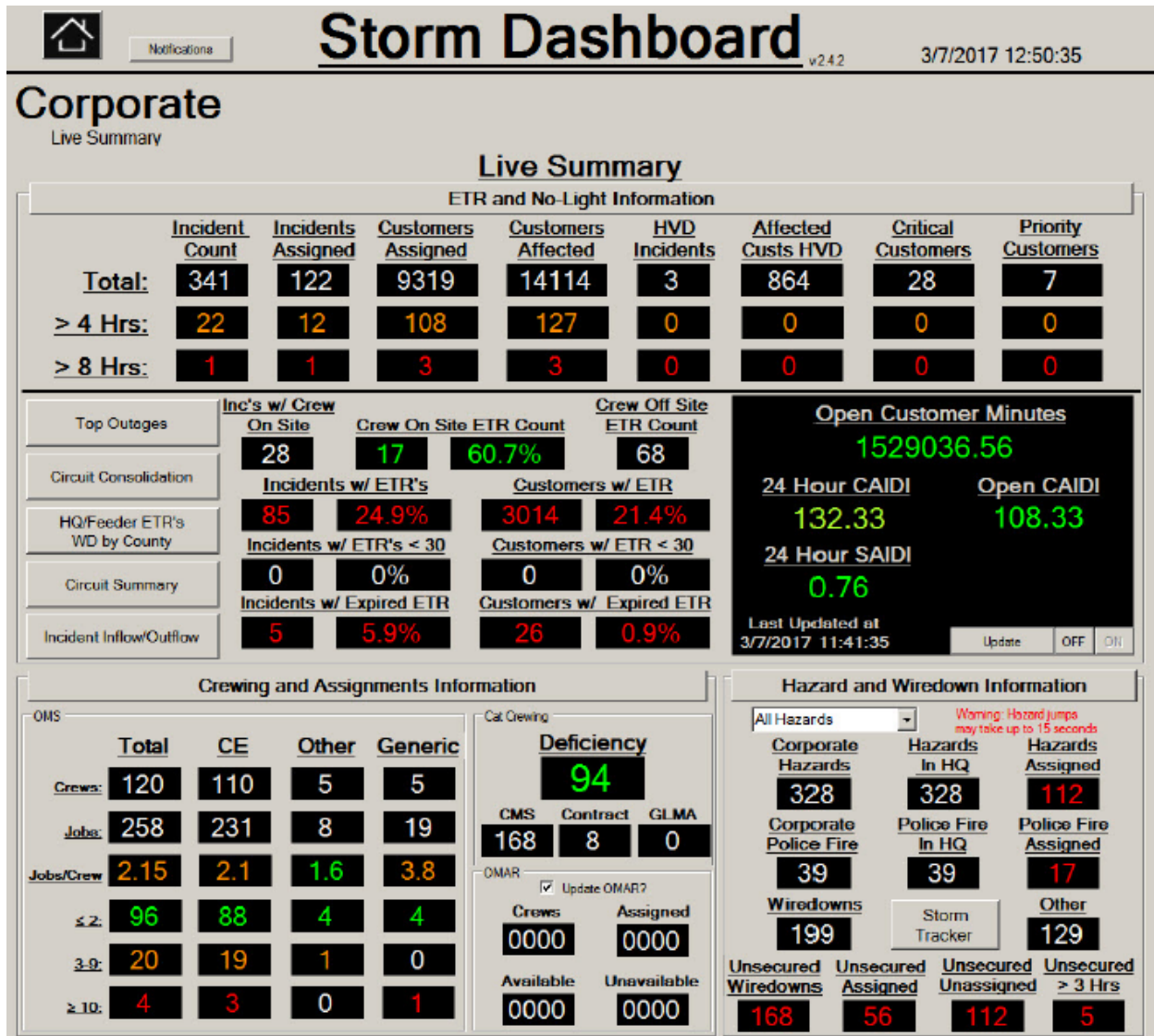
information, including logistics and activity logging, in a single location. Future enhancements will also allow for automated and manual group distribution of the information.

**D. Storm Dashboard**

The Storm Dashboard is another critical tool that was internally developed to provide real-time information during restoration efforts that Consumers Energy used effectively during the wind storm. The information is summarized by statewide, regional, or service territory level allowing for quick decisions during restoration efforts in adherence with the Company's restoration philosophy to ensure the safety of employees and the public.

Information includes hazards with police and fire on site, overall hazards and wire downs, current outages and customers impacted, crewing assignments, and estimated times of restoration. The Storm Dashboard supports efficient restoration management in order to maintain a high level of customer satisfaction and to meet reliability and MPSC performance standards. The tool not only summarizes the information, but allows for navigation into specific detail in order to analyze outage and hazard information including, but not limited to, time created, customers impacted, and current order status.

Figure 30 Storm Dashboard – Statewide Summary



The Storm Dashboard is also utilized to facilitate wire down advertisement management and social media posts during a storm by grouping wire downs by counties with the most unsecured wire downs. It also displays critical customer communication information such as regional (service center) ETR entries and circuit level ETRs.

Similar to the Catastrophic Crewing database, the Storm Dashboard summarizes critical information allowing operations leadership to ensure adherence to the restoration priorities and measure performance against objectives.



## **VI. Conclusion**

At Consumers Energy, safety is our priority and the Company safely restored power to approximately 358,000 customers. The Company was monitoring the storm well in advance of its arrival to Michigan and began preemptive restoration and resource planning. On Wednesday, March 8, the Company made its first request for Mutual Assistance electric line crews. Resources were aggressively secured in a prudent manner by utilizing outage information and system damage assessments.

The Company is standardizing processes to help ensure that during events such as this, we are ready and able to respond quickly and efficiently. Consumers Energy implemented the statewide, level 3 ICS, which resulted in the assignment of a Crisis Management Team and an Officer In Charge. Use of the ICS provided a reporting structure that streamlined responsibilities and communications. This better enabled the team to focus only on designated tasks resulting in improved focus and productivity. ICS is well aligned with the Consumers Energy Way (“CE Way”), which is rooted in the spirit of continuous improvement. It is a framework that leverages lean operating principles to improve safety, quality, cost, and delivery simultaneously.

The Company was extremely active in communicating with its customers, the media, and the public during the catastrophic March wind storm. Customers were provided multiple options for reporting outages, seeking information, and providing feedback. The social media channel is an ever increasing preference for customers as evidenced by the 400% increase in customer inquiries in the four years since the 2013 ice storm. Consumers Energy continues to grow and evolve its communications to ensure that we are ready to respond in the manner that the customer desires.

