Dustin Pike

POWDER RIVER STUDY

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Powder River Study

- Wyomont in the North
- A few customer-owned subs and lines in the North-East
- Majority of load in the Casper/Douglas area
- Glendo towards the South-East

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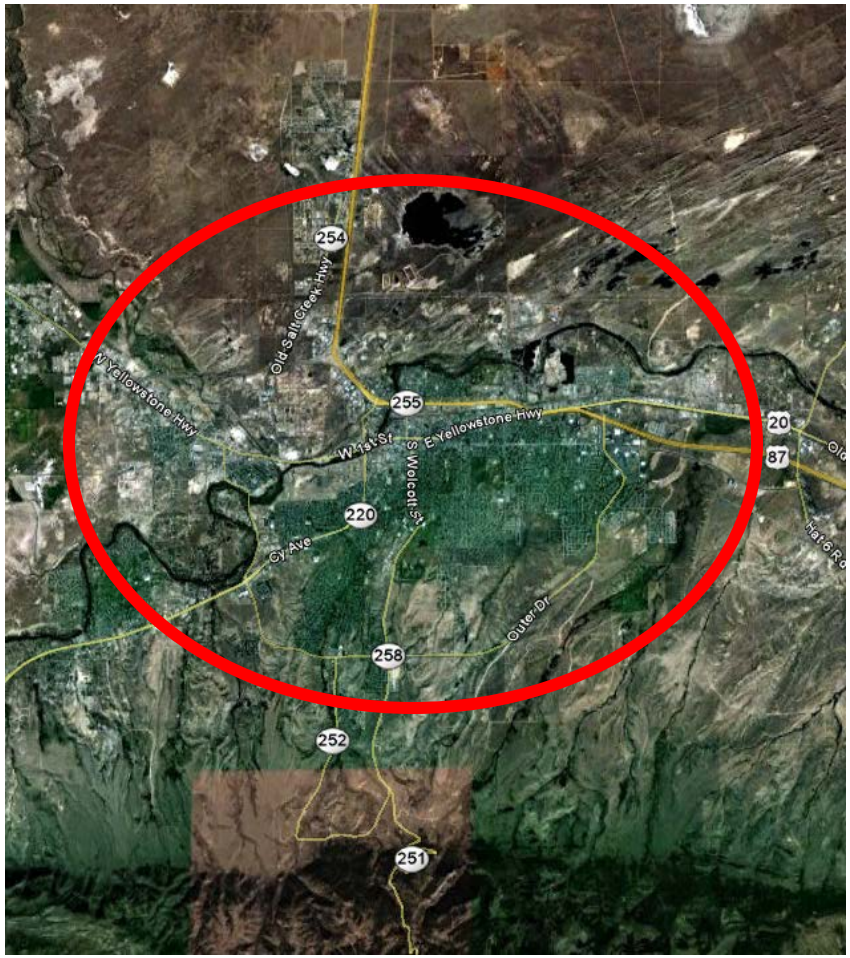
Powder River Study Info

- There are several municipalities in the area including MDU, WAPA, PreCor, and Tri-State.
- There are a total of 46 substations: 4 Transmission substations, 32 Distribution substations, and 10 dedicated customer Transmission substations.
- Transmission voltages include 57 kV, 69 kV, 115 kV, and 230 kV.

Casper Area



- Mainly residential, some business
- Voltages served: 230 kV, 115 kV, 69 kV, 34.5 kV, 12.5 kV.
- WAPA serves some of the load.
- Transmission ties to Dave Johnston sub/generation plant.

