



1407 W North Temple, Suite 310  
Salt Lake City, Utah 84116

April 13, 2017

***VIA ELECTRONIC FILING***

Public Service Commission of Utah  
Heber M. Wells Building, 4th Floor  
160 East 300 South  
Salt Lake City, UT 84111

Attention: Gary Widerburg  
Commission Secretary

Re: Major Event Report for March 5-6, 2017

Rocky Mountain Power is requesting major event exclusion for the weather-related events on March 5–6, 2017, which exceeded the Commission approved threshold for customer minutes lost in a 24-hour period.

Attached you will find details including costs incurred, restoration resources, number of customers off supply, customer minutes lost, and SAIDI, SAIFI, CAIDI figures.

Upon Commission approval, the company will exclude outage information for these events from its network performance reporting and from customer guarantee failure payments.

Informal inquiries may be made to Bob Lively at (801) 220-4052 or Heide Caswell, Director Engineering, at (503) 813-6216.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jeffrey K. Larsen".

Jeffrey K. Larsen  
Vice President, Regulation

Enclosures

**Report to the Utah Public Utility Commission**  
**Electric Service Reliability - Major Event Report UT-17-1**

Event Dates: March 5-6, 2017

Date Submitted: April 13, 2017

Primary Affected Locations: Utah

Primary Cause: Weather – Wind and snow

Exclude from Reporting Status: Yes

Report Prepared by: April Brewer

Report Approved by: Heide Caswell / Scott Derrick / Dan Bodily / Ken Shortt

**Event Description**

On March 5, 2017, Rocky Mountain Power customers in Utah began experiencing outages, when a storm bringing high winds, rain and snow began impacting areas across the state. The storm began creating weather-related outages early morning beginning in Salt Lake City. As the day progressed so did the storm (and its strength seemed to increase through the day) and by the afternoon the storm’s effects were felt across the state. At 9:12 pm on March 5<sup>th</sup>, the number of customers without power peaked at 25,328 customers, the result of 136 concurrent outages being addressed by the response teams.

Over the course of the major event areas around the state recorded wind gusts between 57 mph (Salt Lake City) to 67 mph (Cedar City). High winds and snow-related outages accounted for 62% of all customer minutes lost and 68% of all customer outages. In addition, the high winds were a factor in tree-related outages, which accounted for 11% of all customer minutes lost, on both distribution and transmission circuits.

<b>Event Outage Summary</b>	
<b># Interruptions (sustained)</b>	366
<b>Total Customer Interrupted (sustained)</b>	49,603
<b>Total Customer Minutes Lost</b>	9,529,963
<b>Event SAIDI</b>	10.62 Minutes
<b>CAIDI</b>	192
<b>Major Event Start</b>	3/5/16 12:00 AM
<b>Major Event End</b>	3/6/16 5:35 PM