Consumers Energy is leveraging technology to improve response. AMI meters were utilized during the March wind storm to eliminate 1,500 unnecessary “truck rolls” to customers who were already restored. This allowed workers to focus only on customers still impacted. The Company’s Catastrophic Crewing database enabled data-driven deployment of resources to achieve the greatest efficiency during restoration. In addition, the Storm Dashboard provided a high level summary of critical information for quick decision making and enhanced ability to ensure adherence to restoration priorities and measure performance against objectives.

The Company follows a strategic crisis communications plan that is reviewed and practiced frequently. This planning served the Company well during this event. The March wind storm also strained the ability of community resources such as warming shelters, 2-1-1, Red Cross, and others to quickly

respond to the urgent needs of the community. In times like these, communities can pull together with neighbors helping neighbors. Consumers Energy is proud to have partnered with its communities to do its part in addressing these needs. In addition, the Company has identified certain core capabilities that are critical to effective emergency response during utility related emergencies. One such capability is Interagency Coordination, defined as the Company's ability to effectively coordinate with local, county, and state emergency management officials before, during, and after emergencies. During this storm, this coordination included direct and regular communications with these key stakeholders to ensure awareness of the current storm impacts and provide timely resolution of local concerns.

Infrastructure investments over the past several years to improve reliability helped to lessen the impact of the wind storm on the Company's customers. Consumers Energy has invested over \$500 million in HVD and LVD system reliability such as pole and conductor replacements and pole top rehabilitation over the last five years. The Company also began adding LVD automation loops during this timeframe. During the March wind storm, these loops provided automated fault isolation and quicker restoration to customers. Consumers Energy has also invested more than \$200 million over the last five years in the Forestry program to reduce vegetation related outages.

Although the Company's response to the wind event was highly effective, key lessons learned for improving restoration operations were captured during and after the event as follows:

- Enhance cross functional storm simulation exercises to improve response readiness and capabilities;
- Focus on developing further capabilities for wire down response;
- Continue to expand utilization of ICS for increased span of control and improved communication;
- Improve Outage Map accessibility and restoration estimate accuracy; and
- Continue to leverage technology and system automation to maximize efficiency.

These lessons are being addressed to improve outage response and reduce the impact on customers from small to catastrophic weather events.

Consumers Energy appreciates the opportunity to present to the MPSC this review of the Company's preparation and response to the largest storm on record affecting Michigan residents. Consumers Energy has a rich history in Michigan and is committed to providing safe, reliable energy to our customers and communities we serve as well as being responsive to legislators, regulators, public safety

officials, and other key stakeholder groups. When an incident such as the March wind storm occurs, the Company knows that it is important to safely and effectively restore power, as well as keep customers and the public informed throughout the event. Consumers Energy is committed to listening, learning, and taking action.

## **VII. Appendices**

- Appendix A: Letter From Michigan State Police
- Appendix B: Digital Ads
- Appendix C: Radio Commercial Transcripts & Audio Links
- Appendix D: News Releases

# APPENDIX A



STATE OF MICHIGAN  
DEPARTMENT OF STATE POLICE  
LANSING

RICK SNYDER  
GOVERNOR

COL. KRISTE KIBBEY ETUE  
DIRECTOR

April 21, 2017

Mr. Aaron Kantor  
Consumers Energy  
1 Energy Plaza Dr  
Jackson, MI 49201

Dear Aaron,

I am writing to express gratitude and appreciation for the partnership that has developed between Consumers Energy and the Michigan State Police, Emergency Management and Homeland Security Division.

During the wind storms in March of this year, your participation and involvement were instrumental in enhancing our abilities to strategize and provide crucial information to all involved.

Your presence in the State Emergency Operation Center made it possible for us to get real time data concerning your efforts during the restoration process, which made us better able to provide targeted assistance to meet the needs of our citizens.

The relationship between the Michigan State Police and Consumers Energy is a clear example of people working together to make Michigan a great place to live and work.

Sincerely,

A handwritten signature in black ink that reads "Chris A. Kelenske".

Capt. Chris A. Kelenske, Commander  
Deputy State Director of Emergency Management  
and Homeland Security

# APPENDIX B

# POWER OUT?

**CLICK HERE**

FOR UPDATES

**Consumers Energy**  
Count on Us®

**CARBON MONOXIDE ALARMS  
KEEP LOVED ONES SAFE.**

**INSTALL AN  
ALARM TODAY.**



**Consumers Energy**  
Count on Us®

# THANK YOU

for your patience as we worked to restore power following Michigan's historic wind storm.

Crews from states as far away as Kentucky, Ohio and Iowa joined our team — all working toward one common goal: ensuring our neighbors' safety and restoring your power as soon as possible.



**WORKING TOGETHER FOR SAFER COMMUNITIES.**

THAT'S OUR PROMISE TO MICHIGAN.



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# APPENDIX C

## Sample of Clips

WJR/Paul W. Smith 3/10/17:

[http://embeds.audioboom.com/publishing/playlist/v4?bg\\_fill\\_col=%23ecefef&boo\\_content\\_type=channel&data\\_for\\_content\\_type=4580987&image\\_option=small&link\\_color=%2358d1eb&player\\_theme=light&src=https%3A%2F%2Fapi.audioboom.com%2Fchannels%2F4580987%2Faudio\\_clips%3Finclude\\_child\\_channels%3D1#](http://embeds.audioboom.com/publishing/playlist/v4?bg_fill_col=%23ecefef&boo_content_type=channel&data_for_content_type=4580987&image_option=small&link_color=%2358d1eb&player_theme=light&src=https%3A%2F%2Fapi.audioboom.com%2Fchannels%2F4580987%2Faudio_clips%3Finclude_child_channels%3D1#)

MLIVE 3/9/17: [Windstorm outages 'largest combined statewide event in history' Snyder says](#)

The damage and outages caused by the windstorm statewide Wednesday is the "largest combined statewide event in history" according to numbers from Consumers Energy and DTE, Gov. Rick Snyder said Thursday.

During a Thursday afternoon press conference, Snyder said at one point more than one-third of Michigan residents were impacted by the storm.

"Every part of the state was affected by this," he said, adding that residents should continue to be wary of downed power lines and seek safe shelter over the weekend if their power hasn't yet been restored.

Patti Poppe, president and CEO of Consumers Energy, said the current estimate is to have most customers restored by Saturday, with the hardest hit areas of the state restored by the end of Sunday. She said 320,000 Consumers Energy customers have been affected by the windstorm, and said 160,000 have had their power restored.

