Attachment K

Rocky Mountain Power Five Year Study Findings & Kick Off Meeting

Thursday, March 23 2017

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Study Areas for 2017

Findings Reports

North Salt Lake,	Utah	Sachith Abayakoon
Sigurd,	Utah	Carlton Jones
Southern Wyoming,	Wyoming	Scott Murdock

Kickoff Studies

Park City,	Utah	Scott Murdock

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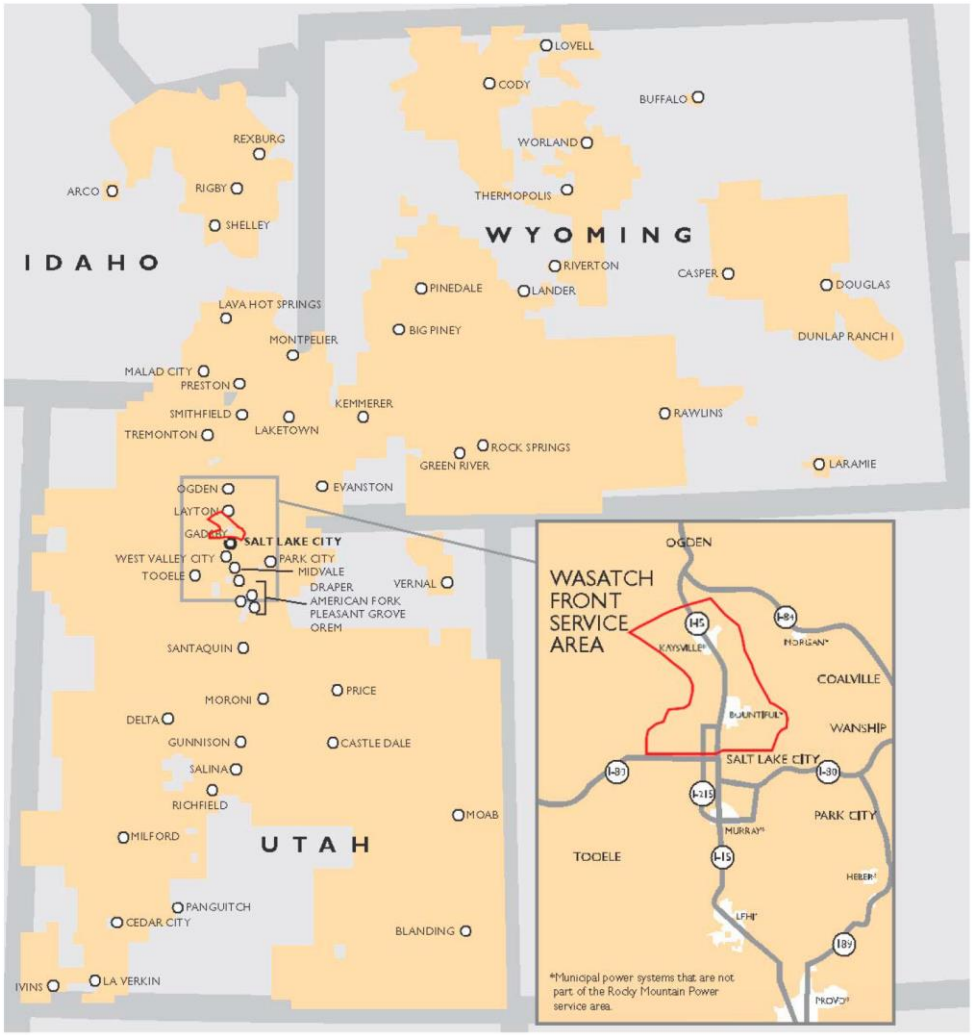
North Salt Lake Study Findings