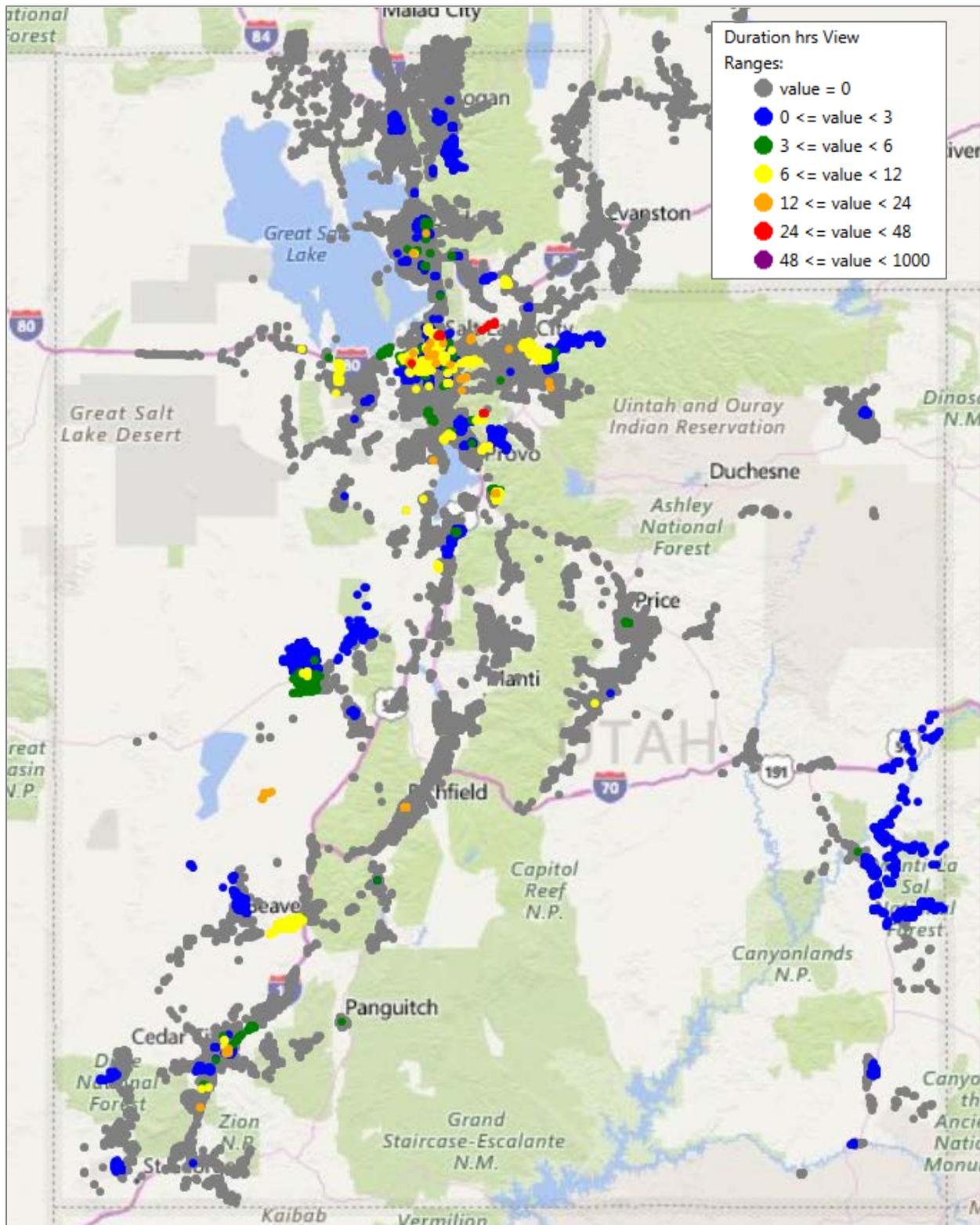
## Restoration Summary

During the event a total of 423 outages occurred, of which 53 were momentary outage events and 366 were sustained (greater than five minutes in duration) outage events. More than a quarter of the total event outages occurred from 7:30 to 9:30 on March 5<sup>th</sup>, indicating the period of high winds that intermittently faulted electrical equipment. Local crews worked quickly to respond to and restore outages. Many areas experienced outages in which equipment was damaged from the wind and snow, requiring downed and broken lines to be repaired and other equipment to be replaced. Some operating areas were able to manage the storm outages internally however several locations requested assistance from company resources normally stationed out of other operating areas including crews from Idaho and Wyoming who assisted in restoration efforts. In addition contract crews were also used to more rapidly restore power to customers. Crews worked around the clock to remove trees and debris from lines, after which they were able to repair damaged equipment and downed conductor. Even with these extremely challenging conditions, all work was completed safely.

Several significant outages occurred during the event, including a 345 kV transmission line in Eagle Mountain which was damaged so severely by the wind it broke six structures. Snow and sleet caused muddy conditions which made replacing and repairing structures difficult as heavy equipment got stuck. Crews required assistance from a local construction company that used earth-moving equipment (a D9 cat) to assist in pulling line trucks from passable locations to inaccessible structures to complete repair and restoration.

