# Report to the Utah Public Utility Commission

## Electric Service Reliability - Major Event Report UT-16-1

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|---|---|
| Event Dates: | February 18-19, 2016 |
| Date Submitted: | March 24, 2016 |
| Primary Affected Locations: | Salt Lake City Metro, Jordan Valley, Park City, Tooele |
| Primary Cause: | Storm |
| Exclude from Reporting Status: | Yes |
| Report Prepared by: | April Brewer |
| Report Approved by: | Heide Caswell / Scott Derrick / Ken Shortt |

## Event Description

On February 18, 2016, Utah experienced a severe windstorm. The storm heavily impacted areas in and around the Salt Lake City Valley with high winds, wet snow and lightning. First, winds gusting above 75 mph blew through the Salt Lake Valley, uprooting trees and launching windborne debris. Thereafter snow followed impacting travel and loading electrical lines with snow.

Notably in the Cottonwood Canyon facilities endured strong winds up to 105 mph and between 12" and 17" of snow. The combination created white out conditions limiting access and mobility. The National Weather Service issued wind advisories for the area, which materialized with high winds toppling trees and blowing debris into power-lines. The heavy storm affected both distribution and transmission equipment, in fact one location experienced such extreme conditions that it failed 10 transmission poles.

During the event the majority of customer minutes lost were caused by weather (68%) of which 21% was attributable to loss of supply events with the remaining 47% from distribution equipment being failed by the storm.

| Event Outage Summary | |
|---|---|
| **# Interruptions (sustained)** | 302 |
| **Total Customer Interrupted (sustained)** | 40,003 |
| **Total Customer Minutes Lost** | 8,454,865 |
| **Event SAIDI** | 9.65 Minutes |
| **CAIDI** | 211 |
| **Major Event Start** | 2/18/16 12:00 AM |
| **Major Event End** | 2/19/16 11:59 PM |