Area Planner: Jeremy Viula

Prepared by: Sachith Abayakoon

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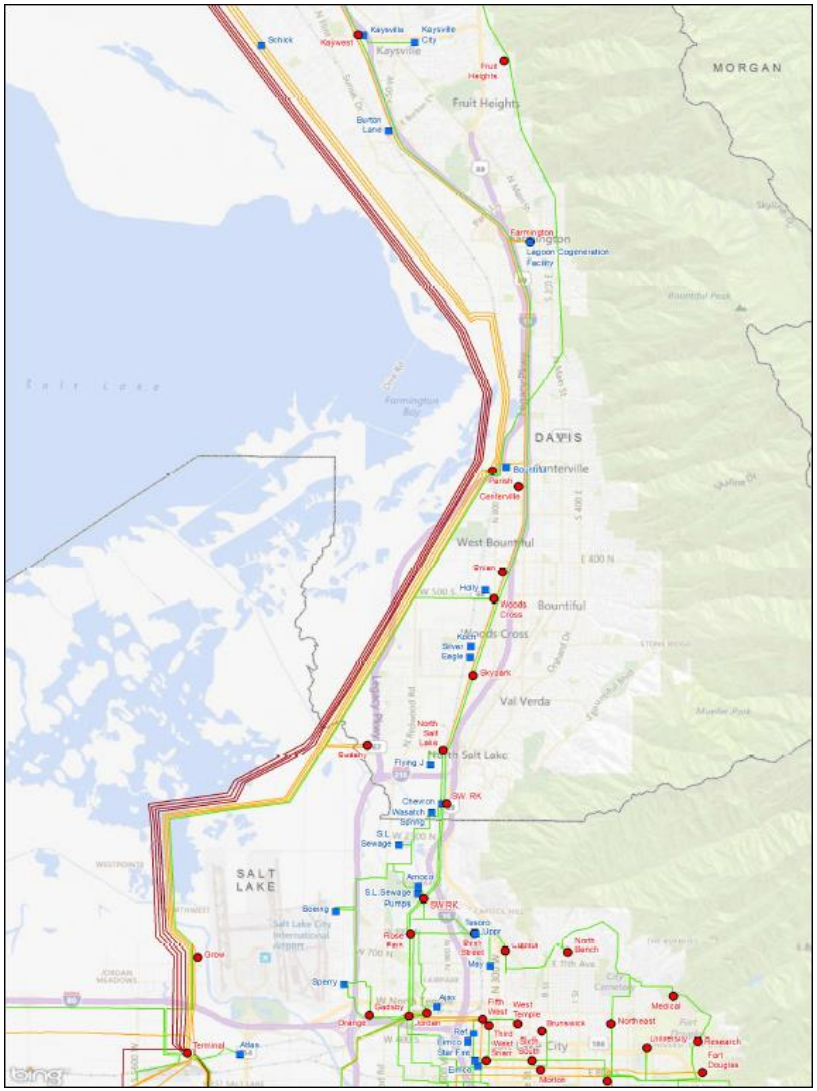
System Overview



- Covers North Salt Lake, Rose Park, Bountiful and Centerville
- Main sources into the area are 138 kV lines from Syracuse and Terminal substations
- 12 RMP owned substations
- Area transmission includes 138 and 46 kV lines
- Two municipal customers in the area.

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Load Growth

- Base System Loads
  - Summer 2016: 398 MVA
  - Winter 2015-16: 290 MVA
- Growth
  - Average Summer: 1.1%
  - Average Winter: 1.9%
- Projected System Loads
  - Summer 2021: 428 MVA
  - Winter 2020-21: 372 MVA
- Distribution capacity: 342 MVA
- Area Utilization Factor: 73%

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N-0 and N-1 Conditions

There were no prominent N-0 conditions

There were no prominent N-1 conditions

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Any questions or comments?

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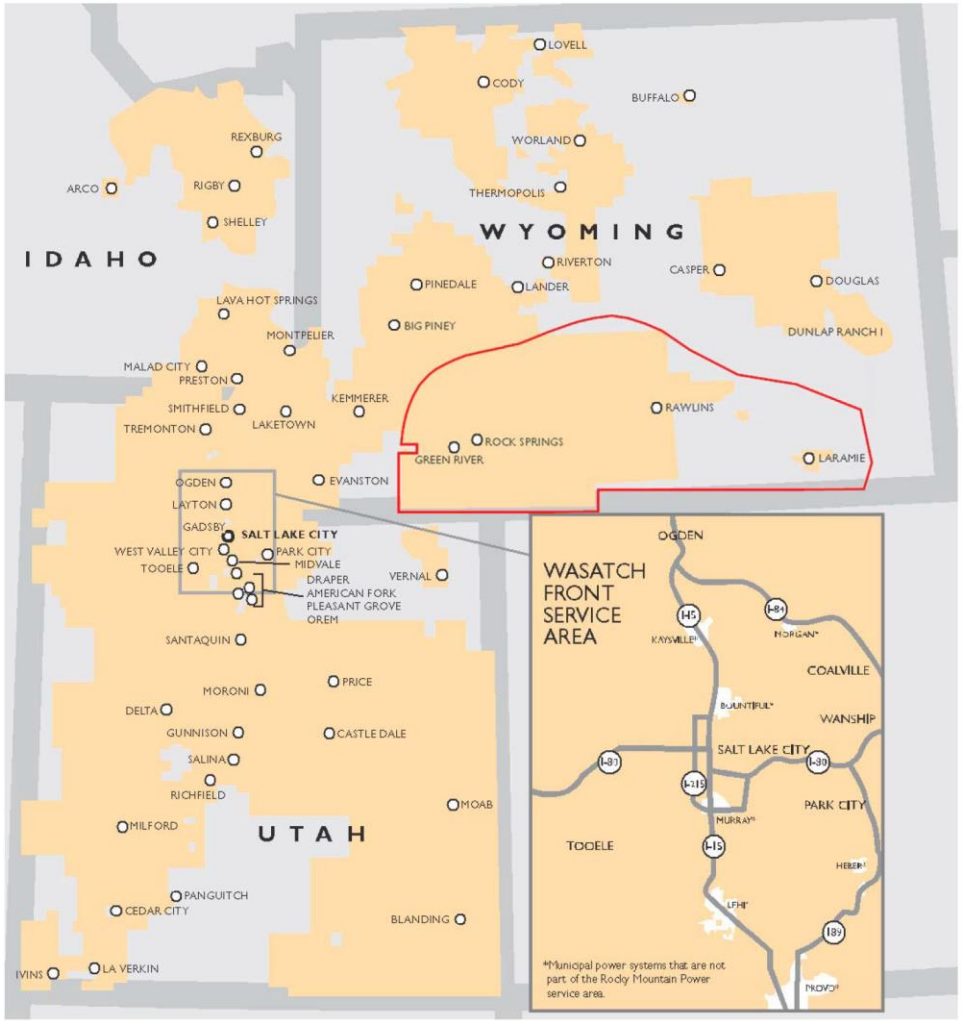
Southern Wyoming Study Findings



