Western RMR Transmission Planning Stakeholder Meeting

2013 Transmission Planning Studies

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Western AREA POWER ADMINISTRATION

NERC/WECC Transmission Planning

- TPL-001, -002, -003, -004
  - Ensure system is adequate to meet present and future needs
  - Demonstrate through assessment
    - Planning for near and long term
    - Cover all demand levels over range of forecast demands
    - Include existing and planned facilities
    - Ensure adequate reactive resources

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CCPG

- Colorado Coordinated Planning Group
  - Eight Member Utilities
    - Basin Electric Power Cooperative
    - Black Hills Corporation
    - Colorado Springs Utilities
    - PacifiCorp
    - Platte River Power Authority
    - Publice Service Company of Colorado (Xcel Energy)
    - Tri-State Generation & Transmission Assoc.
    - Western Area Power Adminstration-RMR

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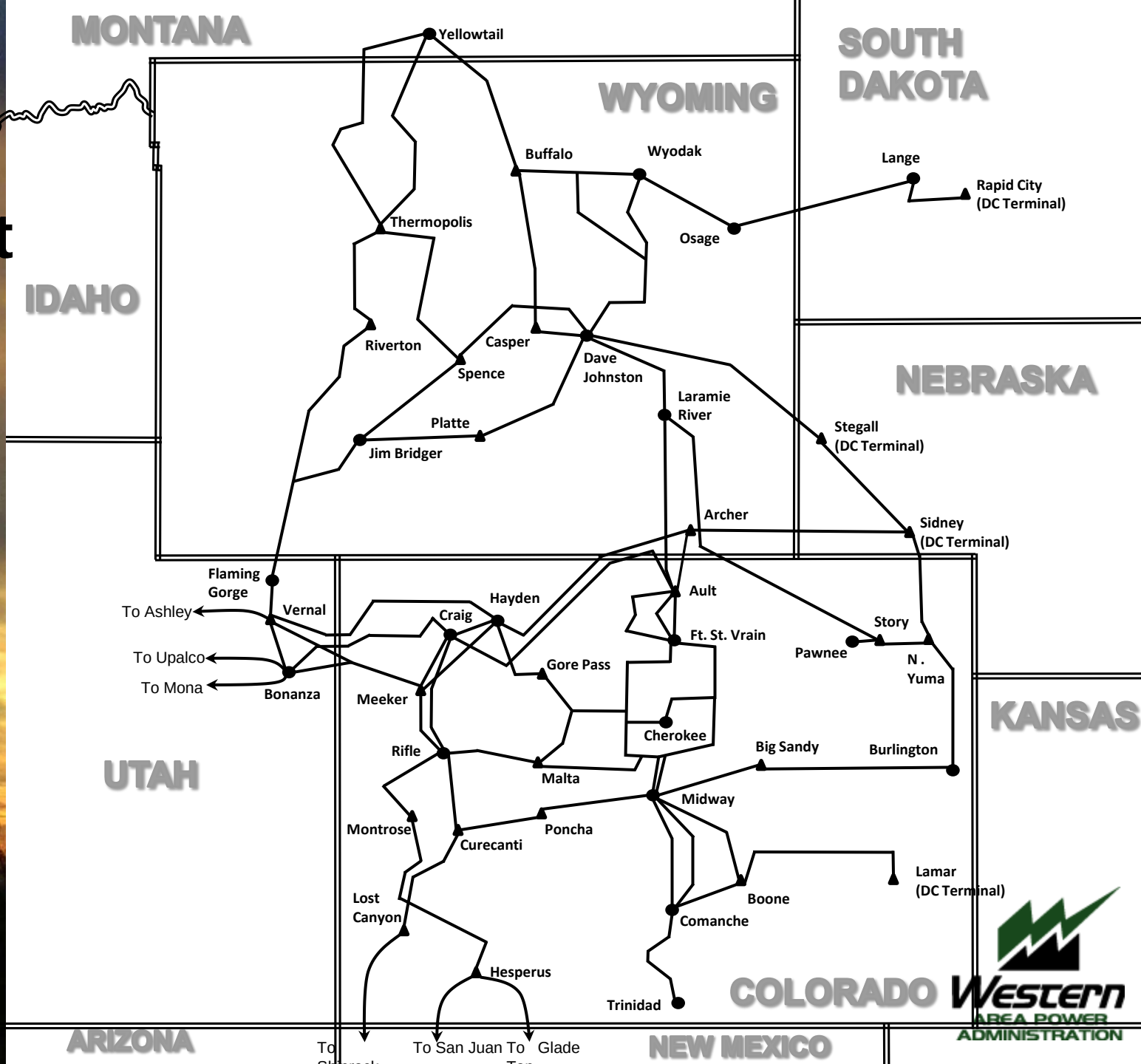
CCPG Footprint



2013 NERC/WECC Compliance Report

- Performed Annually
- Area Studied
  - Colorado
  - Wyoming
  - Western Nebraska
  - Western South Dakota

Western AREA POWER ADMINISTRATION

Purpose

- Evaluate the steady state post-contingency response of the Integrated System
- Evaluate transient and voltage stability
- Identify problem areas due to system load growth
- Meet NERC/WECC Transmission Planning Standards

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Study Procedure

- CCPG Compliance Study
  - Cases Examined
    - 2018 Heavy Summer
    - 2018 Light Autumn
  - System Intact Criteria
    - 100% Continuous Rating Loading
    - 0.95 p.u. – 1.05 p.u. Voltage
  - Contingency Analysis Criteria
    - 100% Continuous/Emergency Rating Loading
    - 0.90 p.u. – 1.10 p.u. Voltage

Western AREA POWER ADMINISTRATION

Results

- 2018 Heavy Summer
  - Boyd-Airport-Windsor-Whitney-Weld 115 kV
    - Overload upon breaker failure of PSCO Weld breaker 5221 and WAPA Weld 230 kV bus
  - Midway 230 kV tie between WAPA & PSCo
    - Overload upon loss of Midway-Waterton, Midway-Fuller 230 kV and Comanche-Daniels Park #1 &#2 345 kV lines

Western AREA POWER ADMINISTRATION

Results

- 2018 Light Autumn
  - Boyd-Airport-Windsor-Whitney115 kV
    - Overload upon breaker failure of PSCO Weld breaker 5221 and WAPA Weld 230 kV bus

Western AREA POWER ADMINISTRATION

Study Procedure

- CCPG LRPG Study
  - Cases To Be Examined
    - 2023 Heavy Summer
    - 2023-24 Heavy Winter
    - 2023 Light Autumn
  - System Intact Criteria
    - 100% Continuous Rating Loading
    - 0.95 p.u. – 1.05 p.u. Voltage
  - Contingency Analysis Criteria
    - 100% Continuous/Emergency Rating Loading
    - 0.90 p.u. – 1.10 p.u. Voltage

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Results

- 2023 Heavy Summer
  - Voltages at Sidney and Dalton 115 kV
    - Less than 0.90 p.u. for loss of Sidney 230/115 kV transformer

Western AREA POWER ADMINISTRATION

Results

- 2023-24 Heavy Winter
  - Voltage at Sidney 115 kV
    - Greater than 6% drop for loss of Sidney 230/115 kV transformer

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Results

- 2023 Light Autumn
  - None

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Questions

Any Questions or Comments?

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