Figure 1 below displays customer outages during the event by their duration. During the event approximately 58% of all customer outages were restored within 3 hours, 29% were restored within 12 hours, 12% within 24 hours, and less than 1% were restored in over 24 hours. A total of 236 employees took part in the restoration efforts, replacing approximately 22,000 feet of conductor, 15 distribution poles, 18 transmission poles, 5 transformers, and 4 crossarms. Concurrent outages, which are used to evaluate the end of the major event, returned to normal on the evening of March 6<sup>th</sup>.

Figure 1: customer outages by duration from March 5 to 6, 2017.



## Restoration Intervals

Total Customers Sustained	< 3 Hrs.	3 - 24 Hrs.	24 - 48 Hrs.	48+ Hrs.
49,603	28,767	20,764	72	0

## Restoration Resources

Personnel Resources	
Troublemembers/Assessors	22
Internal Crewmembers (local)	160
Internal Crewmembers (borrowed/non-local)	12
External Crewmembers (contract)	10
Substation Crewmembers	12
Vegetation Crewmembers	20
<b>TOTAL</b>	<b>236</b>

Materials	
# Poles (distribution)	15
# Poles (transmission)	18
Approximate Line Feet (conductor)	22,000
# Transformers	5
# Crossarms	4

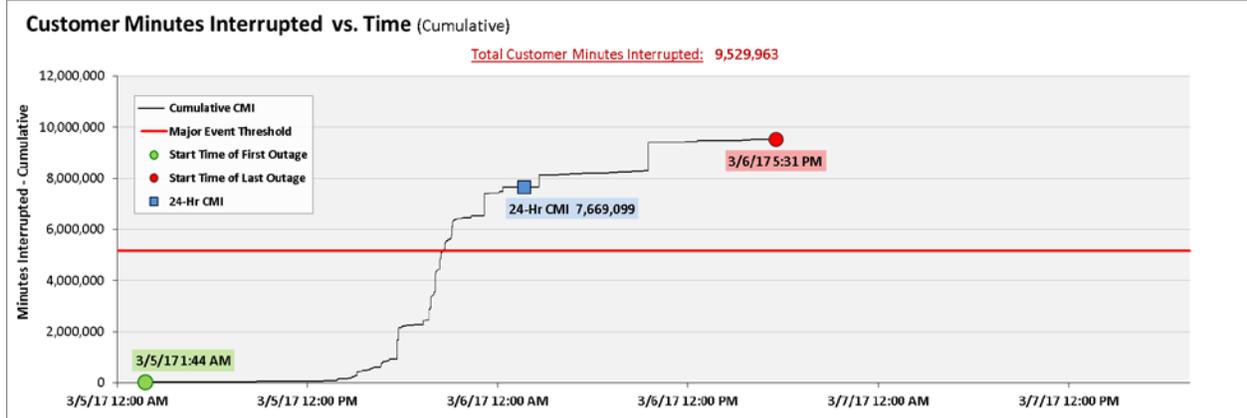
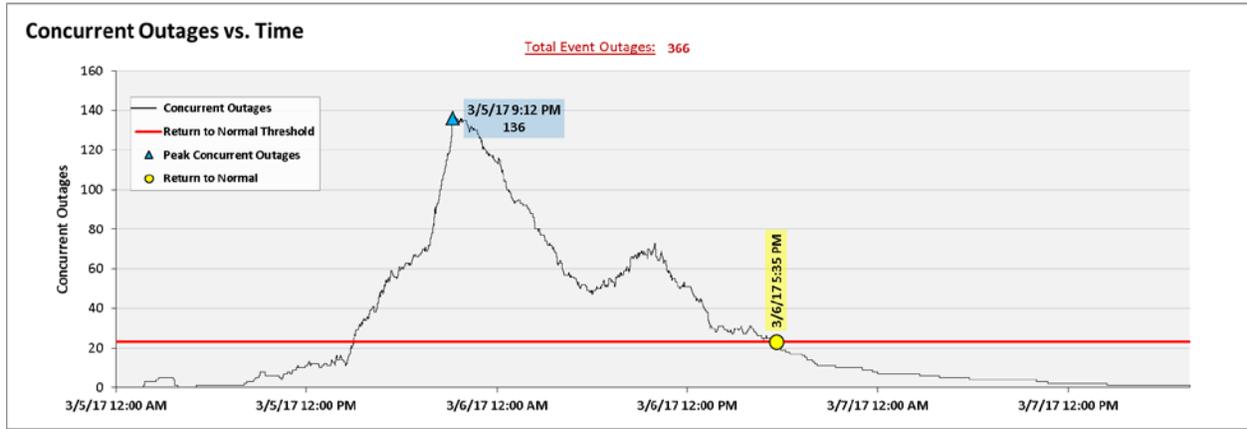
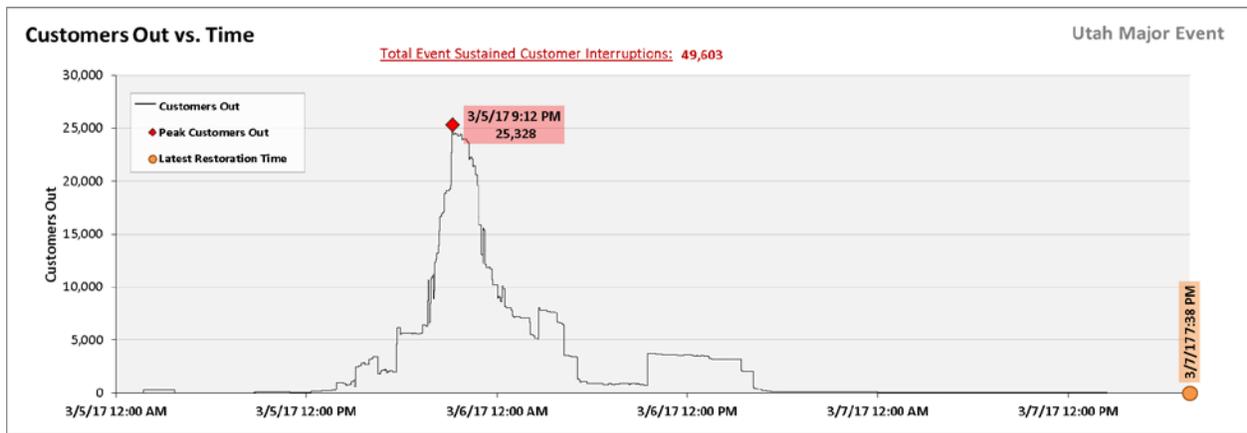
## State Estimated Major Event Costs

