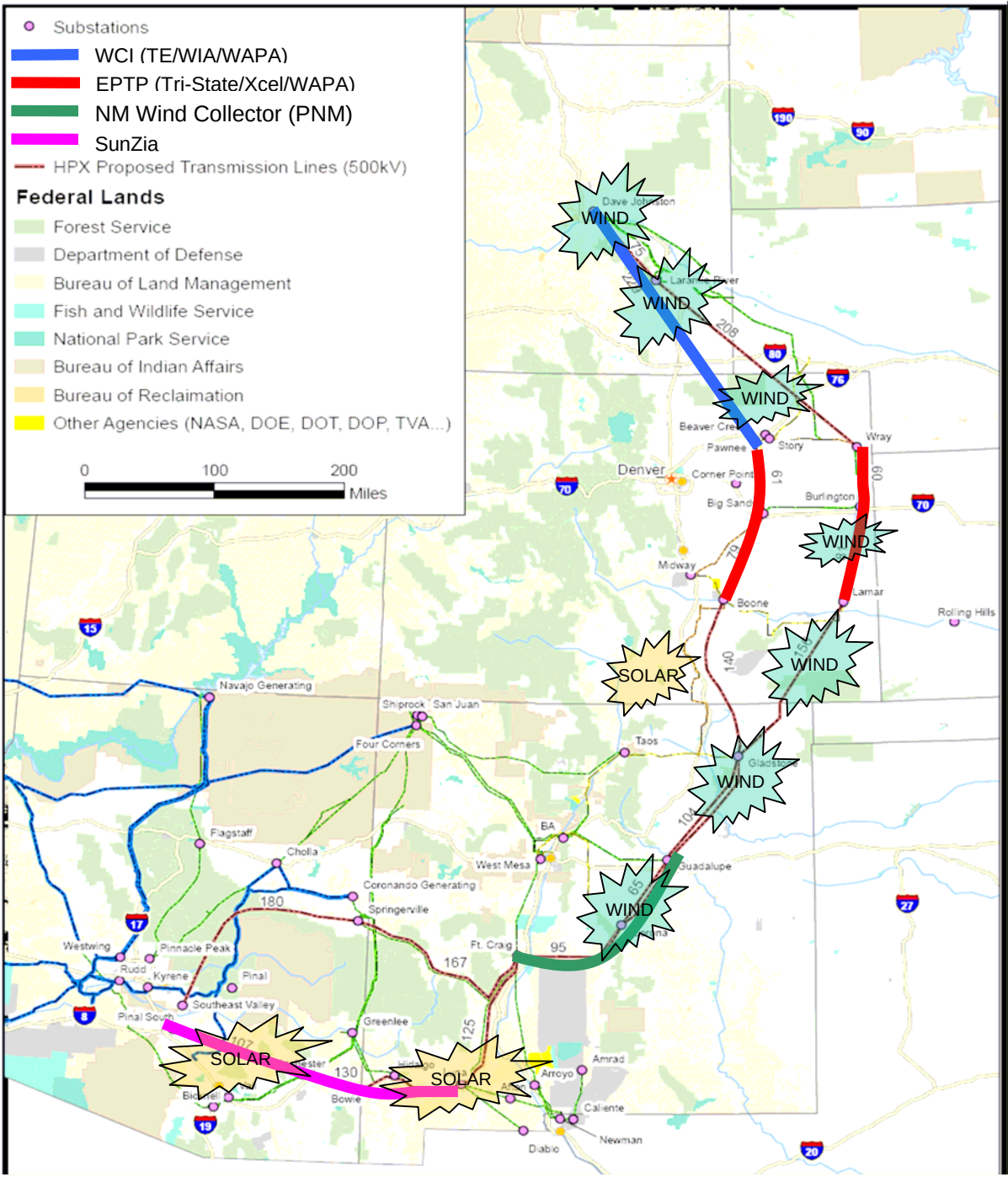
HPX
High Plains Express

A roadmap for transmission development to benefit consumers in Wyoming, Colorado, New Mexico and Arizona



HPX
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High Plains Express Initiative

A Roadmap for Regional Transmission Expansion

- **Description**
  - Two 500 kV AC Lines
    - Exact Routes TBD
  - ~3,500 MW Capacity
  - ~$5 Billion
- **Benefits**
  - Renewable development
  - Enhanced reliability
  - Consumer savings
- **Participants**
  - 6 Utilities
  - 3 State Agencies
  - 1 Transmission Developer

June 02, 2008

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HPX Initiative Participants

Xcel Energy®

SRP®

TRI-STATE
Generation and Transmission
Association, Inc.
A Touchstone Energy® Cooperative

PNM® A personal commitment to New Mexico

Colorado Springs Utilities
It's how we're all connected

TRANS-ELECT, LLC.