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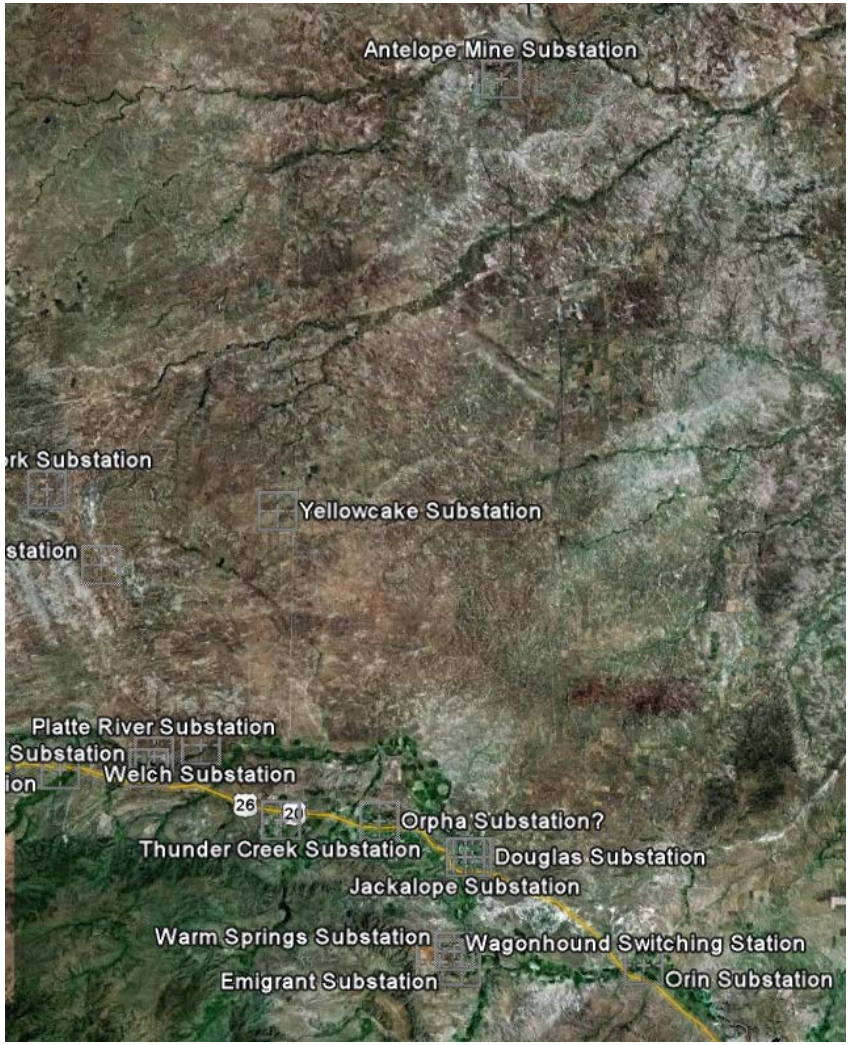
Glenrock/Douglas Areas



- Equal distribution of residential/industrial customers.
- Contains Dave Johnston generation plant.
- Voltages served: 230 kV, 115 kV, 69 kV, 57 kV, 12.5 kV
- Tri-State also has service in the area.

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Buffalo Area

- Northern area of Wyoming
- Mostly industrial
- Voltages served: 230 kV, 34.5 kV, 12.47 kV
- BEPC & Powder River Energy have service in the area and tie to our 230 kV lines.

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Midwest Area

- North of Casper
- Voltages served: 230 kV, 69 kV, 34.5 kV, & 12.47 kV
- Heavy industrial area
- Linch & Salt Creek substations served with a 69 kV line from Casper substation.

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Load Growth

- Base System Loads
  - Summer 2010: 414.29 MVA
  - Winter 2010-2011: 459 MVA
- Growth
  - Summer: 1.82%
  - Winter: 2.26%
- Projected System Loads
  - Summer 2014: 445.28 MVA
  - Winter 2014-15: 501.92 MVA

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Area Generation

- Dave Johnston Plant (750 MW)
- Wyodak Plant (330 MW)
- WAPA Yellowtail Plant (250 MW)
- WAPA Glendo (38 MW)