Both Poppe and Norcia said line crews from throughout the Midwest are assisting with the power restoration effort.

Detroit Free Press 3/9/17: [No power? 60 plus warming centers open across Michigan](#)

A day after a historic windstorm knocked out power to more than 1 million customers in Michigan and claimed two lives in Clare, communities were cleaning up and setting up warming centers to help residents left in the dark as frigid temperatures settle in.

Patti Poppe, Consumers Energy president and CEO, said 320,000 customers were without power.

"We had 1,000 poles down as a result of this incredible wind," she said. "There were hurricane-force winds for an extended period of time."

Detroit News 3/9/17: [730K remain without power after Michigan wind storm](#)

More than 730,000 Michiganians out of the 1 million who lost power Wednesday remained without electricity Thursday afternoon, but DTE Energy and Consumers energy said power should be restored to most of their customers by the end of Sunday.

Gov. Rick Snyder, in a press briefing with officials from the state's two biggest utilities, called the windstorm "the largest combined statewide" power outage event in Michigan history.

"Every corner of the state was affected by this storm," he said. "... At one point, approximately one-third of Michigan residents were affected by the power outage."

Consumers Energy President Patti Poppe said 320,000 of its customers lost power because of the storm. By Thursday afternoon, the utility had restored power to roughly half of those customers, leaving 160,000 without power.

WJR 3/9/17: [VP Garrick Rochow talks to Guy Gordon on the Paul W. Smith show](#)

WNEM 3/9/17: [Some power outages may not be restored until Sunday](#)

Consumers Energy is reporting more than 300,000 Michigan customers were impacted by high winds that gusted up to 60 mph on Wednesday.

The energy company said because of the scope of the outages, some customers may not have power restored until Sunday.

"Safety for our customers and employees is our top priority as we work throughout a vast swath of our service territory in Michigan's Lower Peninsula making repairs to restore customers' power, repair nearly 3,000 down wires and replace 500 broken utility poles," said Guy Packard, vice president of energy operations. "All of us at Consumers Energy appreciate our customers' patience as we commit to working 24/7 until our final customers have their energy restored following this damaging wind storm."

WJRT 3/9/17: [VP Garrick Rochow goes live with WJRT about Genesee Co's Cleanup Effort](#)

We've learned that the number without power in Genesee County is now down to 10,390. Quite an improvement from the 14,600 without power at noon.

We spent some time at the Consumers Energy staging area in Mt. Morris Township this morning where they were offloading new power poles, lining up new transformers, and running operations out of a new command post.

Senior Vice President Garrick Rochow explains what crews are focusing on right now. "Our efforts over the next ten to twelve hours is really again securing all our wire that are down on the ground, we'll go after prioritizing customers, it will be schools, hospitals, and emergency responders to make sure they

have power, and some of our large customer areas we'll quickly start to work on restoration efforts even starting today."

Flint Journal 3/9/17: [More than 800,000 still without power in Michigan](#)

With hundreds of thousands of people throughout Michigan without power, Consumers Energy and DTE Energy are updating customers on the timetable for when power will be restored.

As of Thursday afternoon, more than 800,000 homes and business remain without electricity in the wake of Wednesday's windstorm. Most of those will see their lights go back on by Sunday - but maybe not all.

"Right now we're looking at statewide a bulk or most of our customer's will be restored by Saturday." Work on the remaining outages "should wrap up by evening Sunday," said Consumers Energy Senior Vice President Garrick Rochow.

Rochow said more than 320,000 Consumers Energy customers were impacted by damage caused by heavy winds Wednesday. As of 11:45 a.m. Thursday, March 9, Rochow said between 175,000-178,000 customers were still without power.

During his update, he repeatedly thanked customers for their patience and understanding as crews worked to restore power.

1320 WILS 3/9/17: [Mary Palkovich Gives an Update on Storm Restoration to Mike Cohen](#)

1320 WILS 3/10/17: [Mary Palkovich Talks to Dave Akerly about Storm Restoration](#)

WLNS 3/9/17: [WIND STORM: Thousands wait for power restoration](#)

Thousands of people are still in dark wondering when power will be restored to their homes.

Officials with Consumers Energy say they realize living without power is frustrating.

But they want people to know that crews are working around the clock to turn the lights back on.

They've even brought crews in from out of state to speed up the process.

Consumers Energy reports there are 180,000 customers in the dark.

"This is a major catastrophic event for us," said Mary Palkovich, Consumers Energy Vice President of Energy Delivery.

Crews are responding to widespread damage across the state.

But they hope that work done Thursday will turn the tides.

“Assistance crews that we are getting from out of state will be showing up today and we will pretty much be at full strength,” Palkovich said.

Some customers could be without power into next week.

“We really want to thank all of our customers for their patience, and we always want to remind our customers to be extra safe, be careful of wires that are down, stay at least 25 feet away,” Palkovich said.

While many wait it out the best they can, a big white Consumers truck is certainly a welcome sight.

“They do a great job, so kudos to them. I just want to see one of them with a cherry picker and a saw,” Palkovich said.

Consumers Energy says the wind storm took down nearly 8,200 wires and broke more than 1,100 poles.

Grand Rapids Press 3/10/17: [http://www.mlive.com/news/grand-rapids/index.ssf/2017/03/how\\_consumers\\_energy\\_prioritiz.html](http://www.mlive.com/news/grand-rapids/index.ssf/2017/03/how_consumers_energy_prioritiz.html)

WOOD TV 8 3/9/17: <http://woodtv.com/2017/03/09/consumers-energy-works-around-the-clock-to-restore-power/>

# APPENDIX D

## **Winds Cut Power to more than 140,000 Consumers Energy Customers**

Jackson, Mich. Wednesday, March 08, 2017

Restoration Underway as High Winds up to 60 mph Continue

Sustained high winds have cut power to more than 140,000 Consumers Energy customers and outages are expected to continue into Wednesday evening.

Since Tuesday morning, more than 180,000 customers have been affected by downed trees and power lines due to high winds, some in excess of 60 mph. Tuesday's more than 30,000 affected customers were primarily in northern Michigan. High winds across much of Lower Michigan are expected to continue until late Wednesday.

Because of the storm's duration and statewide impact, some customers in the worst impacted areas may not have power restored until Sunday.

"We have crews working around the clock in difficult weather conditions and we appreciate our customers' patience," said Guy Packard, vice president of energy operations. "With the rough weather continuing, we expect this to be a multi-day restoration effort."

