



**Jerry Vaninetti, Vice President
Trans-Elect Development Co.**
- Contractor to LS Power -

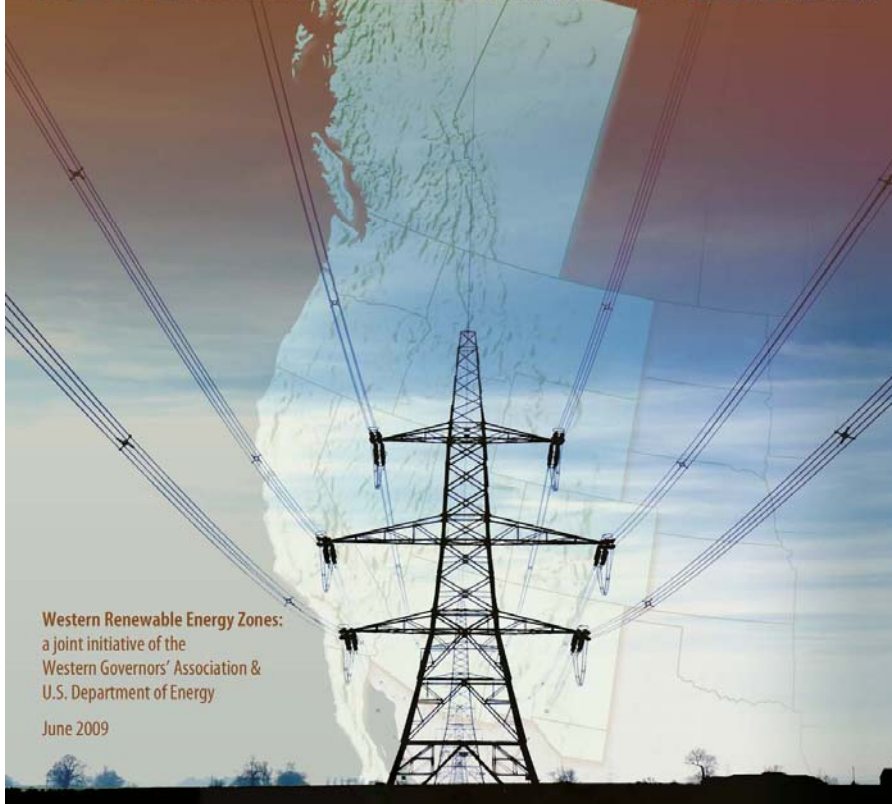
**Wyoming Infrastructure Authority
Board Meeting**
Cheyenne, WY – June 24, 2009



WGA's Western Renewable Energy Zones (WREZ)

Western Renewable Energy Zones - Phase 1 Report

Mapping concentrated, high quality resources to meet demand
in the Western Interconnection's distant markets



Western Renewable Energy Zones:
a joint initiative of the
Western Governors' Association &
U.S. Department of Energy

June 2009

- West-wide stakeholder process incorporating NREL and Black & Veatch projections
- Confirms the advantages of Wyoming wind in the West's renewable energy mix
 - “More than 50% of the best class 5 – 7 winds in the Western U.S. occur in southern Wyoming, making it a truly prolific resource base”
- Support for multi-state transmission to supplement in-state transmission expansions
- www.westgov.org

U.S. WREZ Hub Map

Legend

Hydro projects (MW)

- 1 - 10
- 10 - 100
- 100 - 500
- 500+

Geothermal projects (MW)

- 8 - 10
- ▲ 10 - 100
- ▲ 100 - 500
- ▲ 500+

Canadian wind projects



Wind resource

NREL wind power class (50m)

