

<b>Report to the Utah Public Utility Commission</b> <b>Electric Service Reliability - Major Event Report UT-16-4</b>
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Event Dates:	September 22-24
Date Submitted:	November 2, 2016
Primary Affected Locations:	Layton and Ogden
Primary Cause:	Weather – Wind and Rain
Exclude from Reporting Status:	Yes
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Report Approved by:	Heide Caswell / Scott Derrick / Dan Bodily / Ken Shortt

**Event Description**

On the evening of September 21, 2016, Rocky Mountain Power customers in Tremonton and Smithfield, Utah, began experiencing outages, as a storm bringing high winds and lightning developed. The storm then moved to the south where it continued to grow in strength over the next day and by the afternoon of September 22 it began to heavily impacting customers in the Layton and Ogden operating areas, whose outages accounted for 96% of all the state’s customer minutes lost during the major event.

In addition to the strong wind and lightning, several areas experienced damage caused by a tornado which was accompanied by heavy rains. This weather delayed restoration activities. Over the course of the major event Layton recorded maximum sustained wind speeds of 60 mph, wind gusts of up to 75 mph, and approximately 3.45 inches of rain. Of the total customer minutes interrupted, 58% were due to weather, including wind and lightning, and 26% were due to trees.

Event Outage Summary	
<b># Interruptions (sustained)</b>	303
<b>Total Customer Interrupted (sustained)</b>	77,339
<b>Total Customer Minutes Lost</b>	29,932,639
<b>Event SAIDI</b>	34.15 Minutes
<b>CAIDI</b>	387
<b>Major Event Start</b>	9/22/16 3:35 PM
<b>Major Event End</b>	9/24/16 4:37 PM