From lineworkers to damage assessors, wire guards and customer service representatives, more than 1,600 people are engaged in the storm restoration effort. Consumers Energy is working to secure additional crews through an established mutual assistance process.

Customers can report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter). The site is available via computers and mobile devices.

The public is especially reminded to keep these safety items in mind:

- Stay at least 25 feet away from downed power lines and to call 911 and Consumers Energy at 800-477-5050.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- If using a generator, contact a licensed electrician to ensure that it is properly connected and make certain it is isolated from the company's electric distribution system. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running. Operating a generator without proper ventilation can create carbon monoxide, an odorless, colorless and deadly gas.
- In some cases, the mast which holds the electric service wires to a customer's home or business may have been damaged or torn away. Crews will reconnect the wires to a home, but only a licensed electrician can repair or replace a mast or a cable.

As of 12:45 p.m., counties most affected by electric interruptions were: Alcona (2,351); Allegan (4,789); Antrim (1,005); Arenac (710); Barry (8,029); Bay (1,620); Branch (2,236); Calhoun (11,515); Clare (2,770); Clinton (2,264); Eaton (1,360); Genesee (10,109); Gladwin (1,060); Grand Traverse (457); Gratiot (3,340); Hillsdale (2,674); Ingham (4,239); Ionia (7,002); Iosco (2,076); Isabella (367); Jackson (11,849); Kalamazoo (6,001); Kalkaska (483); Kent (30,345); Lenawee (2,985); Livingston (1,924); Mecosta (1,478); Midland (6,124); Monroe (1,775); Montcalm (4,292); Newaygo (1,112); Oakland (1078); Ogemaw (1,288); Ottawa (2,993); Roscommon (1,533); Saginaw (5,537); Shiawassee (2,001); VanBuren (2,206); Washtenaw (885) and Wexford (348).

Consumers Energy, Michigan's largest utility, is the principal subsidiary of CMS Energy (NYSE: CMS), providing natural gas and electricity to 6.7 million of the state's 10 million residents in all 68 Lower Peninsula counties.

# # #



## **More than 212,000 Consumers Energy Customers Affected by Damaging Winds**

Jackson, Mich. Wednesday, March 08, 2017

### **Energy Provider Working 24/7 Making Repairs**

Sustained high winds and powerful gusts Tuesday and Wednesday have more than 212,000 Consumers Energy customers experiencing an interruption in electric service this evening.

Since Tuesday morning, more than 260,000 customers have been affected by downed trees and power lines due to high winds, some in excess of 60 mph.

Because of the storm's duration and statewide impact, some customers in the worst impacted areas may not have power restored until Sunday.

"Safety for our customers and employees is our top priority as we work throughout a vast swath of our service territory in Michigan's Lower Peninsula making repairs to restore customers' power, repair nearly 3,000 down wires and replace 500 broken utility poles," said Guy Packard, vice president of energy operations. "All of us at Consumers Energy appreciate our customers' patience as we commit to working 24/7 until our final customers have their energy restored following this damaging wind storm."

From lineworkers to damage assessors, wire guards and customer service representatives, more than 1,600 people are engaged in the storm restoration effort. An additional 130 workers are on their way from utilities in Kentucky, Ohio and Indiana to assist the crews in Michigan.

Customers can now sign up to get outage alerts and restoration times sent to a phone, email or text message (Text 'REG' to 232273.) at [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). They can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

The public is especially reminded to keep these safety items in mind:

- Stay at least 25 feet away from downed power lines and to call 911 and Consumers Energy at 800-477-5050.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running. Operating a generator without proper ventilation can create carbon monoxide, an odorless, colorless and deadly gas. If using a generator, contact a licensed electrician to ensure that it is properly connected and make certain it is isolated from the company's electric distribution system.
- In some cases, the mast which holds the electric service wires to a customer's home or business may have been damaged or torn away. Crews will reconnect the wires to a home, but only a licensed electrician can repair or replace a mast or a cable.

As of 4 p.m., counties most affected by electric interruptions were: Alcona (2,351); Allegan (5,989); Antrim (540); Arenac (754); Barry (6,275); Bay (1,630); Branch (2,776); Calhoun (9,825); Clare (935); Clinton (2,545); Eaton (4,738); Genesee (17,247); Gladwin (830); Grand Traverse (242); Gratiot (4,027); Hillsdale (3,556); Ingham (6,300); Ionia (9,256); Iosco (952); Isabella (780); Jackson (18,274); Kalamazoo (16,994); Kent (38,438); Lenawee (9,040); Livingston (2,664); Mecosta (2,818); Midland (5,785); Monroe (4,827); Montcalm (5,722); Newaygo (1,996); Oakland (1,127); Ogemaw (370); Ottawa (2,847); Roscommon (1,870); Saginaw (7,285); Shiawassee (4,169); St. Joseph (1,200); VanBuren (1,874); Washtenaw (1,297) and Wexford (936).

Consumers Energy, Michigan's largest utility, is the principal subsidiary of CMS Energy (NYSE: CMS), providing natural gas and electricity to 6.7 million of the state's 10 million residents in all 68 Lower Peninsula counties.

# # #

## **Consumers Energy Working Around the Clock to Restore Power Across Michigan**

Jackson, Mich. Wednesday, March 08, 2017

Energy Provider Safely Working to Make Repairs, Restore 210,000

Sustained high winds and powerful gusts Tuesday and Wednesday have more than 210,000 Consumers Energy customers experiencing an interruption in electric service tonight.

Since 3:00 p.m. on Tuesday, more than 290,000 customers have been affected. Gusts and high winds in excess of 60 mph have caused downed trees and more than 3,000 downed power lines in Consumers Energy's service territory.

Because of the storm's duration and statewide impact, some customers in the worst impacted areas may not have power restored until the weekend.

"As we work to restore power as quickly as possible, the safety of our customers and employees is our top priority," said Guy Packard, vice president of energy operations. "We thank our customers for their patience as we commit to working 24/7 until our final customers have their energy restored."

From lineworkers to damage assessors, wire guards and customer service representatives, more than 1,600 people are engaged in the storm restoration effort. An additional 130 workers are on their way from utilities in Kentucky, Ohio and Indiana to assist the crews in Michigan.

Customers can now sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

We urge the public to keep these safety tips in mind:

- Stay at least 25 feet away from downed power lines and to call 911 and Consumers Energy at 800-477-5050.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running. Operating a generator without proper ventilation can create carbon monoxide, an odorless, colorless and deadly gas. If using a generator, contact a licensed electrician to ensure that it is properly connected and make certain it is isolated from the company's electric distribution system.
- In some cases, the mast which holds the electric service wires to a customer's home or business may have been damaged or torn away. Crews will reconnect the wires to a home, but only a licensed electrician can repair or replace a mast or a cable.