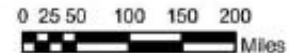
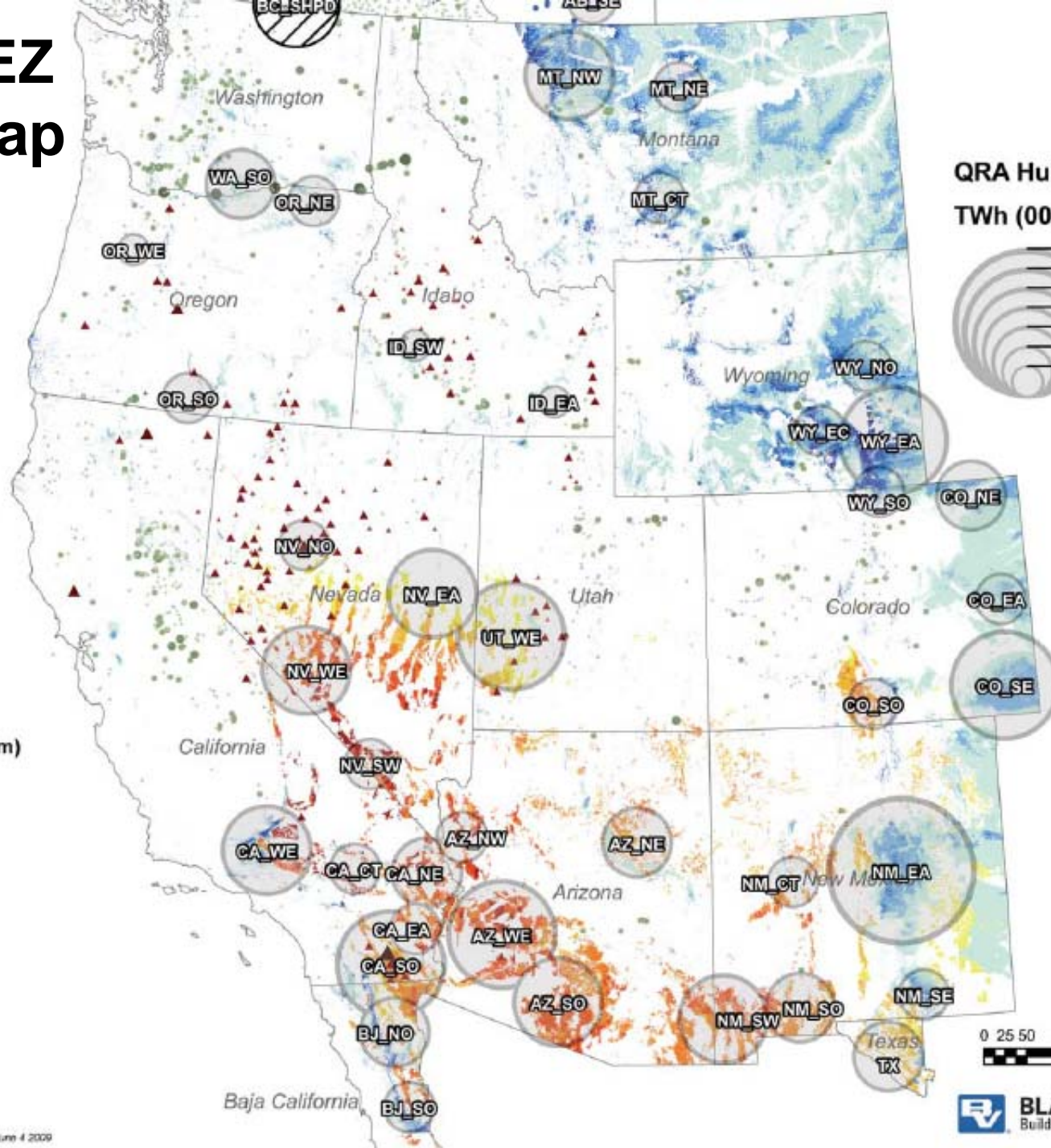
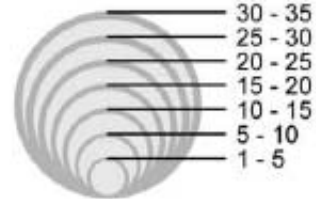
- 3
- 4
- 5
- 6
- 7

Solar thermal resource

DNI (kWh/sqmt/day)

- 6.5 - 6.75
- 6.75 - 7
- 7 - 7.25
- 7.25 - 7.5
- 7.5+

QRA Hub Size Guide TWh (000s of GWh)/yr





About the Project

OVERVIEW

PROJECT MAP

The High Plains Express (HPX) initiative is a roadmap for transmission development in the Desert Southwest and Rocky Mountain region to significantly strengthen the eastern portion of the Western grid. It would potentially incorporate the transmission projects already under development within the HPX footprint.

With added North-South and East-West transmission capability, markets for renewable energy would be broadened, system reliability would be enhanced, and the ability to make economic transfers of energy would provide cost-savings opportunities for consumers in the states of Wyoming, Colorado, New Mexico, and Arizona.

What's New

August 2009

[Feasibility Study Report Released »](#)

June 2009

[HPX Transmission Study Published »](#)

April 2009

[Stakeholder Meetings Notes »](#)

January 2009

[Joined by the Wyoming and New Mexico Transmission Authorities »](#)

Next Meeting

April 17th – 8pm

Louisville Rec. Center
Louisville, Colo.