Area Planner: Talmage Daley

Prepared by: Scott Murdock

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System Overview

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System Overview

- Covers Sweetwater, Carbon, and Albany county
- Main sources into the area include 230 kV lines from Atlantic City, Dave Johnston, Flaming Gorge, Monument, Snowy Range and Spence substations
- Area generation includes Jim Bridger, Foote Creek, Seven Mile Hill, Dunlap, High Plains, Mc Fadden Ridge and several customer operated cogeneration units
- 39 RMP owned substations
- Area transmission includes 230, 115 and 57 kV lines
- There are two rural electric systems in the area (Bridger Valley and Tristate G&T)

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Load Growth

- Base System Loads
  - Summer 2016: 483 MVA
  - Winter 2015-16: 503 MVA
- Growth
  - Average Summer: 0.7%
  - Average Winter: 0.8%
- Projected System Loads
  - Summer 2021: 498 MVA
  - Winter 2020-21: 520 MVA
- Distribution capacity: 1222 MVA (1464 MVA Winter)
- Area Utilization Factor: 41%

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N-0 and N-1 Conditions

There were no prominent N-0 conditions

There were no prominent N-1 conditions

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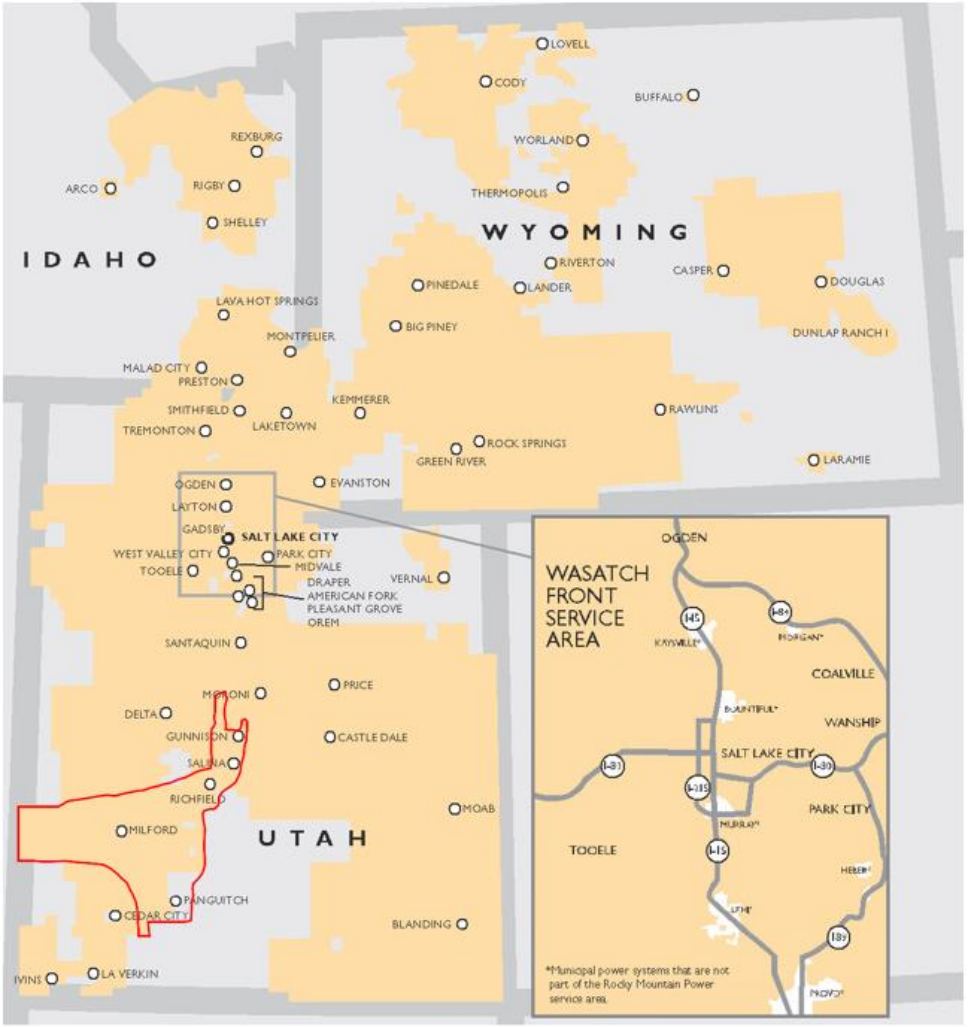
Sigurd Study Findings