To view specific counties and regions most affected by electric interruptions, please visit:  
<https://www.consumersenergy.com/outagemap>

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# # #

## **Storm Restoration Efforts Remain Steady As Consumers Energy Continues Post-Wind Storm Work**

Jackson, Mich. Thursday, March 09, 2017

### **Crews Have Restored Close to 200,000 Electric Customers Affected by Outages**

Favorable weather conditions have assisted Consumers Energy and contract crews in their effort to restore nearly 200,000 of the 311,000 customers who lost power during Tuesday's and Wednesday's fierce wind storms.

Restoration is continuing through the night. The vast majority of customers without electric service should have their power restored by midnight Saturday. In some of the hardest areas, including portions of Genesee, Kent and Kalamazoo counties, restoration work will continue into Sunday. As of 10 p.m., approximately 120,000 customers remained without power.

"The improving weather conditions are helping our restoration efforts," said Guy Packard, vice president of electric operations. "Today, I saw first-hand the hard work our men and women are doing to restore power and how it is appreciated by our customers. But our task is not complete until all customers affected by this devastating storm are back in service. We thank them for their patience."

This week's long-lasting winds of up to 60 mph took down nearly 8,200 wires and broke more than 1,100 poles across Consumers Energy's service territory.

From lineworkers to damage assessors, wire guards and customer service representatives, more than 2,000 people are engaged in the electric restoration effort. An additional 181 crews have arrived from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana to assist the crews in Michigan.

Customers can now sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

We urge the public to keep these safety tips in mind:

- Stay at least 25 feet away from downed power lines and to call 911 and Consumers Energy at 800-477-5050.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.
- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened. Residents are urged to

check on the needs of elderly or vulnerable neighbors, especially those who may live in areas currently without power.

To view specific counties and regions most affected by electric interruptions, please visit:  
<https://www.consumersenergy.com/outagemap>

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# # #

## **Storm Restoration Work Progresses Through Thursday As Crews Work Safely to Restore Power**

Jackson, Mich. Thursday, March 09, 2017

### **Crews coming from Other States to Assist in Effort**

Consumers Energy crews have been working around the clock to help restore more than 319,000 customers left without power during two days of high winds across Michigan. As of 11 a.m. today, 178,000 customers were still without power after winds in excess of 60 mph blew through the state. Since Tuesday afternoon, 319,000 customers have been affected in the high winds that took down 7,900 wires and broke more than 1,000 poles.

Because of the storm's duration and statewide impact, some customers in the worst impacted areas may not have power restored until Sunday.

"Our crews are working day and night to get residents' power restored and downed wires removed," said Garrick Rochow, senior vice president of distribution and customer operations. "We appreciate our customers' continued patience and will continue to work to restore power safely and as quickly as possible."

From lineworkers to damage assessors, wire guards and customer service representatives, more than 2,200 people are engaged in the storm restoration effort. An additional 181 crews are arriving from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa, and Indiana; 40 of the crews are already on the ground to assist the crews in Michigan.

Customers can now sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

We urge the public to keep these safety tips in mind:

- Stay at least 25 feet away from downed power lines and to call 911 and Consumers Energy at 800-477-5050.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running. Operating a generator without proper ventilation can create carbon monoxide, an odorless, colorless and deadly gas. If using a generator, contact a licensed electrician to ensure that it is properly connected and make certain it is isolated from the company's electric distribution system.
- In some cases, the mast which holds the electric service wires to a customer's home or business may have been damaged or torn away. Crews will reconnect the wires to a home, but only a licensed electrician can repair or replace a mast or a cable.

To view specific counties and regions most affected by electric interruptions, please visit:  
<https://www.consumersenergy.com/outagemap>

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# # #



## **Storm Restoration Work Progresses Overnight As High Winds Across Michigan Subside**

Jackson, Mich. Thursday, March 09, 2017

Crews Safely Working to Make Repairs, more than 115,000 restored

Improving weather conditions are assisting Consumers Energy in restoring more than 300,000 customers left without power during two days of high winds across Michigan.

As of 4 a.m. today, 187,000 customers were still without power after winds in excess of 60 mph blew through the state. Since Tuesday afternoon, 300,000 customers have been affected in the high winds that took down 7,000 wires and broke more than 1,000 poles.

Because of the storm's duration and statewide impact, some customers in the worst impacted areas may not have power restored until Sunday.

"We have been working through the night and making steady progress," said Guy Packard, vice president of energy operations. "The lighter winds make for improved working conditions for our crews. We appreciate their commitment to safety and our customers' continued patience."

From lineworkers to damage assessors, wire guards and customer service representatives, more than 2,000 people are engaged in the storm restoration effort. An additional 130 workers have arrived from utilities in Kentucky, Ohio and Indiana to assist the crews in Michigan.

Customers can now sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

We urge the public to keep these safety tips in mind:

Stay at least 25 feet away from downed power lines and to call 911 and Consumers Energy at 800-477-5050.

Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.

Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running. Operating a generator without proper ventilation can create carbon monoxide, an odorless, colorless and deadly gas. If using a generator, contact a licensed electrician to ensure that it is properly connected and make certain it is isolated from the company's electric distribution system.

In some cases, the mast which holds the electric service wires to a customer's home or business may have been damaged or torn away. Crews will reconnect the wires to a home, but only a licensed electrician can repair or replace a mast or a cable.

To view specific counties and regions most affected by electric interruptions, please visit:  
<https://www.consumersenergy.com/outagemap>

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###

## **Consumers Energy Continues Restoration Progress Following Powerful Wind Storm**

Jackson, Mich. Thursday, March 09, 2017

### **Crews Restore Service to Half the Electric Customers Affected by Outages**

Consumers Energy crews have since Tuesday restored more than 160,000 customers left without electric service by damaging winds that ripped across Michigan Tuesday and Wednesday. That edges the recovery work past the halfway point of the 319,000 customers served by the energy provider affected by this catastrophic event, which took down nearly 8,200 wires and broke more than 1,100 poles.

Because of the storm's duration and statewide impact, some customers in the worst impacted areas may not have power restored until Sunday.

"Our workforce is in full motion and includes mutual assistance restoration crews from six different states, and we will continue our momentum until every customer affected by this week's damaging winds has their power restored," said Guy Packard, vice president of energy operations. "We work hard and safely in our customers' cities, villages, towns and neighborhoods to show our commitment to providing hometown service and to show our appreciation for their continued patience."