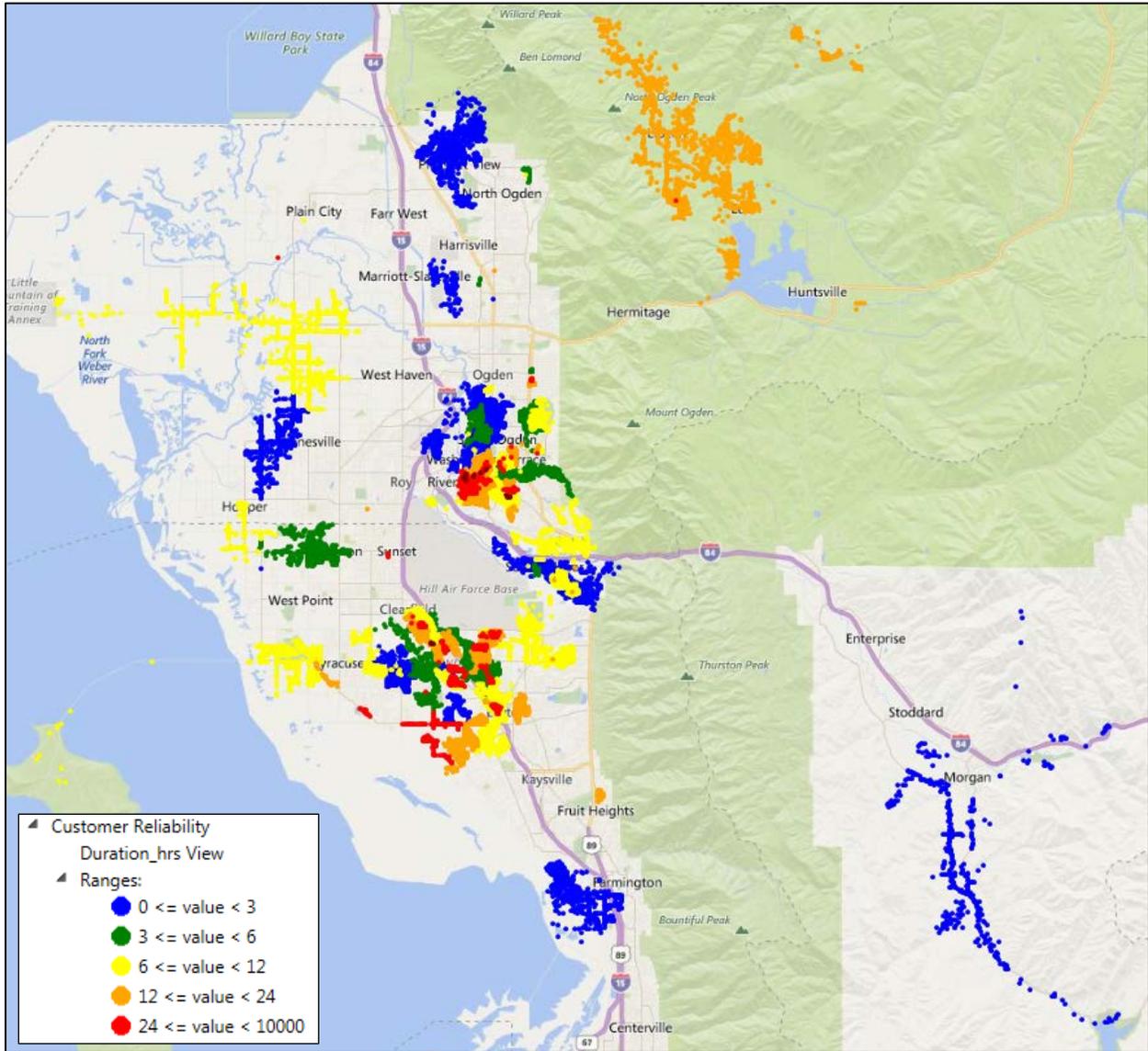
## Restoration Summary

At 5:39 pm on September 22, the event peak customer's interrupted occurred with approximately 44,000 customers without power. During the first 12 hours, of the two day event major event, 53% of the 303 sustained outages occurred. It was during this initial period that facilities were most damaged. Although the storm winds had calmed by the following day, the extensive damage it left kept crews working around the clock to restore service over the coming days.

Local crews quickly responded to restorations activities. In addition, personnel from surrounding areas, including crews from Idaho and Wyoming, were called in to assist in restoration efforts. Continued rain during and after the initial storm made restoration work difficult, with some areas receiving more than 3 inches during the storm's duration. In some cases, damage to electric lines in hard-to-reach areas, like backyards, required specialized cranes be used to work outages when line trucks were unable to access areas. Crews worked around the clock to remove trees and debris from lines after which they were able to repair damaged equipment and downed lines. Even with extremely challenging conditions, all work was completed safely.

Figure 1 below displays customer outages during the event by their duration. During the event approximately 38% of all customer outages were restored within 3 hours, 46% were restored within 12 hours, 13% within 24 hours, 3% within 48 hours and, and the final 72 customers within 72 hours. A total of 296 employees took part in the restoration efforts, replacing approximately 4,525 feet of conductor, 78 poles, 26 transformers, and 20 crossarms. Concurrent outages, which are used to evaluate the end of the major event, returned to normal on the afternoon of September 24.

Figure 1: customer outages by duration from 9/22-9/24, 2016.



## Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24 - 48 Hrs.	48 - 72 Hrs.	72 - 96 Hrs.
<b>77,339</b>	29,023	45,877	2,367	72	0

## Restoration Resources

Personnel Resources	
Troublemembers/Assessors	34
Internal Crewmembers (local)	174
Internal Crewmembers (borrowed/non-local)	18
External Crewmembers (contract)	32
Substation Crewmembers	18
Vegetation Crewmembers	20
<b>TOTAL</b>	<b>296</b>

Materials	
# Poles (distribution)	73
# Poles (transmission)	5
Approximate Line Feet (conductor)	4,525
# Transformers	26
# Crossarms	20