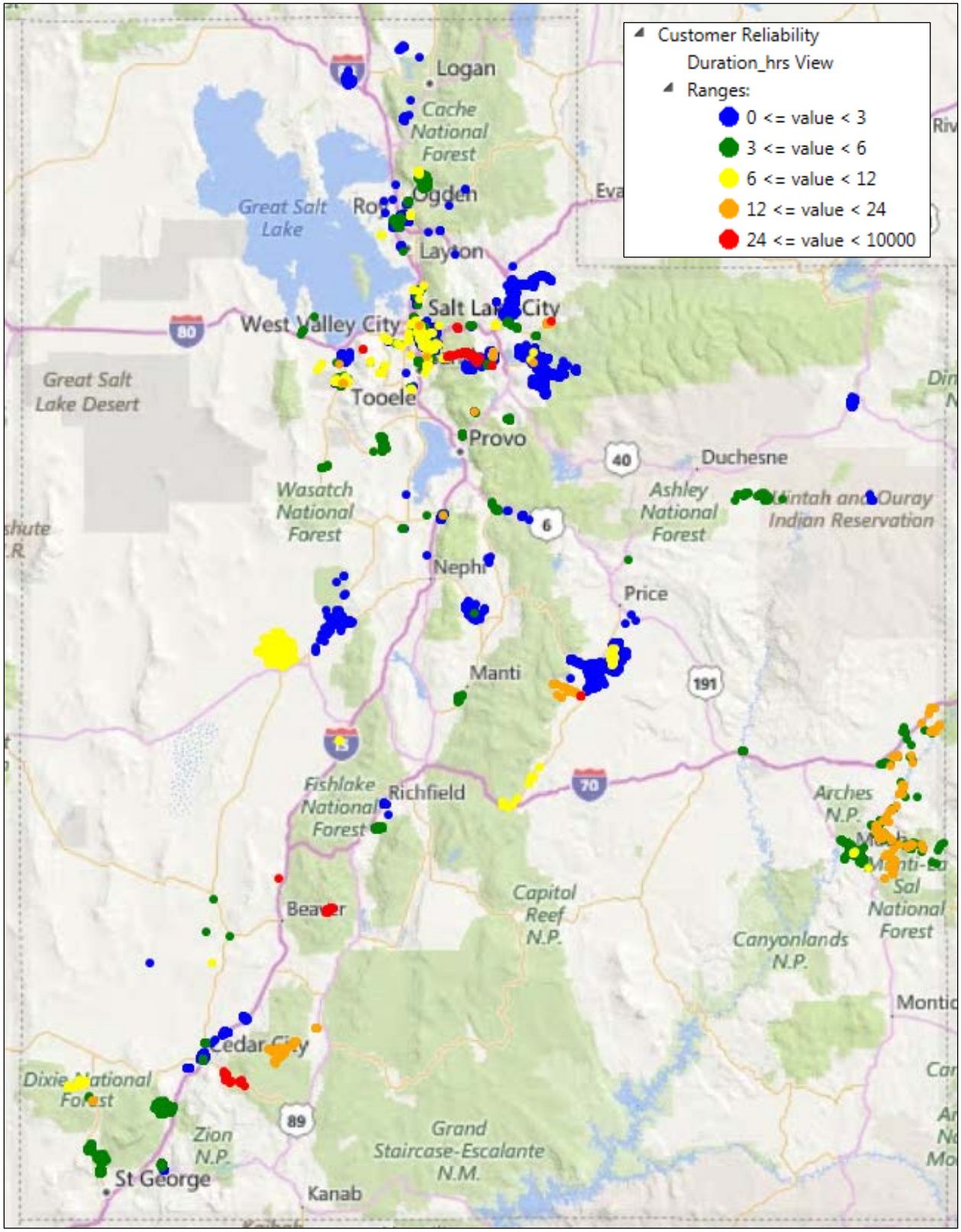
## Restoration Summary

During the storm a total of 302 sustained outages occurred, and at its peak 12,205 customers were without service. Internal and external contractor crews worked around the clock to restore power. In addition to the local crews, two crews from American Fork and seven crews from local contractors were dispatched to the affected regions to augment the company's response.

Restoration activities were heavily deterred by the ongoing weather. Conditions such as breaking trees, high winds, and white-out conditions created an extremely hazardous work environment. Concern for employee safety in the hazardous environment resulted in crews being pulled from certain areas to await an improvement in working conditions. In the interim additional crews and equipment were augmented to facilitate restoration, and logistics coordinated. The equipment included the use of snow cats and a helicopter to gain access to impassable areas. The efforts required in difficult conditions were extreme. An example of these efforts is demonstrated with the Brighton circuits in Cottonwood Canyon. Extensive coordination efforts were required due to the storm's impact. Approximately 1,400 customers experienced outages on the Brighton circuits, of which 600 customers were out of power for more 25 hours. Additional outages from lightning also created issues along the Brighton circuit. Crews attempted to locate and isolate portions of underground line which were damaged by lightning going to ground, however they were generally inaccessible due to the heavy snow. As a result, additional equipment was mobilized, specifically a "go track" (a military tank with a mounted boom) which assisted in gaining access to equipment needed to restore power; once discovered the crew replaced a 750 kva transformer to restore power on the evening of February 20th.

Although outages in the Brighton area presented significant restorations challenges during the major event, impacts from the storm were felt across the state. Figure 1 below displays customer outages during the event by their duration. A total of 244 employees took part in the restoration efforts, replacing approximately 7,300 feet of conductor, 35 poles, two transformers, and nine crossarms.

**Figure 1: customer outages by duration from 2/18-19.**



## Restoration Intervals

| Total Customers Sustained | < 3 Hrs. | 3 - 24 Hrs. | 24 - 48 Hrs. | 48 - 72 Hrs. | 72 - 96 Hrs. | 96+ Hrs. |
|---|---|---|---|---|---|---|
| **40,003** | 22,245 | 17,324 | 231 | 202 | 0 | 1 |

## Restoration Resources

| Personnel Resources | |
|---|---|
| **Troublemen/Assessors** | 20 |
| **Internal Crewmembers (local)** | 163 |
| **Internal Crewmembers (borrowed/non-local)** | 3 |
| **External Crewmembers (contract)** | 36 |
| **Substation Crewmembers** | 10 |
| **Vegetation Crewmembers** | 12 |
| **TOTAL** | **244** |

| Materials | |
|---|---|
| **# Poles (distribution)** | 25 |
| **# Poles (transmission)** | 10 |
| **Approximate Line Feet (conductor)** | 7,300 |
| **# Transformers** | 2 |
| **# Crossarms** | 9 |

## State Estimated Major Event Costs

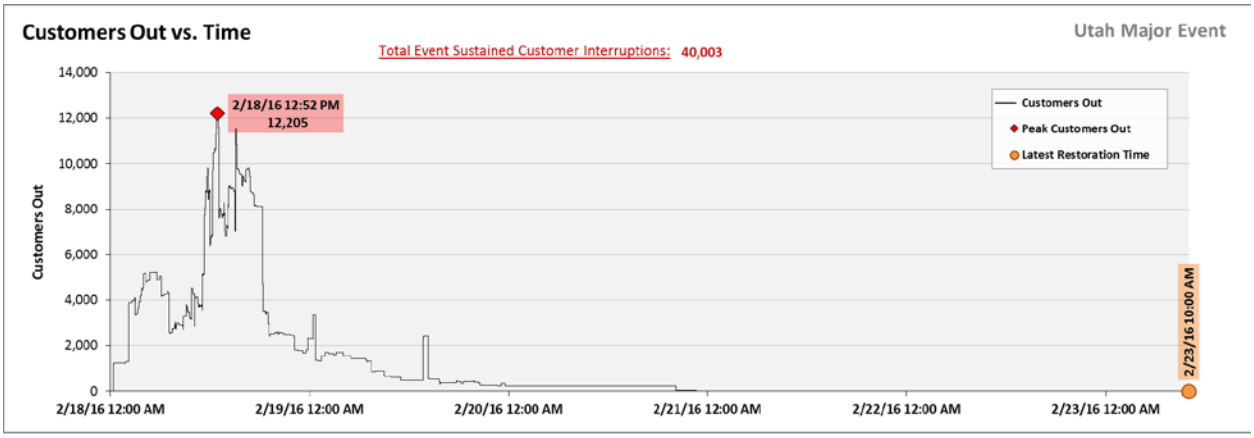
| Estimate $ | Labor | Contracts | Materials | Overhead | Total |
|---|---|---|---|---|---|
| **Capital** | $ 165,800 | $ 26,400 | $ 86,200 | $ 43,000 | $ 321,400 |
| **Expense** | $ 359,500 | $ 159,400 | $ 19,300 | $ 19,500 | $ 557,700 |
| **Total** | **$ 525,300** | **$ 185,800** | **$ 105,500** | **$ 62,500** | **$ 879,100** |