Open to the public

[Download Agenda »](#)

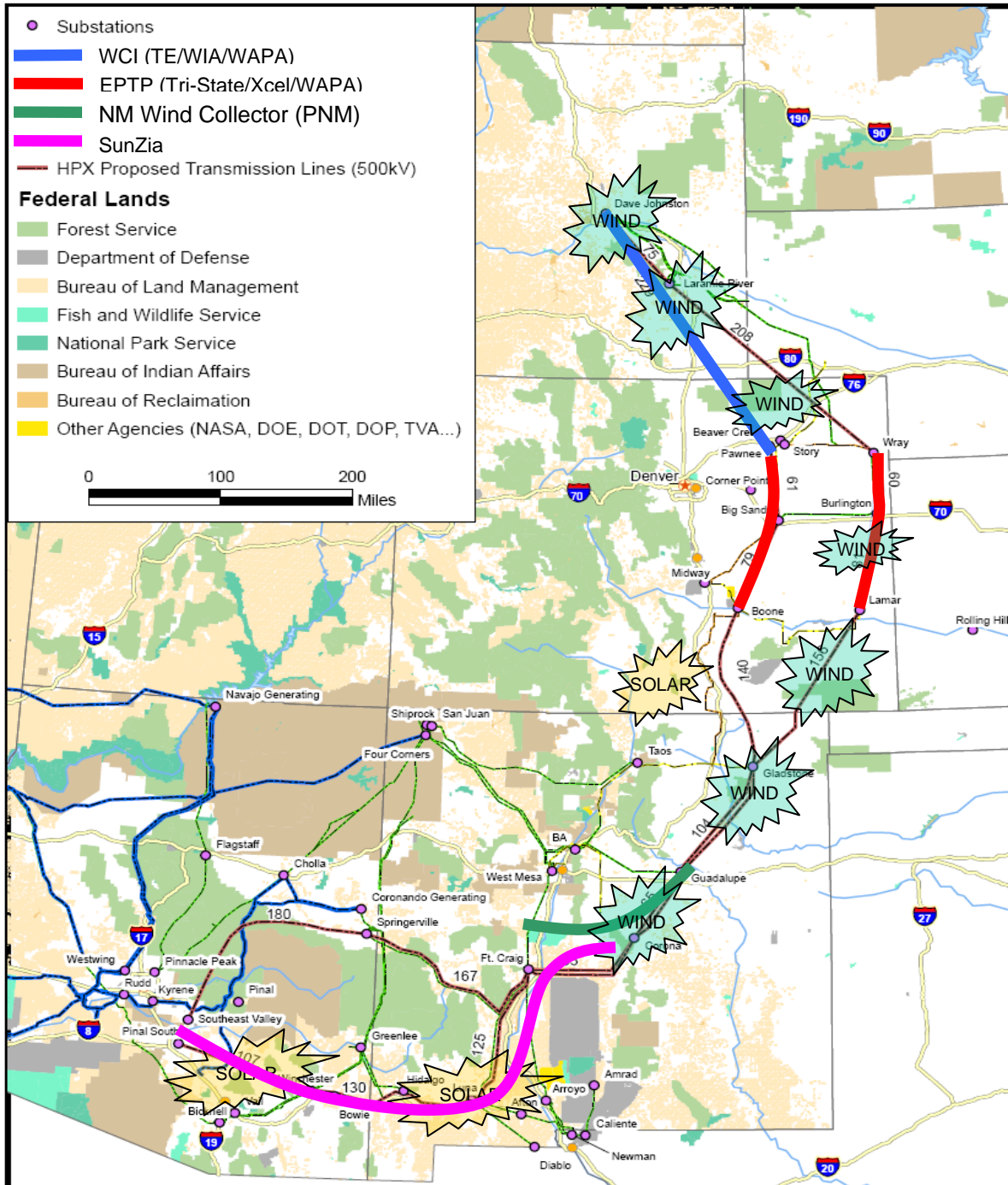
Presentations

February 2009

Feasibility Study Overview
[Download Now »](#)