Estimate \$	Labor	Contracts	Materials	Overhead	Total
<b>Capital</b>	\$315,950	\$7,500	\$263,700	\$137,393	\$724,543
<b>Expense</b>	\$240,988	\$26,300	\$11,116		\$278,404
<b>Total</b>	<b>\$556,938</b>	<b>\$33,800</b>	<b>\$274,816</b>	<b>\$137,393</b>	<b>\$1,002,948</b>

## 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 2017 annual threshold for Utah is 5,152,204 minutes (i.e., 5.74 state SAIDI minutes).

# Event Detail



## SAIDI, SAIFI, CAIDI by Reliability Reporting Region

Please see the attached system-generated reports.

**PacifiCorp Major Event Report**  
Customer Analysis

Utah		Customer Analysis 3/5/2017 through 3/6/2017					Customers Restored by Intervals								Major Event Only - metric by operating area customer counts		
PC	PacifiCorp Major Events Report Customer Analysis*	Sustained Customers Off	% Sustained Customers Off	CML	Number of Sustained Interruptions	Customer Count	< 5 min	5 min - 3 hrs	3 hrs - 24 hrs	24 hrs - 48 hrs	48 hrs - 72 hrs	72 hrs - 96 hrs	96 + hrs	% Sustained Customers Restored in 3 Hours PS4	SAIDI	SAIFI	CAIDI
RMP	Rocky Mountain Power	49,603	4%	9,529,963	366	1,120,570	66,383	28,767	20,764	72	-	-	-	58%	8.50	0.044	192
UT	Utah	49,603	6%	9,529,963	366	897,258	66,383	28,767	20,764	72	-	-	-	58%	10.62	0.055	192
UT	AMERICAN FORK	3,759	4%	829,193	24	100,729	4,419	1,805	1,916	38	-	-	-	48%	8.23	0.037	221
UT	CEDAR CITY	3,162	10%	355,835	23	32,969	1,224	2,998	164	-	-	-	-	95%	10.79	0.096	113
UT	CEDAR CITY (MILFORD)	235	8%	95,250	7	2,808	724	30	205	-	-	-	-	13%	33.92	0.084	405
UT	JORDAN VALLEY	3,472	2%	803,404	48	221,832	10,234	376	3,096	-	-	-	-	11%	3.62	0.016	231
UT	LAYTON	507	1%	52,387	16	70,573	262	487	20	-	-	-	-	96%	0.74	0.007	103
UT	MOAB	4,126	47%	366,852	10	8,869	-	4,126	-	-	-	-	-	100%	41.36	0.465	89
UT	MONTPELIER	9	0%	10,904	1	3,169	-	-	9	-	-	-	-	0%	3.44	0.003	1,212
UT	OGDEN	6,271	6%	1,105,703	19	106,920	3,140	4,160	2,111	-	-	-	-	66%	10.34	0.059	176
UT	PARK CITY	2,762	9%	791,848	9	31,158	1	1,770	992	-	-	-	-	64%	25.41	0.089	287
UT	PRICE	45	0%	11,228	9	10,400	-	4	41	-	-	-	-	9%	1.08	0.004	250
UT	RICHFIELD	339	2%	101,546	9	15,329	-	68	271	-	-	-	-	20%	6.62	0.022	300
UT	RICHFIELD (DELTA)	1,586	41%	275,491	19	3,833	6	768	817	1	-	-	-	48%	71.87	0.414	174
UT	SLC METRO	21,187	10%	4,433,504	153	218,170	45,734	10,163	10,991	33	-	-	-	48%	20.32	0.097	209
UT	SMITHFIELD	1,098	5%	162,259	5	23,677	-	1,098	-	-	-	-	-	100%	6.85	0.046	148
UT	TOOELE	263	1%	69,011	10	23,058	-	132	131	-	-	-	-	50%	2.99	0.011	262
UT	TREMONTON	641	6%	43,551	3	10,161	639	641	-	-	-	-	-	100%	4.29	0.063	68
UT	VERNAL	141	1%	21,998	1	12,839	-	141	-	-	-	-	-	100%	1.71	0.011	156

\*Only current event specific metric impact shown. Does not include values from other events which may have occurred in other regions during the same time period.

Customer Interrupted by Date 3/5/2017 through 3/6/2017		Customers Restored by Intervals								Major Event Only - metric by state customer counts						
Date*	Sustained Customers Off	% Sustained Customers Off	CML	Number of Sustained Interruptions	Average Customer Count	< 5 min	5 min - 3 hrs	3 hrs - 24 hrs	24 hrs - 48 hrs	48 hrs - 72 hrs	72 hrs - 96 hrs	96 + hrs	% Sustained Customers Restored in 3 Hours PS4	SAIDI	SAIFI	CAIDI
3/5/2017	40,684	5%	7,429,360	239	897,258	61,346	23,728	16,936	20	-	-	-	58%	8.28	0.045	183
3/6/2017	8,919	1%	2,100,602	127	897,258	5,037	5,039	3,828	52	-	-	-	56%	2.34	0.010	236

