2013 Long-Term Reliability Assessment

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Assessment Staff

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Long Term Reliability Assessment

• Widely-read continent-wide publication
• Projected 10-year long-term outlook (2014-2023)
• Primary objectives:
  – Qualitative outlook of region’s reliability
  – Make recommendations for mitigations/actions as needed
• Provides high-level overview for SPP RE + Nebraska assessment area
  – Demand growth
  – Capacity adequacy
  – Operational reliability
Assessment Process

• Created with data/information submitted by SPP Reporting Entities

• SPP staff validates and cross-checks data to verify consistency

• SPP staff, Transmission Working Group and Operations Reliability Working Group review/validate data and develop assessment

• Assessment undergoes peer review process at NERC prior to finalization
Coincident Peak Demand

- ~54,700 MW projected 2014 Total Internal Demand
- ~59,200 MW projected 2023 Total Internal Demand
- Modest load growth projected over next ten years
Demand Response 2014-2023

- Demand Response (DR) consists of Interruptible, Non-Controllable, and Direct Control Load Management
- 647 MW projected supply-side DR for 2014
- 624 MW projected load-modifying DR for 2014
- 952 MW projected supply-side DR for 2023
- 590 MW projected load-modifying DR for 2023
Member Demand Response Programs

- Westar program started 2009
  - Initial demand reduction of ~27 MW and ~90 MW with full enrollment
  - Expected enrollment of 90,000 by 2016

- OG&E program started 2010
  - Expect ~80 MW demand reduction
  - ~40,000 customers enrolled

- BPU program released January 2012
  - Expect ~10 MW demand reduction
  - Projected enrollment of up to 6,000 customers-March 2013
Available and Future Planned Capacity

• ~88,000 MWs Total Internal Capacity in 2014
• ~89,600 MWs Total Internal Capacity in 2023
  – Includes Existing Certain, Future Planned, Future Other; Expected On-Peak and De-rated resources
  – Reserve margin based on expected Existing and Future Capacity Additions
• ~19,000 MWs generation (mostly wind) in Generation Interconnection queue over the next ten years
Anticipated Capacity Reserve Margin 2014-2023

Anticipated Capacity Reserve Margin (Summer)

- 2014: 35.00%
- 2015: 30.00%
- 2016: 27.50%
- 2017: 25.00%
- 2018: 22.50%
- 2019: 20.00%
- 2020: 17.50%
- 2021: 15.00%
- 2022: 12.50%
- 2023: 10.00%
Environmental Regulations

• SPP continues its new bi-annual study process
  – Four-year look ahead for reliability issues
  – Weekly snapshots through the four years
  – Scheduled outages taken into account
Reliability Assessment

- Reliability issues not expected
- Reserve margins are adequate
  - SPP members required to maintain 12% capacity margin, which translates to a 13.6% reserve margin
  - Forecasted anticipated reserve margin is ~33% in 2014, decreasing to ~26% in 2023
Transmission

• ~2,500 miles 100+ kV expected over 10-year assessment period

• Particular emphasis on western part of grid due to influx of renewable generation
Standing and Emerging Issues

• Load growth due to oil and gas drilling
  – Substantial load growth concentrated in KS and OK
  – Short construction time makes planning difficult
  – SPP is enhancing planning processes

• Aging Infrastructure
  – EHV transmission system is aging and will reach end of economic life in the next 10 years
  – System constructed without consideration of regional or national needs
  – Opportunity exists to manage a coordinated infrastructure replacement going forward
  – SPP in unique position to play a key role
Standing and Emerging Issues, Continued

• HVDC line proposals under consideration
  – **Tres Amigas Project** – planned to connect SPP, WECC, and ERCOT
    ▪ Interconnection agreement between Tres Amigas, and SPS approved by FERC on 4/9/13
    ▪ Phase I (750 MW) expected in service in summer 2016
  – Two **Clean Line Energy** projects could each add 700 miles of HVDC in different areas of SPP
Summary

• Generation fleet is diverse in terms of location, fuel type, and capability

• SPP reporting area shows modest load growth, sufficient resources, and adequate reserve margins for 2014-2023 assessment period

• Long-term challenges include integration of variable generation