Area Planner: Nathan Wilson

Prepared by: Carlton Jones

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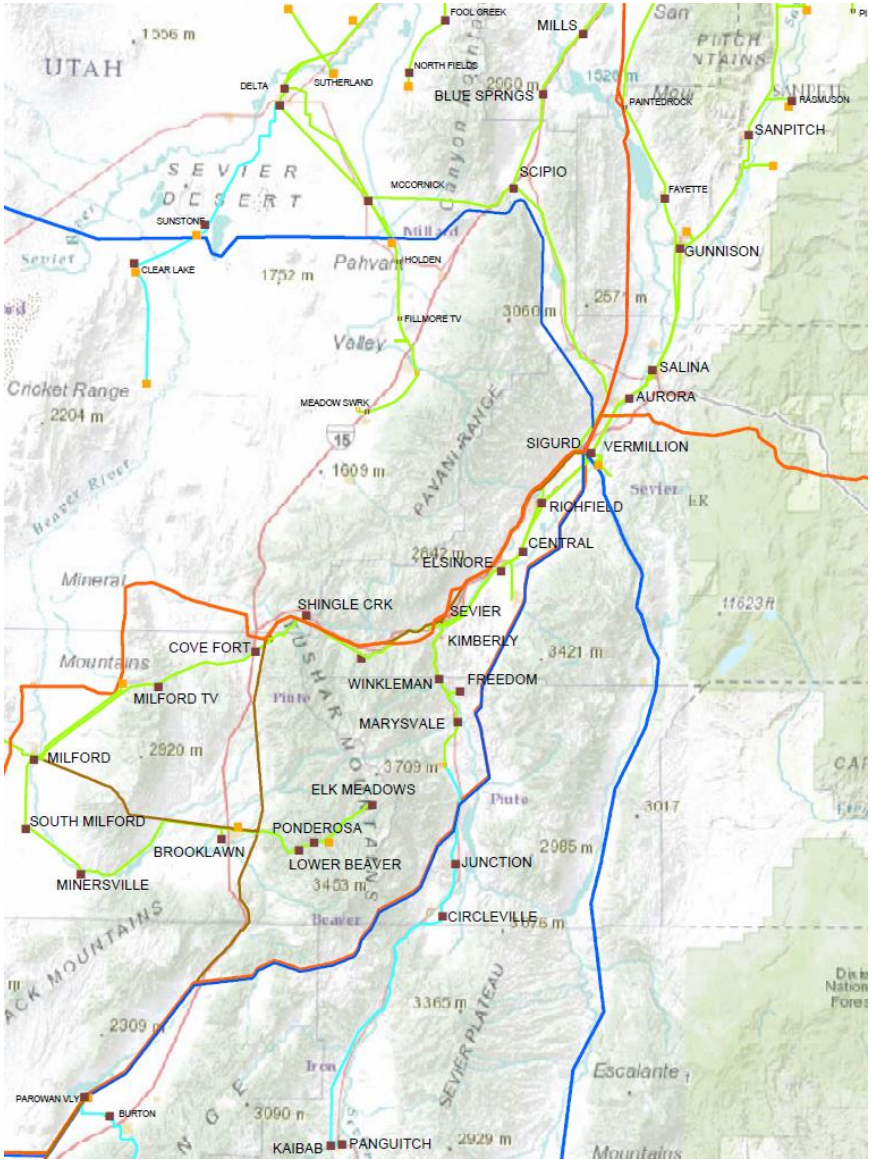
System Overview