From lineworkers to damage assessors, wire guards and customer service representatives, more than 2,000 people are engaged in the electric restoration effort. An additional 181 workers have arrived from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana to assist the crews in Michigan.

Customers can now sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

We urge the public to keep these safety tips in mind:

- Stay at least 25 feet away from downed power lines and to call 911 and Consumers Energy at 800-477-5050.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.
- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened.

To view specific counties and regions most affected by electric interruptions, please visit:

<https://www.consumersenergy.com/outagemap>

Consumers Energy, Michigan's largest utility, is the principal subsidiary of CMS Energy (NYSE: CMS), providing natural gas and electricity to 6.7 million of the state's 10 million residents in all 68 Lower Peninsula counties.

The next storm restoration release will be at approximately 9:30 p.m., Thursday.

###

## **Consumers Energy Storm Restoration Efforts Steady Throughout the Night**

Jackson, Mich. Friday, March 10, 2017

### **Service Restored to More Than 200,000 Customers**

Consumers Energy employees, contractors and mutual assistance crews from six states worked steadily throughout the night to restore electric service to customers who lost power as a result of destructive wind storms that occurred earlier this week.

The vast majority of customers without electric service should have power restored by midnight Saturday. In some of the hardest areas, including portions of Genesee, Kent and Kalamazoo counties, restoration work will continue into Sunday. As of 4 a.m., approximately 100,000 customers remained without power.

“The sheer devastation this storm brought to our state makes this a multi-day restoration effort, and our crews will be working day and night so that all customers have service again,” said Guy Packard, vice president of electric operations. “Until that is accomplished we encourage customers to look out for family, friends and neighbors who are currently without power, particularly the elderly or infirmed. Those who need a warming shelter or other assistance should call 2-1-1 to be connected to services.”

This week’s long-lasting winds of up to 60 mph took down nearly 8,200 electric wires and broke more than 1,100 poles across Consumers Energy’s service territory, which includes all 68 Lower Peninsula counties.

From lineworkers to damage assessors, wire guards and customer service representatives, more than 2,000 people are engaged in electric restoration activities. An additional 181 crews from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana are assisting Consumers Energy crews in this effort.

Customers can sign up to get outage alerts and restoration times sent to a phone, email or text message, Text ‘REG’ to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

The public is urged to make these safety tips a top priority:

- Stay at least 25 feet away from downed power lines. Call 911 and Consumers Energy at 800-477-5050 to report.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.

- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened.

To view specific counties and regions most affected by electric interruptions, please visit:

<https://www.consumersenergy.com/outagemap>

Consumers Energy, Michigan's largest utility, is the principal subsidiary of CMS Energy (NYSE: CMS), providing natural gas and electricity to 6.7 million of the state's 10 million residents in all 68 Lower Peninsula counties.

# # #

## **Consumers Energy Storm Restoration Efforts Continue Through Friday**

Jackson, Mich. Friday, March 10, 2017

### **Service Restored to More Than 250,000 Customers**

Consumers Energy employees, contractors and mutual assistance crews from six states worked steadily throughout the night to restore electric service to customers who lost power as a result of destructive wind storms that occurred earlier this week.

The vast majority of customers without electric service should have power restored by midnight Saturday. In some of the hardest areas, including portions of Genesee, Jackson, Kent, Lenawee, Ionia and Kalamazoo counties, restoration work will continue into Sunday. As of 11:30 a.m., approximately 94,000 customers remained without power.

“Safety remains our top concern as we move into our third day of restoration after this catastrophic wind event,” said Mary Palkovich, vice president of electric delivery. “Crews have been working around the clock to try to restore power as quickly and efficiently as possible and we appreciate everyone’s patience as we continue to help those who are impacted by this storm. Because temperatures are dropping we ask our customers to reach out to family, friends and neighbors who may be impacted by this storm and make sure they are safe. Information about warming shelters and other assistance is available by calling 2-1-1.”

This week’s long-lasting winds of up to 60 mph took down nearly 8,700 electric wires and broke more than 1,200 poles across Consumers Energy’s service territory, which includes all 68 Lower Peninsula counties.

From lineworkers to damage assessors, wire guards and customer service representatives, more than 2,000 people are engaged in electric restoration activities. An additional 166 crews from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana are assisting Consumers Energy crews in this effort.

Customers can sign up to get outage alerts and restoration times sent to a phone, email or text message, Text ‘REG’ to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

The public is urged to make these safety tips a top priority:

- Stay at least 25 feet away from downed power lines. Call 911 and Consumers Energy at 800-477-5050 to report.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.

- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened.

To view specific counties and regions most affected by electric interruptions, please visit:

<https://www.consumersenergy.com/outagemap>

Consumers Energy, Michigan's largest utility, is the principal subsidiary of CMS Energy (NYSE: CMS), providing natural gas and electricity to 6.7 million of the state's 10 million residents in all 68 Lower Peninsula counties.

The next storm restoration release will be at approximately 4:30 p.m., Friday.

###



## **Consumers Energy Makes Significant Progress Restoring Nearly 260,000 Customers Affected by Wind Storm Damage**

Jackson, Mich. Friday, March 10, 2017

Consumers Energy employees, contractors and mutual assistance crews from six states working around the clock have restored power to more than 265,000 customers affected by this week's damaging wind storm.

The vast majority of customers without electric service should have power restored by midnight Saturday. In some of the hardest areas, including portions of Genesee, Jackson, Kent, Lenawee, Ionia and Kalamazoo counties, restoration work will continue into Sunday. As of 4 p.m., approximately 72,000 customers remained without power.

"We appreciate the patience of all customers impacted by this catastrophic wind event as our crews continue to work day and night to restore normalcy to every customer," said Dan Malone, senior vice president of energy resources. "Our employees remain focused on working safely, and we want to remind our Michigan friends and neighbors to remain safe too. That's why we're encouraging those who may be concerned about staying in their homes as temperatures drop to call 2-1-1 to get information about warming shelters. It's also why we are asking even those who have power to check on the safety of family members, friends and neighbors."

This week's long-lasting winds of up to 60 mph took down nearly 9,000 electric wires and broke more than 1,200 poles across Consumers Energy's service territory, which includes all 68 Lower Peninsula counties.

From lineworkers to damage assessors, wire guards and customer service representatives, more than 3,300 people are engaged in electric restoration activities. An additional 166 crews from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana are assisting Consumers Energy crews in this effort.

