Regional Transmission Corridors

Energy Summit 2010
Ports-to-Plains Alliance
Broomfield, CO
April 9, 2010

Cultivating local resources in rural America
Topics

♦ Today’s Transmission System
♦ Renewable Energy
♦ Transmission Planning
  ■ Proposed Projects
  ■ Conceptual Plans
♦ Issues to Address
Tri-State G&T

- Tri-State is a member owned, **not-for-profit**, generation and transmission **cooperative**
  - 44 member owners across Wyoming, Colorado, Nebraska and New Mexico
  - Our Members serve a population of 1.4 million
- Tri-State owns 5,300 miles of HV transmission
  - Another 1,300 miles planned over the next 10 years
- Tri-State has revamped its interconnection process to expedite the connection of new generation to its system
Southwest Power Pool Transmission
Another Way To Look At It

Data: 08/2003 to 08/2004
Utilization Dictates Transmission Rates (HPX)

How to Improve Transmission Utilization

- Geographic Diversity (wind in multiple locations)
- Blending wind with solar and other renewables
- Use of gas-fired generation for “firming” and meeting load
Transmission Segments

- Largely comprised of existing transmission corridors
- ~100 segments identified
- Suitability for siting or path rating not assessed
- Linkage between WREZs (~60) and Loads Zones (20)

WREZ Transmission Segments sub-group chaired by Andy Leoni of Tri-State Generation & Transmission
State Government Interest

- Western Governors Association
- Colorado Energy Development Authority
- New Mexico Renewable Energy Transmission Authority
- Wyoming Infrastructure Authority
- Nebraska—Wind for Export Legislation
- Upper Midwest Transmission Development Initiative (IA, MN, ND, SD, WI)
- Texas-CREZ
Local Market versus Export Market

- Estimated wind energy potential exceeds local needs.
  - NREL estimate of Ports-to-Plains states: 5 to 9 million MW
  - US installed generating capacity 2008 (all fuels) 1.1 million MW
- Everyone wants to export to either California or southeast
- States are trying to be first to market:
  - Competing with each other for economic development opportunities
  - Want to change transmission planning philosophy to focus on wind export in addition to reliability
- Export scenarios will put tremendous stress on existing transmission built primarily to serve local load.
- Electric system stability will limit installed wind generation installation to a fraction of the theoretical capability.
Gateway West—Idaho power and Rocky Mountain Power (PacifiCorp)
Tres Amigas

Western Interconnection

Eastern Interconnection

Texas Interconnection

22.5 sq. miles
Clovis, New Mexico

5 GW DC Superconductor Cable

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SPP Expansion Plan
The “Battleground” Issues

♦ Who pays (cost allocation)?
  ◇ Customers, generators, utilities, or taxpayers
  ◇ Should local customers/utilities pay for export lines?

♦ States Rights vs. National/Regional/Customer Interests
  ◇ Permitting, siting, and economic development
  ◇ Interstate commerce

♦ Who Plans, Owns & Manages the Grid?

♦ Planning Issues
  ◇ Oversizing Transmission for Optimized Land Use & Economies of Scale
  ◇ National Grid Overlay
  ◇ Green Transmission Lines