- Covers Sanpete, Sevier, Piute, Beaver, and Garfield
- Main sources are 230-138 kV transformers at Sigurd and 138 kV tie to Parowan Valley
- Generation at Suphurdale and Blundell with several smaller units in the Milford area
- Contains 51 substations (15 are customer owned)
- Contains 138, 69, and 46 kV lines

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Load Growth

- Base System Loads
  - Summer 2016: 121 MVA
  - Winter 2015-16: 86 MVA
- Growth:
  - Average Summer: 1.5%
  - Average Winter: 0.9%
- Projected System Loads
  - Summer 2021: 130 MVA
  - Winter 2020-21: 90 MVA
- Distribution capacity: 205 MVA
- Area Utilization Factor: 59%

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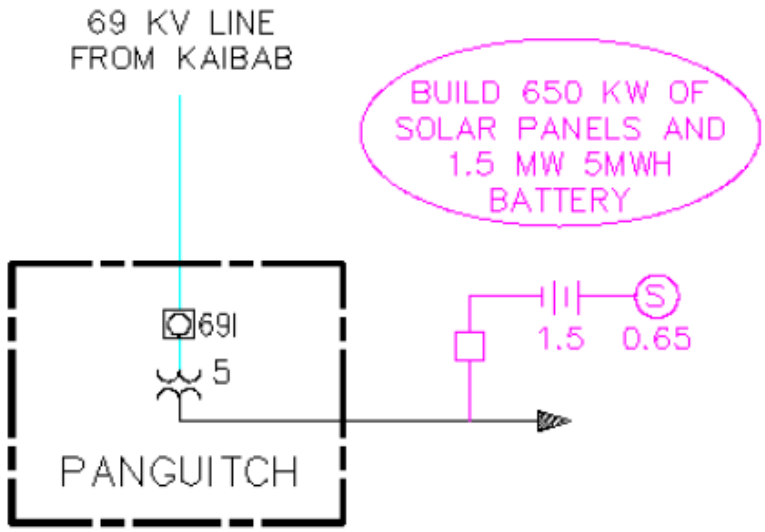
N-0 Conditions – Improve Voltage

2017 Issue:

- Low voltage at Panguitch during summer peaks

Solution:

- Install 1.5 MW, 5 MWh battery and 650 kW of solar on 12.47 kV distribution system to improve and control voltage at peak.



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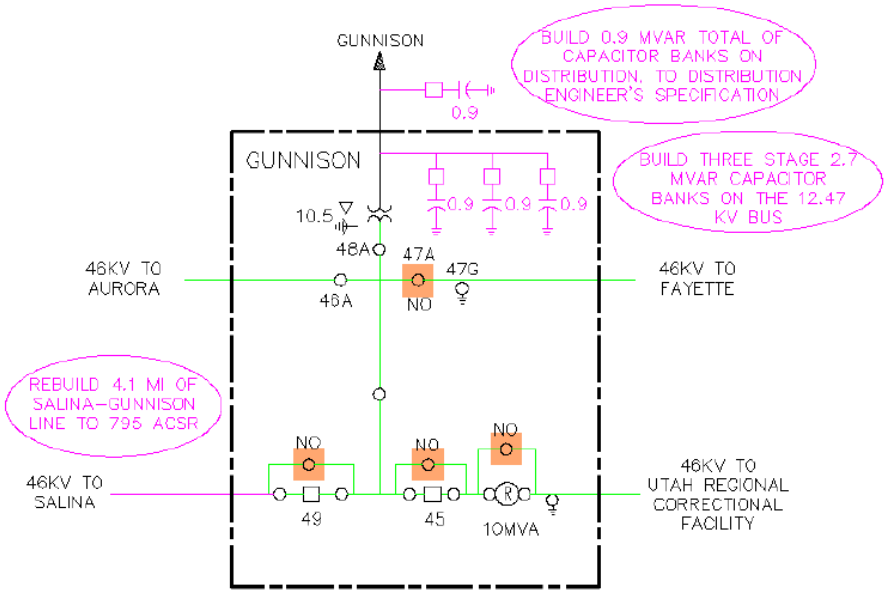
N-0 Conditions – Improve Voltage

2017 Issue:

- Low voltage at Gunnison during summer peak.

Solution:

- Reconductor Salina-Gunnison line with 795 ACSR, install 2.7 Mvar of capacitors at Gunnison, and install 900 kvar of capacitors on the Gunnison distribution system to improve voltage at peak.