HPX Initiative

A Roadmap for Regional Transmission Expansion

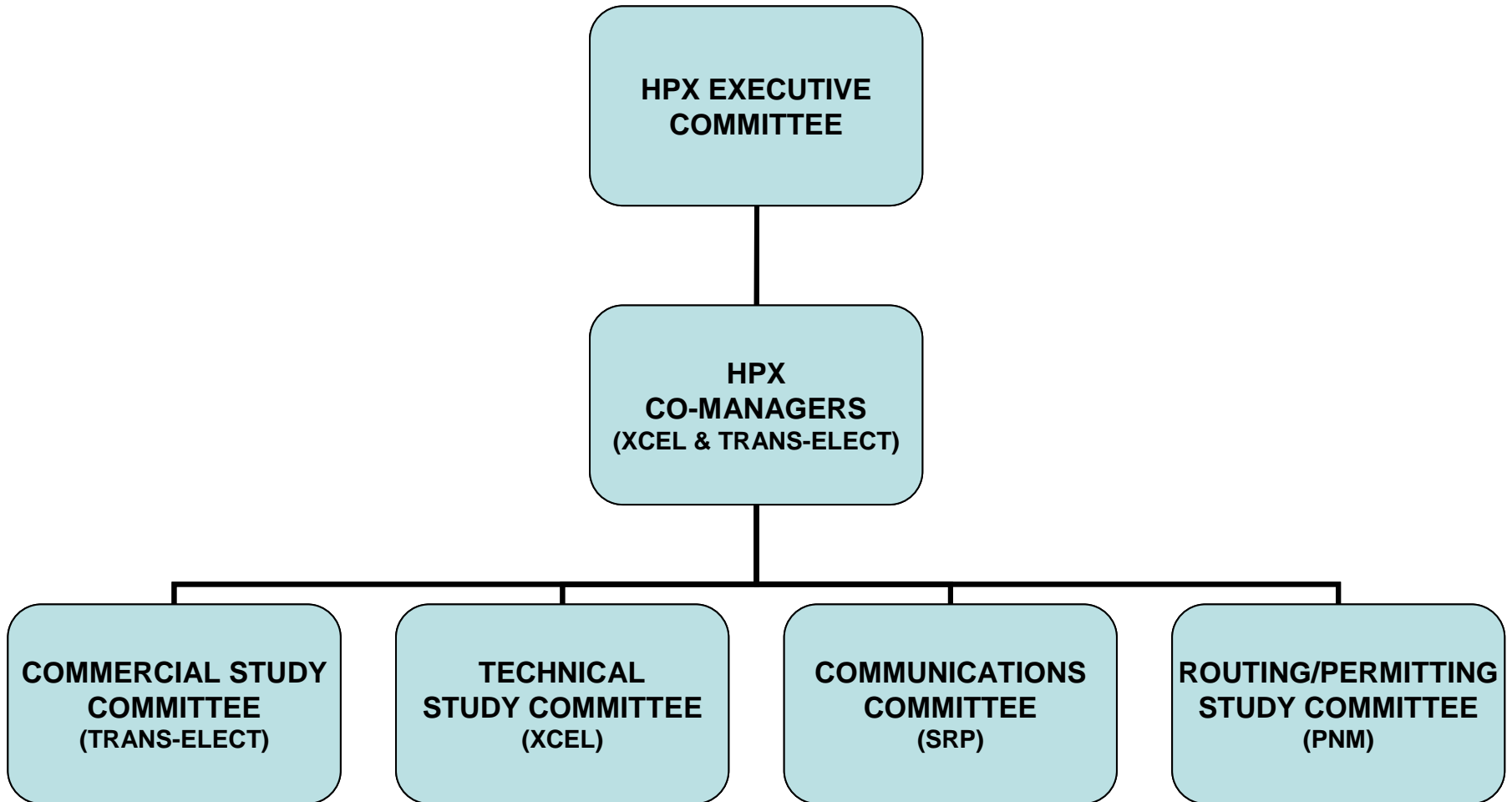


- **Description**
 - Two Corridors
 - ~3,500 MW Capacity
 - ~\$5 Billion
 - Four Component Projects
- **Benefits**
 - Renewable development
 - Enhanced reliability
 - Consumer savings
 - Economic development
- **Participants**
 - 7 Utilities
 - 3 State Authorities
 - 1 Transmission Developer
- **Stage 2 Feasibility (2009-2010)**
 - Detailed Independent Studies
 - Different configurations/paths
 - Stakeholder Process
 - Mindful of ongoing Transmission Reform
 - April 2009 Stakeholder Meeting