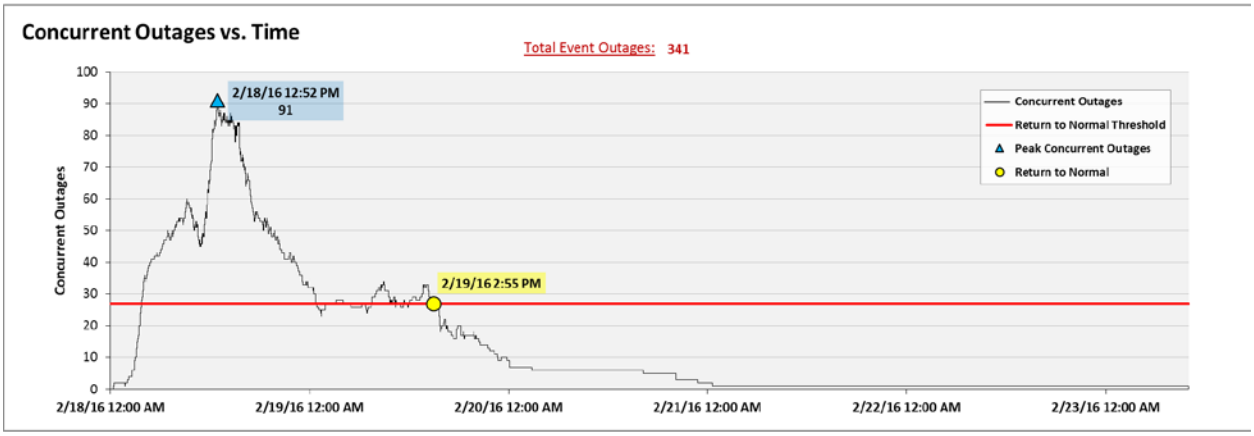
## Major Event Declaration

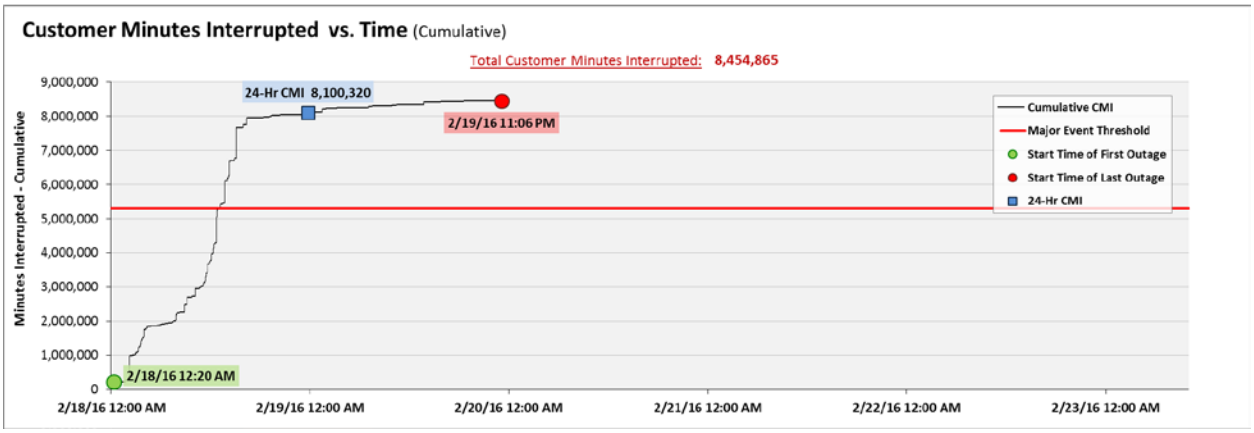
Rocky Mountain Power is requesting designation of this storm and its consequences to be classified as a "Major Event" for exclusion from network performance reporting. This major event exceeded the company's current Utah threshold for customer minutes lost in a 24-hour period, consistent with Utah Administrative Code R746-313.

The 2016 annual threshold for Utah is 5,312,799 minutes (i.e., 6.06 state SAIDI minutes).

## Event Detail




## SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.