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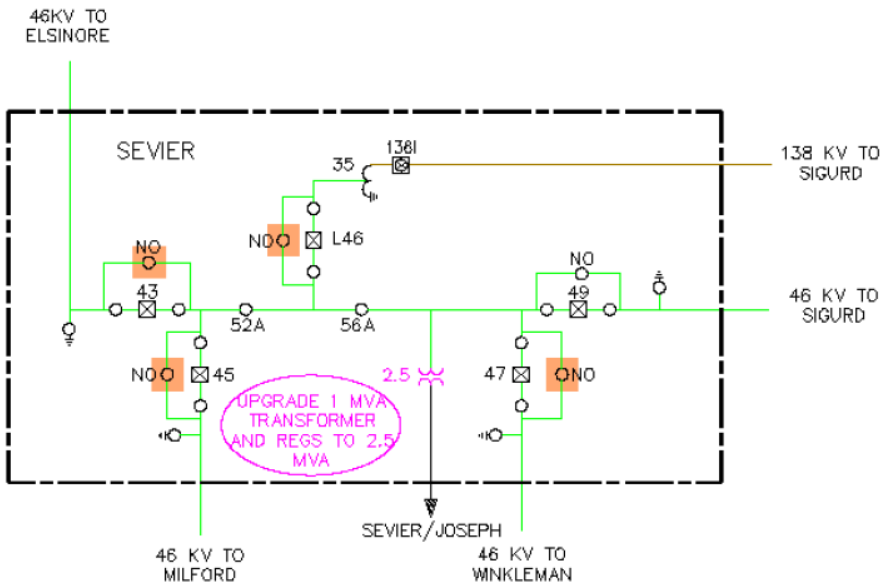
N-0 Conditions – Increase Capacity

2018 Issue:

- The Sevier 46 – 12.5 kV 1 MVA transformer is overloaded.

Solution:

- Install a 2.5 MVA transformer with matching regulators.



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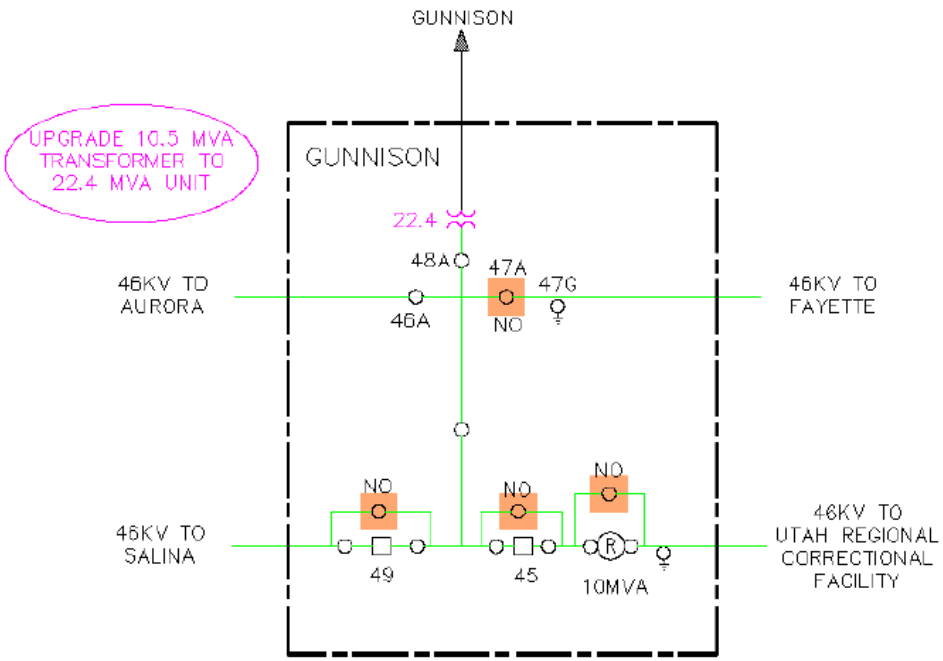
N-0 Conditions – Increase Capacity

2021 Issue:

- The Gunnison 10.5 MVA transformer is overloaded.

Solution:

- Install a 22.4 MVA transformer with an LTC.