Customers can sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

The public is urged to make these safety tips a top priority:

- Stay at least 25 feet away from downed power lines. Call 911 and Consumers Energy at 800-477-5050 to report.
- Be alert to crews working along roads. Drivers should slow down or stop and wait for oncoming traffic to clear so they safely can go past workers on roadsides.
- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.

- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened.
- Because temperatures are dropping, we ask our customers to reach out to family, friends and neighbors who may be impacted by this storm and make sure they are safe.
- Help keep pipes from freezing during low temperatures by maintaining a constant drip on faucets.

To view specific counties and regions most affected by electric interruptions, please visit:  
<https://www.consumersenergy.com/outagemap>

Consumers Energy, Michigan's largest utility, is the principal subsidiary of CMS Energy (NYSE: CMS), providing natural gas and electricity to 6.7 million of the state's 10 million residents in all 68 Lower Peninsula counties.

The next storm restoration release will be at approximately 9:30 p.m., Friday.

###

## **Consumers Energy Makes Significant Progress Restoring Nearly 280,000 Customers Affected by Wind Storm Damage**

Jackson, Mich. Friday, March 10, 2017

Consumers Energy employees, contractors and mutual assistance crews from six states working around the clock have restored power to more than 280,000 customers affected by this week's damaging wind storm.

The vast majority of customers without electric service should have power restored by midnight Saturday. In some of the hardest areas, including portions of Barry, Calhoun, Ionia, Jackson, Kent and Lenawee counties restoration work will continue into Sunday. As of 9 p.m., approximately 60,000 customers remained without power.

"We appreciate the patience of all customers impacted by this devastating wind event and want to assure them our crews will continue working diligently through the night and into the weekend until service is restored for every customer," said Dan Malone, senior vice president of energy resources. "Our top priority is to keep working safely, and we encourage our Michigan friends and neighbors to remain safe too. We urge customers concerned about staying in their homes as temperatures drop to call 2-1-1 to get information about warming shelters. It's also why we are asking even those who have power to check on the safety of family members, friends and neighbors, especially seniors and those who may have medical conditions."

This week's long-lasting winds of up to 60 mph took down nearly 9,000 electric wires and broke more than 1,200 poles across Consumers Energy's service territory, which includes all 68 Lower Peninsula counties.

From lineworkers to damage assessors, wire guards and customer service representatives, more than 3,300 people are engaged in electric restoration activities. An additional 166 crews from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana are working alongside Consumers Energy crews in this effort.

Customers can sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

Consumers Energy continues to share these important safety tips:

- Stay at least 25 feet away from downed power lines. Call 911 and Consumers Energy at 800-477-5050 to report.
- Be alert to crews working along roads and "slow down and go around." Drivers should slow down or stop and wait for oncoming traffic to clear then safely pass workers on roadsides.

- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.
- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened.
- Because temperatures are dropping, we ask our customers to reach out to family, friends and neighbors who may be impacted by this storm and make sure they are safe.
- Help keep pipes from freezing during low temperatures by maintaining a constant drip on faucets.

To view specific counties and regions most affected by electric interruptions, please visit:  
<https://www.consumersenergy.com/outagemap>

Consumers Energy, Michigan's largest utility, is the principal subsidiary of CMS Energy (NYSE: CMS), providing natural gas and electricity to 6.7 million of the state's 10 million residents in all 68 Lower Peninsula counties.

The next storm restoration release will be at approximately 5 a.m., Saturday.

# # #

## **Consumers Energy Wind Storm Restoration On Track**

Jackson, Mich. Saturday, March 11, 2017

Consumers Energy employees, contractors and mutual assistance crews from six states working around the clock have restored power to nearly 320,000 customers affected by this week's damaging wind storm.

As of 3:30 p.m. Saturday, approximately 34,500 customers remained without electric service. Fierce, prolonged winds Tuesday and Wednesday exceeding 60 mph cut power to more than 354,000 Consumers Energy customers.

The vast majority of customers without electric service should have power restored by midnight tonight. In some of the hardest areas, including portions of Allegan, Barry, Branch, Calhoun, Ingham, Jackson, Genesee, Kalamazoo, Lenawee and Monroe counties, restoration work will continue into Sunday.

"We've made steady progress today with the continued favorable weather," said Mary Palkovich, vice president of energy delivery. "We know the cold weather is challenging for our customers still without power as well as our crews performing restoration work. We appreciate the patience of all customers affected by this devastating storm. Our work is not done until each customer has their power safely restored."

"Our top priority is to keep working safely, and we encourage our Michigan friends and neighbors to remain safe too," Palkovich said. "With this weekend's cold temperatures, we urge customers concerned about staying in their homes to call 2-1-1 to get information about warming shelters. It's also why we are asking even those who have power to check on the safety of family members, friends and neighbors, especially seniors and those who may have medical conditions."

This week's storm took down over 9,000 electric wires and broke more than 1,300 poles across Consumers Energy's service territory.

From lineworkers to damage assessors, wire guards and customer service representatives, more than 3,400 people are engaged in electric restoration activities. An additional 166 crews from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana are working alongside Consumers Energy and in-state contractor crews in this effort.

Customers can sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

Consumers Energy continues to share these important safety tips:

- Stay at least 25 feet away from downed power lines. Call 9-1-1 and Consumers Energy at 800-477-5050 to report.
- Be alert to crews working along roads and “slow down and go around.” Drivers should slow down or stop and wait for oncoming traffic to clear then safely pass workers on roadsides.
- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.
- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened.
- Because temperatures are dropping, we ask our customers to reach out to family, friends and neighbors who may be impacted by this storm and make sure they are safe.
- Help keep pipes from freezing during low temperatures by maintaining a constant drip on faucets.

To view specific counties and regions most affected by electric interruptions, please visit:  
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The next storm restoration release will be at approximately 5 a.m., Sunday.

# # #

## **Progress Continues as Consumers Energy Restores Nearly 300,000 Customers Affected by Wind Storm Damage**

Jackson, Mich. Saturday, March 11, 2017

Consumers Energy employees, contractors and mutual assistance crews from six states working around the clock have restored power to nearly 300,000 customers affected by this week's damaging wind storm.

As of 5 a.m. Saturday, approximately 46,000 customers remained without electric service. Fierce, prolonged winds Tuesday and Wednesday exceeding 60 mph cut power to more than 346,000 Consumers Energy customers.

The vast majority of customers without electric service should have power restored by midnight tonight. In some of the hardest areas, including portions of Barry, Calhoun, Ionia, Jackson and Lenawee counties, restoration work will continue into Sunday.