Data as of 4/11/2017
-------------------------

**PacifiCorp Major Event Report**  
SSC by State Analysis

	Utah	Event 03/05/17 through 03/06/17						Month 03/05/17 through 03/06/17						YTD FY2017 01/01/17 through 03/31/17					
		Major Events Included			Major Event Excluded			Major Events Included			Major Events Excluded*			Major Events Included			Major Events Excluded*		
		SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI	SAIDI	SAIFI	CAIDI
	<b>PacifiCorp Major Events Report SSC by State</b>																		
PC	PACIFICORP	5.65	0.028	199	0.64	0.002	281	15.49	0.137	113	9.51	0.102	93	74.94	0.403	186	29.81	0.278	107
RMP	Rocky Mountain Power	8.62	0.045	192	0.11	0.001	172	19.91	0.137	146	9.77	0.078	125	42.67	0.273	156	30.35	0.210	145
UT	Utah	10.65	0.055	192	0.03	0.000	251	20.09	0.131	153	9.46	0.076	125	39.52	0.234	169	28.90	0.179	162
UT	AMERICAN FORK	0.95	0.004	222	0.0232	0.00008	274	1.32	0.008	170	0.39	0.004	111	2.76	0.019	148	1.83	0.014	127
UT	CEDAR CITY	0.40	0.004	113	-	-	-	0.93	0.014	68	0.53	0.010	52	2.80	0.019	149	2.40	0.015	157
UT	CEDAR CITY (MILFORD)	0.11	0.000	405	-	-	-	0.16	0.001	220	0.06	0.000	117	0.26	0.001	186	0.15	0.001	136
UT	EVANSTON	-	-	-	-	-	-	0.04	0.000	372	0.04	0.000	372	0.09	0.000	187	0.09	0.000	187
UT	JORDAN VALLEY	0.90	0.004	231	-	-	-	1.41	0.007	194	0.52	0.003	151	4.23	0.026	165	3.34	0.022	153
UT	LAYTON	0.06	0.001	103	-	-	-	0.95	0.005	178	0.89	0.005	187	1.64	0.012	138	1.59	0.011	139
UT	MOAB	0.41	0.005	89	-	-	-	0.42	0.005	90	0.01	0.000	139	0.57	0.007	87	0.16	0.002	84
UT	MONTPELIER	0.01	0.000	1,212	-	-	-	0.01	0.000	232	0.00	0.000	48	3.99	0.006	648	3.98	0.006	647
UT	OGDEN	1.23	0.007	176	-	-	-	1.84	0.013	146	0.61	0.006	109	3.23	0.020	166	2.00	0.013	160
UT	PARK CITY	0.88	0.003	287	-	-	-	1.61	0.006	270	0.72	0.003	252	4.30	0.020	220	3.41	0.016	207
UT	PRICE	0.01	0.000	250	-	-	-	0.19	0.003	70	0.18	0.003	66	0.27	0.005	60	0.26	0.004	58
UT	RICHFIELD	0.11	0.000	300	-	-	-	1.52	0.016	97	1.41	0.015	92	1.60	0.016	98	1.49	0.016	93
UT	RICHFIELD (DELTA)	0.31	0.002	174	0.0001	0.000001	93	0.35	0.002	163	0.05	0.000	116	0.41	0.003	156	0.11	0.001	120
UT	SLC METRO	4.94	0.024	209	0.0019	0.000008	245	8.79	0.048	183	3.84	0.024	158	11.50	0.069	167	6.56	0.045	145
UT	SMITHFIELD	0.18	0.001	148	-	-	-	0.20	0.002	134	0.02	0.000	75	1.23	0.007	170	1.05	0.006	174
UT	TOOELE	0.08	0.000	262	-	-	-	0.10	0.000	204	0.02	0.000	105	0.17	0.001	120	0.09	0.001	82
UT	TREMONTON	0.05	0.001	68	-	-	-	0.16	0.002	85	0.11	0.001	95	0.34	0.003	114	0.29	0.002	129
UT	VERNAL	0.03	0.000	151	0.0005	0.000009	60	0.09	0.001	128	0.07	0.001	120	0.12	0.001	113	0.09	0.001	105

\*may include other regional major event exclusions during the same period. Operating areas are calculated by the state frozen customer count metrics.

Data as/of
<b>4/11/2017</b>