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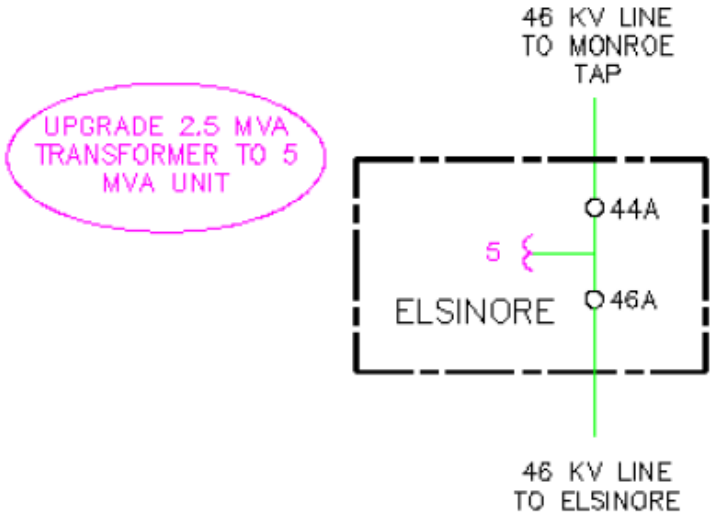
N-0 Conditions – Increase Capacity

2021 Issue:

- The Elsinore 46 – 12.5 2.5 MVA transformer is overloaded.

Solution:

- Install a 5 MVA transformer. (Matches existing regulators)



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N-1 Conditions – Reduce Exposure

2017 Issue:

- When Sigurd-Gunnison #2 line trips the entire Gunnison system is served by the #1 line. This leads to low voltages at Gunnison.

Solution:

- Complete the Gunnison N-0 voltage project and open switch 46A at Gunnison.

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N-1 Conditions – Reduce Exposure

2017 Issue:

- The Milford and South Milford areas have large amounts of both load and generation. A loss of the Milford 138 kV system when generation output is low results in low voltages in the area.

Solution:

- Install relays at Milford and South Milford substations to shed load in a low voltage contingency event.

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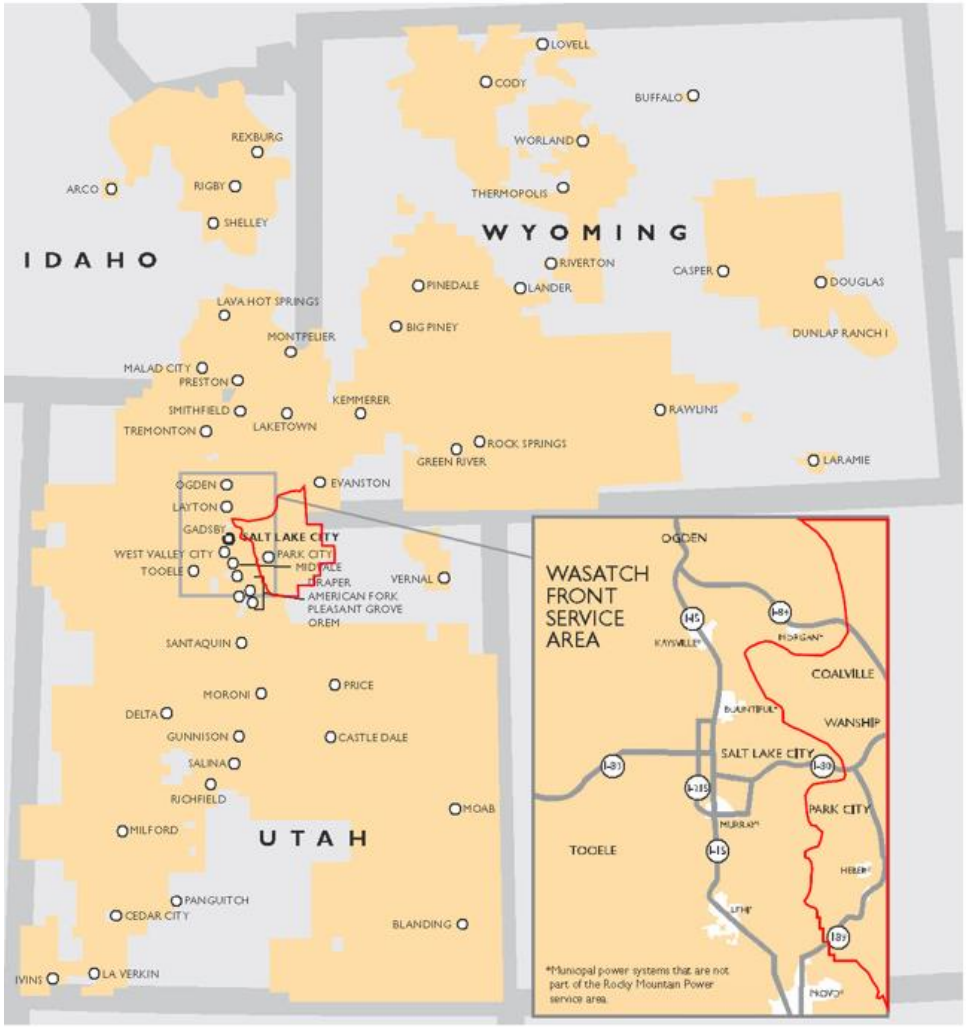
Park City/Midway Study Kickoff