HPX Initiative Participants



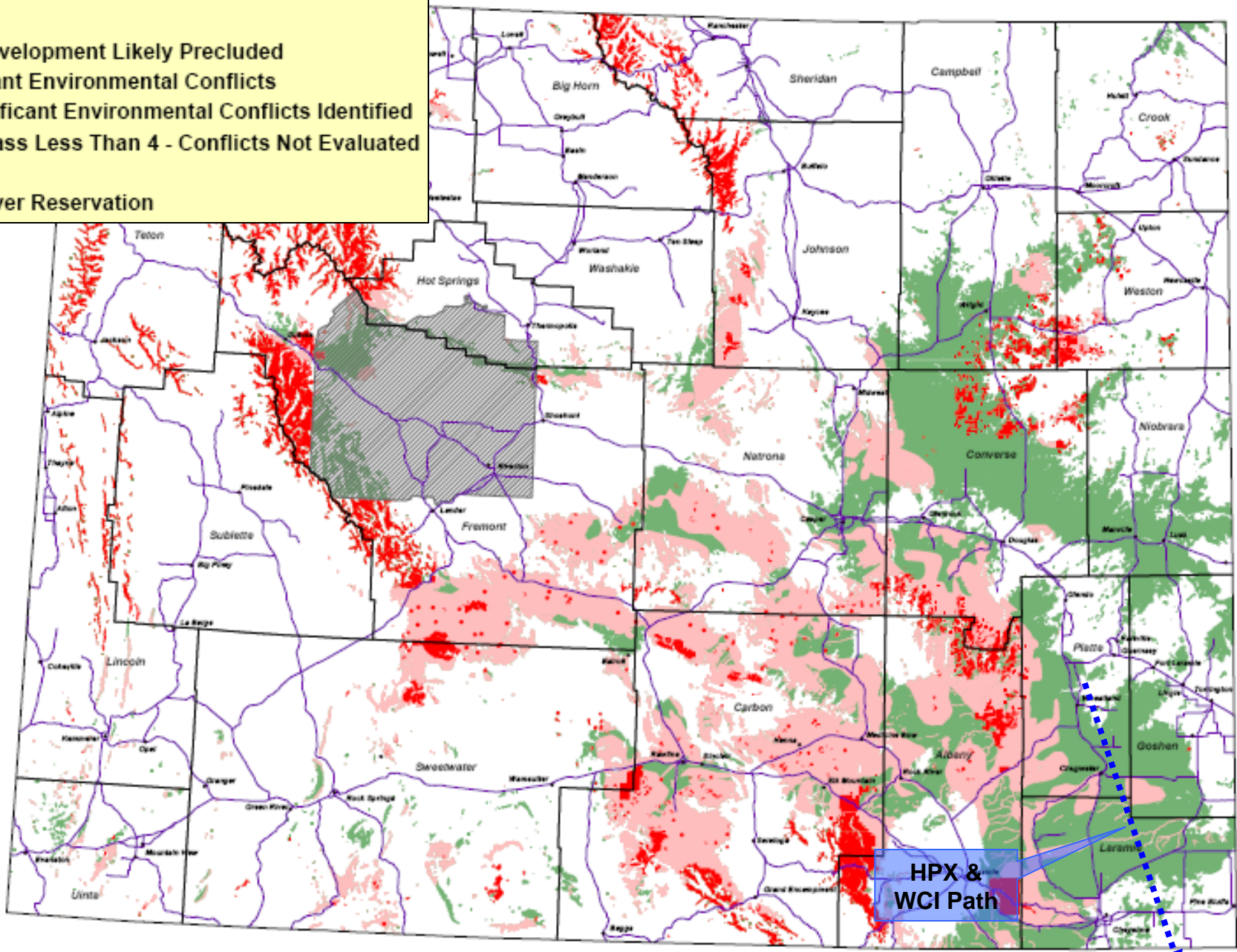
HPX Organization



Wyoming Class 4+ Winds Wind Development Environmental Conflicts

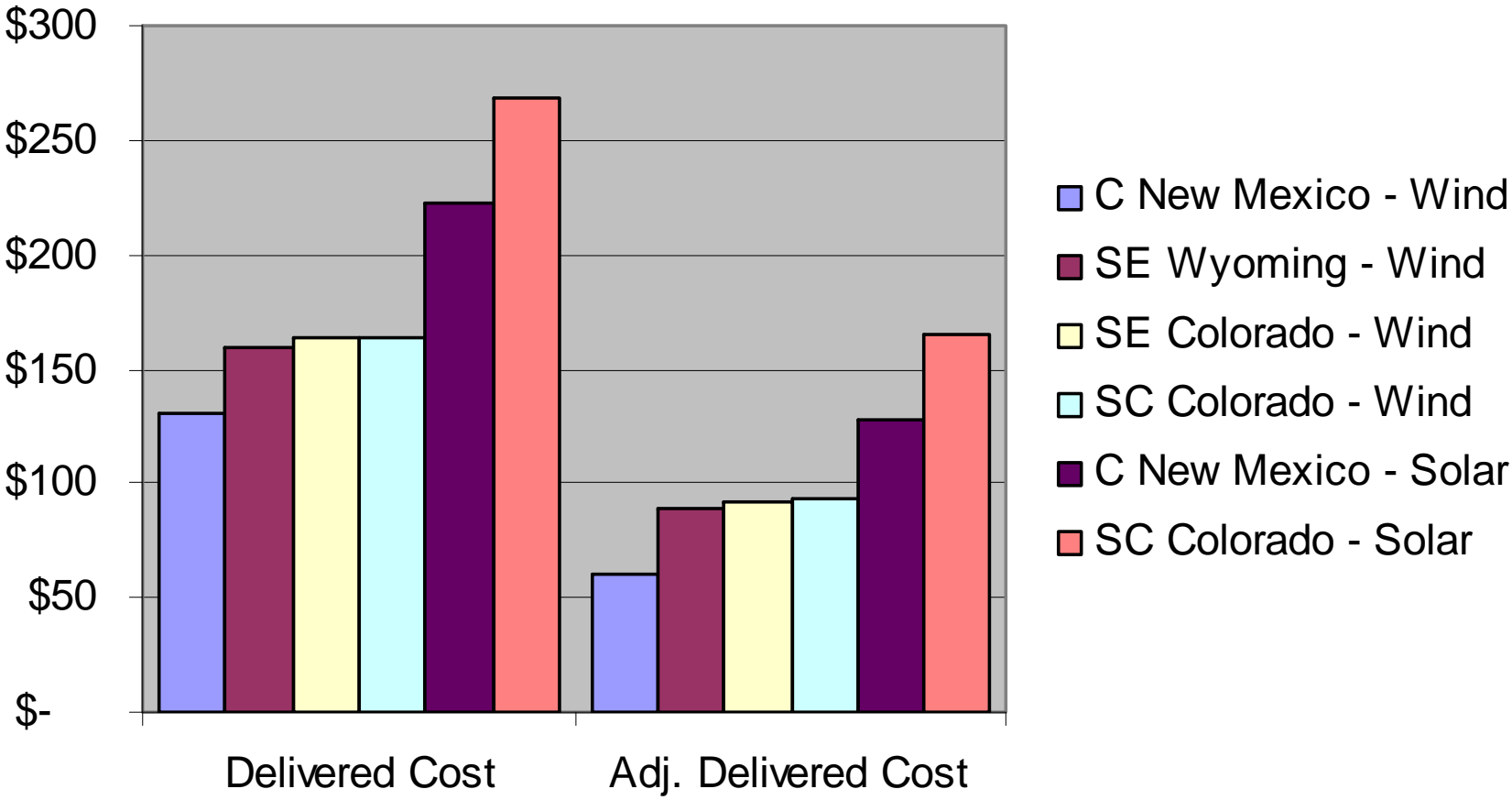
Legend

- Wind Development Likely Precluded
- Significant Environmental Conflicts
- No Significant Environmental Conflicts Identified
- Wind Class Less Than 4 - Conflicts Not Evaluated
- Roads
- Wind River Reservation