## State Estimated Major Event Costs

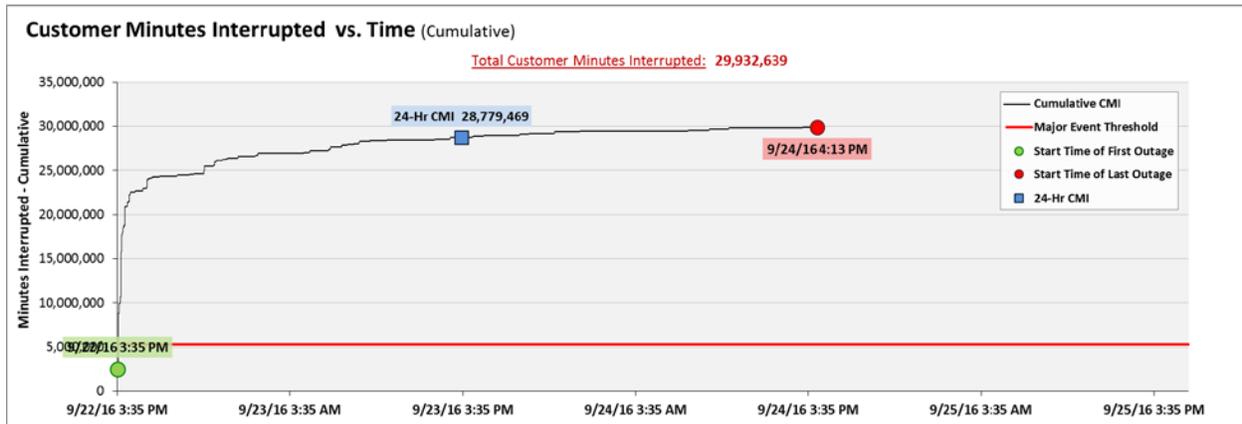
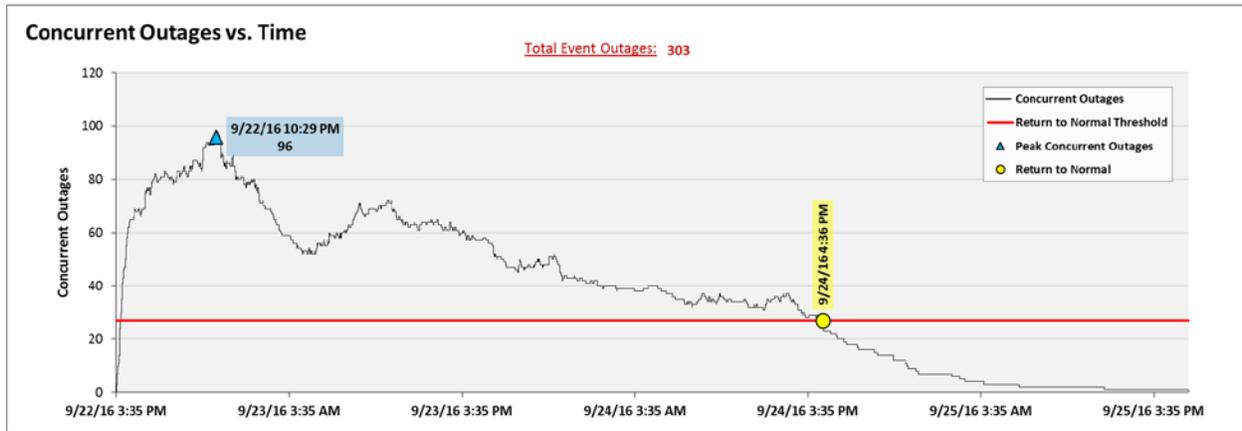
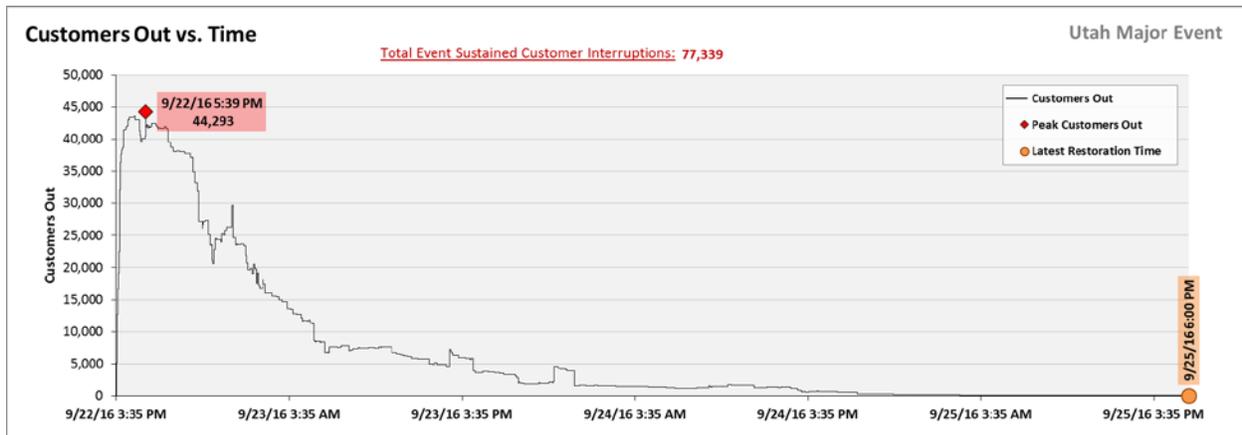
Estimate \$	Labor	Contracts	Materials	Overhead	Total
<b>Capital</b>	\$120,717	\$44,000	\$72,000	\$54,055	\$290,772
<b>Expense</b>	\$748,000	\$190,300	\$55,180	\$0	\$993,480
<b>Total</b>	\$868,717	\$234,300	\$127,180	\$54,055	\$1,284,252

## 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.