Area Planner: Nathan Wilson

Kicked off by: Scott Murdock

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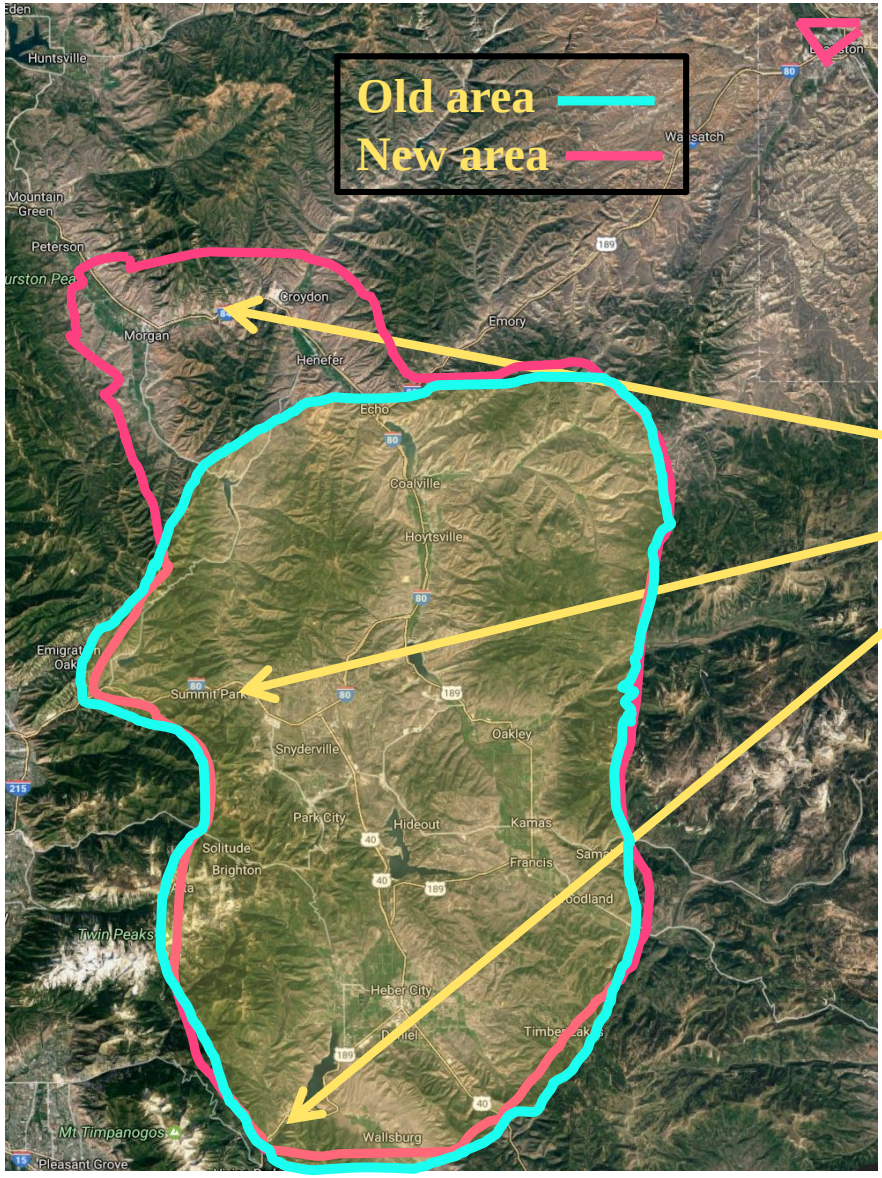
Park City/Midway System Overview



- The study area covers portions of Summit, Wasatch and Morgan counties in central Utah.
- Weber Canyon in north.
- Parleys Canyon in center.
- Provo Canyon in south.
- Major communities are Park City and Midway.
- Municipals served are Heber City and Morgan City.

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Park City/Midway Study Info

- Main transmission sources into the area include 138 kV lines from Cottonwood (Parleys Canyon), Hale (Provo Canyon) and Rainbow (Evanston, Wyoming).
- Local hydroelectric generation within the area includes Jordanelle, Deer Creek, Echo, Snake Creek and Wanship.
- The area has 25 RMP owned substations.
- Area transmission includes 138 kV and 46 kV.
- Winter peaking area.

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