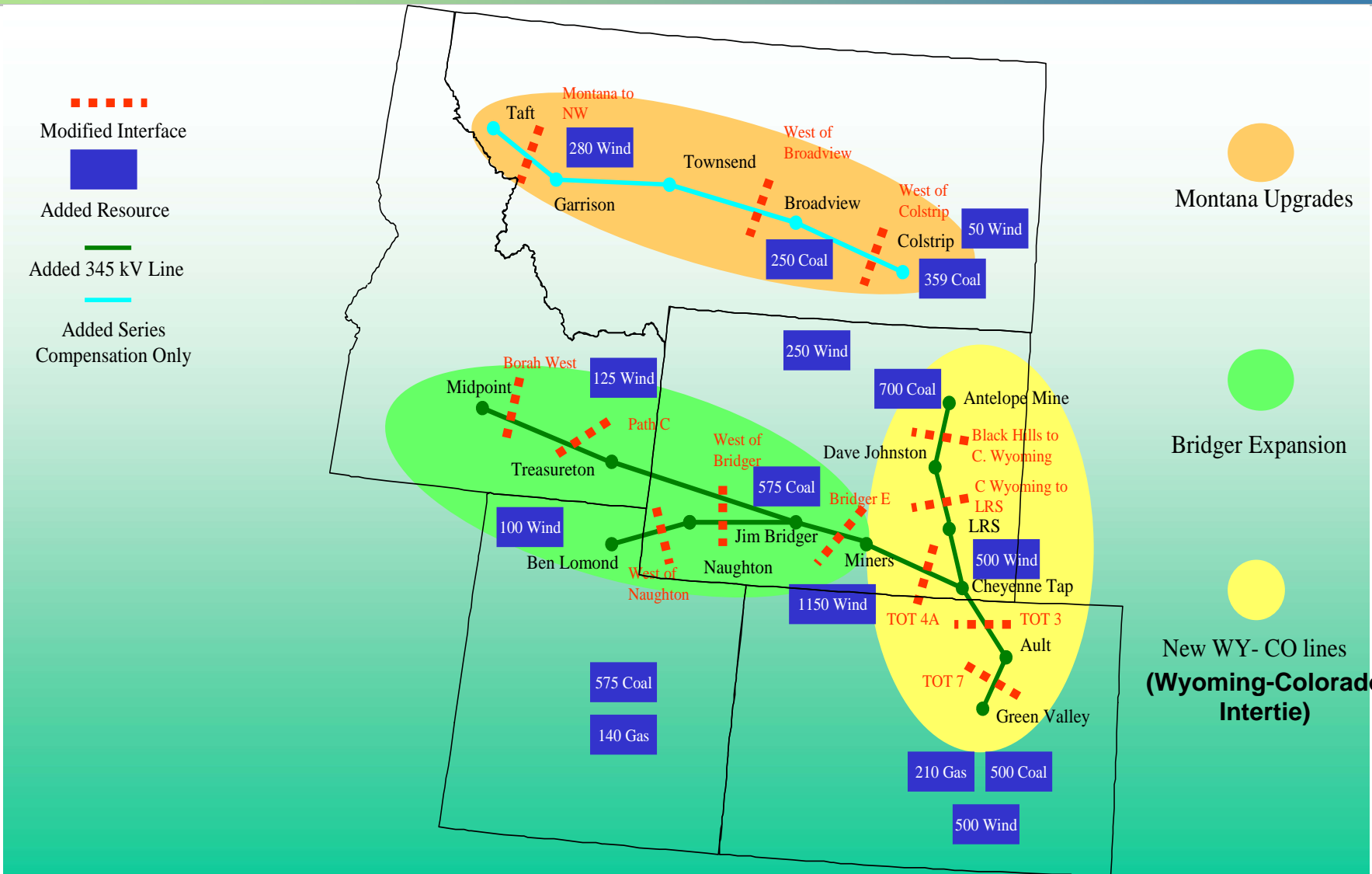
HPX & WCI Path

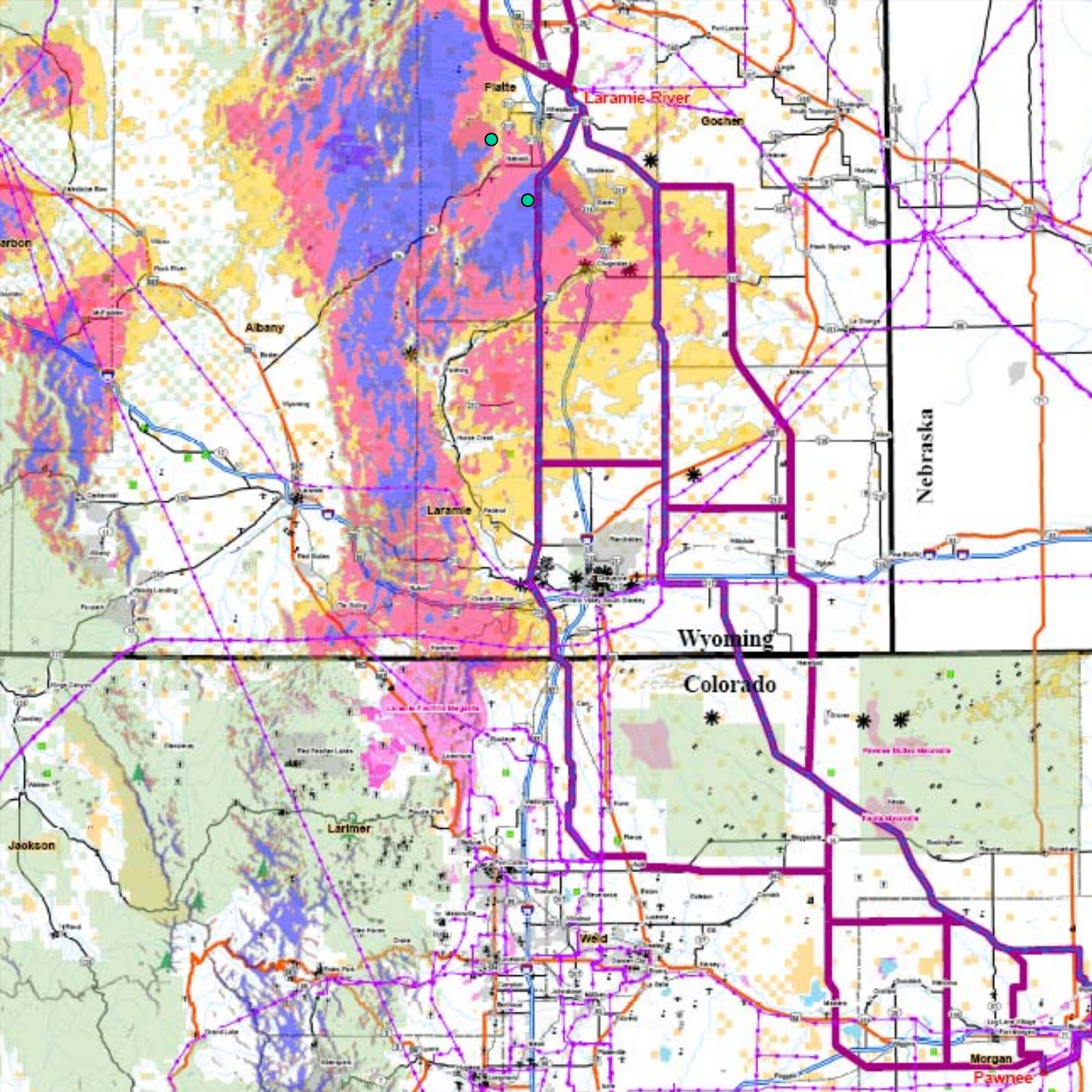
HPX Renewables Delivered to Phoenix (\$/MWh) - Preliminary



Wyoming-Colorado Intertie

Wyoming-Colorado Intertie (2004 RMATS)