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Area Distribution Capacity

- Total for all 5 areas is:
  - Summer: 573.5 MVA
  - Winter: 697.3 MVA

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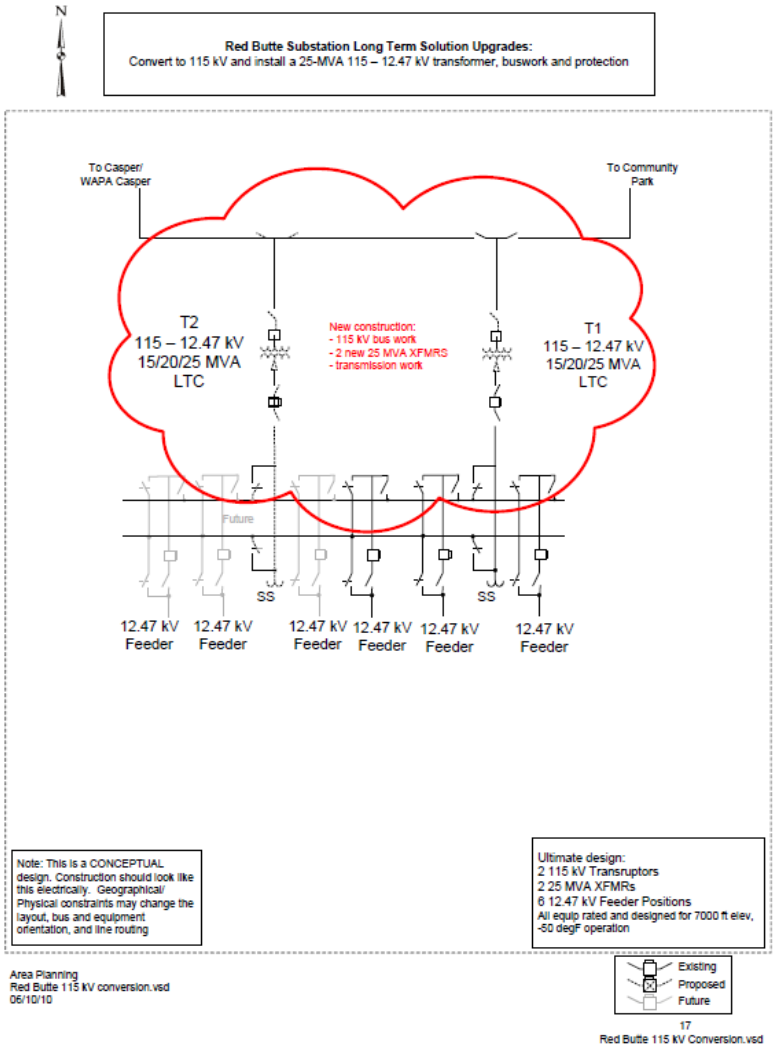
N-0 System Improvements

- Red Butte substation upgrade
  - Sub is due to overload in winter 2013-14
  - Convert to 115 kV
  - Reinsulate the line between Red Butte substation and Community Park substation
  - Estimated cost: $7.1 M



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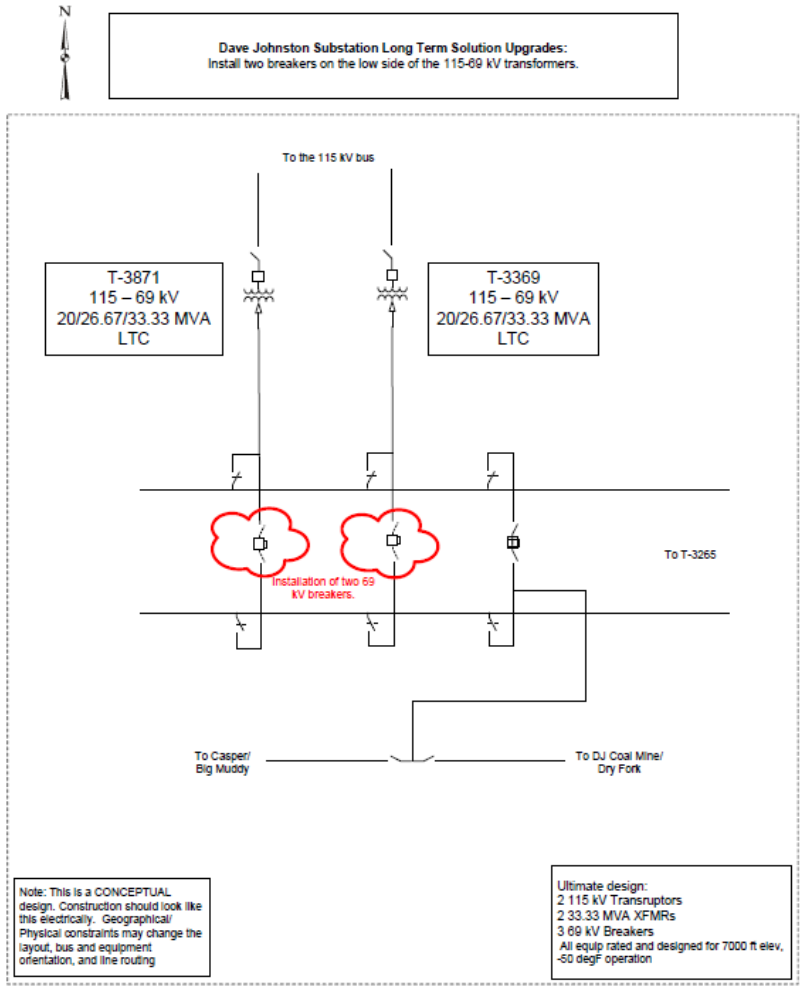
N-0 System Improvements