"Continued favorable weather has assisted our crews in their restoration efforts," said Mary Palkovich, vice president of energy delivery. "We appreciate the patience of all customers affected by this devastating wind storm event. Our work is not done until each customer has their power safely restored."

"Our top priority is to keep working safely, and we encourage our Michigan friends and neighbors to remain safe too," Palkovich said. "With this weekend's cold temperatures, we urge customers concerned about staying in their homes to call 2-1-1 to get information about warming shelters. It's also why we are asking even those who have power to check on the safety of family members, friends and neighbors, especially seniors and those who may have medical conditions."

This week's storm took down nearly 9,000 electric wires and broke more than 1,200 poles across Consumers Energy's service territory.

From lineworkers to damage assessors, wire guards and customer service representatives, more than 3,300 people are engaged in electric restoration activities. An additional 166 crews from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana are working alongside Consumers Energy and in-state contractor crews in this effort.

Customers can sign up to get outage alerts and restoration times sent to a phone, email or text message, Text 'REG' to 232273 or visit: [www.ConsumersEnergy.com/alerts](http://www.ConsumersEnergy.com/alerts). Customers can also, report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

Consumers Energy continues to share these important safety tips:

- Stay at least 25 feet away from downed power lines. Call 911 and Consumers Energy at 800-477-5050 to report.

- Be alert to crews working along roads and “slow down and go around.” Drivers should slow down or stop and wait for oncoming traffic to clear then safely pass workers on roadsides.
- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.
- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened.
- Because temperatures are dropping, we ask our customers to reach out to family, friends and neighbors who may be impacted by this storm and make sure they are safe.
- Help keep pipes from freezing during low temperatures by maintaining a constant drip on faucets.

To view specific counties and regions most affected by electric interruptions, please visit:  
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The next storm restoration release will be at approximately 5 p.m., Saturday.

# # #



## Consumers Energy Wind Storm Restoration Wrapping Up

Jackson, Mich. Sunday, March 12, 2017

Non-stop work by thousands of Consumers Energy employees, contractors and mutual assistance crews from six states is expected to result later today in the final restoration of more than 350,000 customers affected by last week's devastating wind storm.

As of 4:30 a.m. Sunday, approximately 14,000 customers remained without electric service. Fierce, prolonged winds Tuesday and Wednesday exceeding 60 mph cut power to more than 355,000 Consumers Energy customers. Restoration work is wrapping up today in the hardest hit areas.

"I want to thank our customers for their patience and kindness during the cleanup from this historic storm," said Mary Palkovich, vice president of energy delivery. "Even as the work stretched into days and the temperatures dropped, many of you came out of your homes, cheered when the power was restored and thanked our crews. We greatly appreciate your understanding during a challenging six days."

"I also want to thank the men and women of Consumers Energy, as well as our contractors and mutual assistance crews," Palkovich said. "You worked long hours away from your families, safely performed your tasks in less than ideal conditions and put the needs of our customers first."

Customers can report an outage, check the status of an outage and get useful tips what to do before, during and after a storm by visiting [www.ConsumersEnergy.com/OutageCenter](http://www.ConsumersEnergy.com/OutageCenter).

The storm took down over 9,000 electric wires and broke more than 1,300 poles across Consumers Energy's service territory.

From lineworkers to damage assessors, wire guards and customer service representatives, more than 3,400 people have been engaged in electric restoration activities. An additional 166 crews from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana worked alongside Consumers Energy and in-state contractor crews in this effort.

Even as the work wraps up today, Consumers Energy continues to share these important safety tips:

- Stay at least 25 feet away from downed power lines. Call 9-1-1 and Consumers Energy at 800-477-5050 to report.
- Be alert to crews working along roads and "slow down and go around." Drivers should slow down or stop and wait for oncoming traffic to clear then safely pass workers on roadsides.
- Operating a generator may produce hazardous levels of carbon monoxide, an odorless, colorless and deadly gas. Never use a generator in an attached garage, basement or near any air intakes, and never fuel a generator when it is running.

- Customers concerned about staying in their home during the colder temperatures are encouraged to call 2-1-1. Local emergency management officials are collecting information from 2-1-1 centers to help determine if warming centers need to be opened.
- Because temperatures are dropping, we ask our customers to reach out to family, friends and neighbors who may be impacted by this storm and make sure they are safe.
- Help keep pipes from freezing during low temperatures by maintaining a constant drip on faucets.

To view specific counties and regions most affected by electric interruptions, please visit:  
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The next storm restoration release is scheduled for approximately 12 noon today.

# # #

## **Consumers Energy completes restoration of power to 360,000 after historic wind storm, thanks customers for their patience**

Jackson, Mich. Tuesday, March 14, 2017

Extraordinary effort from more than 3,400 Consumers Energy and mutual assistance workers

The March 7-8 wind storm cut power to more than 1.1 million Michigan residents – an all-time combined record – and was one of Consumers Energy’s most devastating storms in its 130-year history. Consumers Energy employees worked around the clock to turn power back on to over 360,000 homes affected by the historic wind event.

“From the wire guard, to the line clearing crew, to the call center representative, to the line worker laboring high off the ground, many employees involved in this restoration have positive stories to tell about interactions with many kind residents affected by the storm,” said Patti Poppe, Consumers Energy’s president and CEO. “These stories help explain why it is so rewarding to serve and fulfill our promises to our customers and we thank them for their patience.”

More than 12 hours of fierce winds, some in excess of 60 mph, impacted much of Michigan’s Lower Peninsula.

The historic storm:

- Broke more than 1,300 Consumers Energy utility poles;
- Brought down more than 9,000 electric lines; and
- Knocked out electric service to over 360,000 customers – about 20 percent of its 1.8 million customers.

Power was restored completely on Monday as more than 3,400 people were engaged in electric restoration activities across Consumers Energy’s service territory; including crews from utilities in Kentucky, Ohio, Illinois, Wisconsin, Iowa and Indiana.

Last week’s storm ranks in the top 15 worst in terms of customer outages for Consumers Energy. The largest outage in Consumers Energy’s history occurred during a lightning and wind storm when 641,000 customers lost power in late May and early June of 1998. Rounding out the energy provider’s top three biggest outage events are a June 1992 lightning and high wind storm that affected 611,000 customers, and a July 1991 wind storm that affected 504,000 customers.

Consumers Energy customers who went without electric service for more than 120 hours during this storm may qualify for a credit. To learn more, customers can visit:  
[www.ConsumersEnergy.com/outagecenter](http://www.ConsumersEnergy.com/outagecenter)

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