Legend

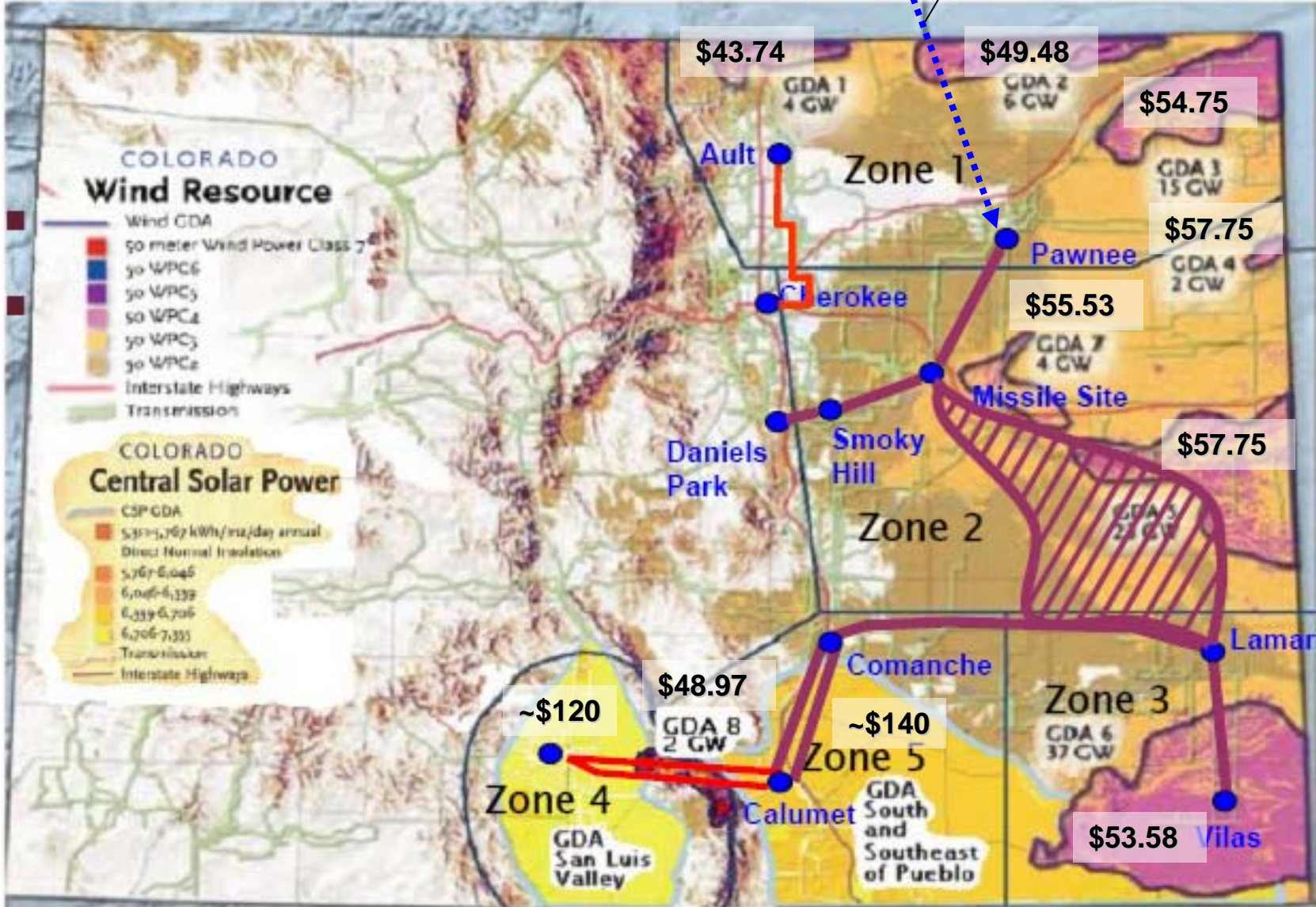
- ▲ Interconnection Points
 - Existing Transmission Lines (From RDI)
 - Existing Transmission Lines (Aerial Interpretation)
 - Transmission Corridor Segments
- ### Wind Power Class
- Excellent
 - Outstanding
 - Superb
- ✱ Wind Farm
- ### Constraints
- + Airport / Heliport
 - ✙ Church
 - ✝ Cemetery
 - : School
 - ⊙ Park
 - Mine
 - Oilfield
 - Well
- Municipal Areas
 - Federal Lands
 - Conservation/Wildlife Areas
 - State Lands/Trust Lands
 - State Parks



Wyoming & Colorado Wind (\$/MWh)

Wyoming
\$35.73

Wyoming-Colorado
Intertie 345 kV



230kV
345kV

Note: NREL Projections inclusive of PTC & ITC

Wind Deliveries to Colorado (WREZ)