- Dave Johnston substation
  - Only one transformer is in service.
  - Installation of two breakers on the 69 kV bus for added capacity and protection
  - Estimated cost: $500 K



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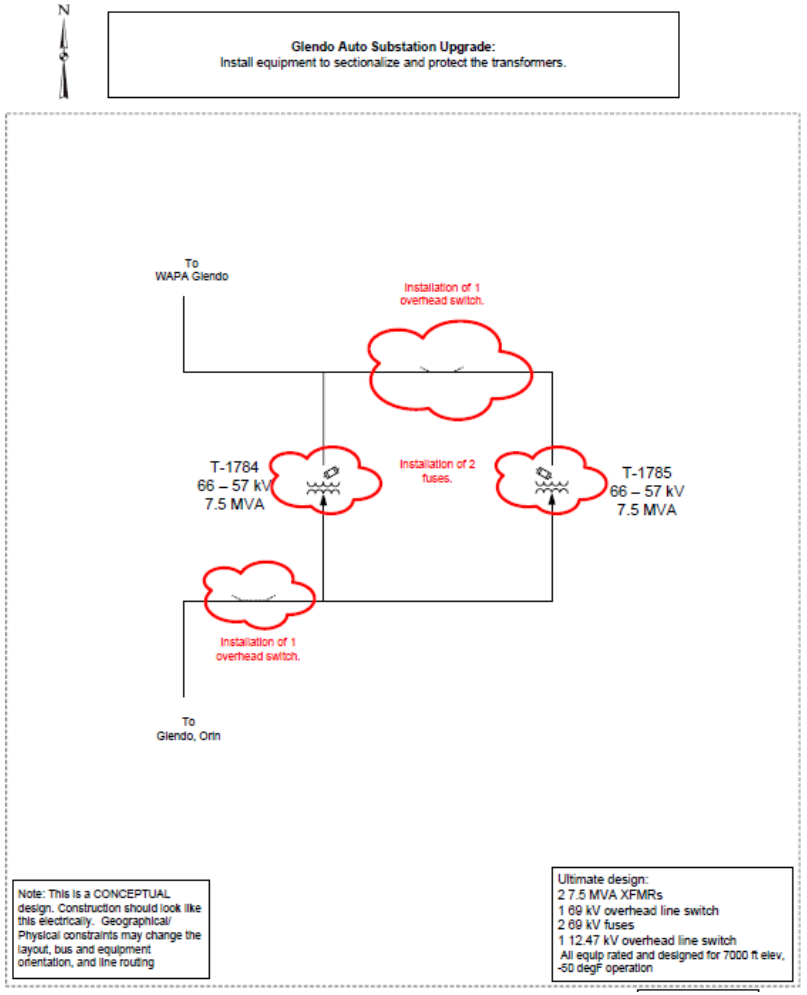
N-1 System Improvements

- Glendo Auto Upgrade
  - No protection between the two transformers
  - If one faulted the other would most likely fault as well
  - Install switches and fuses on the high side bus and fuses on the low side bus.
  - Estimated costs: $500K



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Construction Schedule

- 2011 $ 3.2 M
  - Dave Johnston substation.
  - Glendo Auto substation.
  - Start work on Red Butte.
- 2012 $ 8.5 M
  - Continue work on Red Butte.
- 2013 $ 2.2 M
  - Finish work on Red Butte.
- 2014 N/A
- Total cost: approx. $13.9 M

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Powder River Study

- Any Questions or Comments?

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