Western
AREA POWER
ADMINISTRATION

WYOMING INFRASTRUCTURE AUTHORITY

Governor's Energy Office

NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

June 02, 2008

HPX Description

- An AC system enhancement to further connect the states of Arizona, New Mexico, Colorado, and Wyoming
- Two 1,250 mile long, 500 kV, AC transmission lines
- Modeled as interconnected with the existing grid at 14 substations, where power would be uploaded and downloaded
- 3,500 – 4,000 MW of transmission capacity
- $5.1 billion cost estimate; possible 2017 operation
- Potential to integrate with four transmission projects already under study or development within the HPX footprint
- Open planning process vetted with stakeholders

Loads & Resources

- ~50,000 MW of generation capacity currently exists in the HPX states
- HPX would add 3,500-4,000 MW transfer capacity
- HPX would supply power to meet load growth and in some cases, displace fossil resources
- Renewable resources will have to be blended and supported with “dispatchable” resources
- HPX is a “fuel neutral” initiative, as its customers will dictate the fuel mix
- Renewables are expected to be a significant part of the HPX resource mix, particularly wind and solar

1st Stage Feasibility Results

- Technical Studies
  - Operationally feasible
- Cost/Benefit Studies
  - Benefits outweigh costs
- Conceptual Routing
  - No apparent fatal flaws
- Next Steps (2nd Stage Feasibility)
  - More detail needed to confirm feasibility
  - Identification of commercial arrangements

Anticipated Benefits

- Enhanced reliability
- Improved access to renewables
- Consumer savings in all HPX states
- Economic stimuli for all HPX states
- Roadmap for regional transmission expansion

HPX Transmission Economics

Segment	Ave. miles	Cost ($MM)	Line Losses	Indicative Transmission Rates		
				$/kW-mo	$MWh @ 40% Use	$MWh @ 80% Use
Wyoming - Colorado	335	$1,366	2.4%	$3.21	$10.99	$5.50
Colorado-New Mexico	420	$1,680	3.1%	$3.94	$13.49	$6.75
New Mexico - Arizona	525	$2,087	3.8%	$4.90	$16.78	$8.39

As shown, effective transmission rates are dependent upon the extent to which a transmission line is utilized

Additional Benefits

In addition to improved reliability and economic development realized by all HPX states, the individual states could potentially enjoy additional benefits	
Arizona	Ability to increase its reliance on renewables as a cost-effective power supply source by blending and supplementing in-state renewables with renewables imported from the "upstream" HPX states, particularly New Mexico
Colorado and **New Mexico**:	Ability to optimize renewable energy use for in-state and export purposes by taking advantage of geographical diversity afforded by HPX's development, without limiting in-state renewable energy development prospects
Wyoming	Ability to export its high-quality, low-cost resources, particularly wind, to the "downstream" HPX states to enhance the performance and reliability of the resources used within and exported by those states

Next Steps

- Constructing individual segments over time following a “roadmap” approach to transmission expansion suited to each HPX state’s needs
- Assessing the performance and costs of renewable resource integration and dispatch
- Assessing public and regulatory policies potentially applicable to HPX
- Further quantification of the overall cost impacts and benefits that could be achieved from the HPX initiative
  - Include production cost modeling of various resource mixes

Next Steps, cont.

- Investigation of cost allocation and recovery mechanisms, including potential for a regional tariff for segments and/or the entire HPX initiative
- Continuing an open stakeholder approach and outreach to secure input on the transmission planning process
- Identifying business structures, ownership shares, development funding requirements, work plans and project development schedules for consideration in further assessing the viability of the HPX initiative

Summary

- Developing and strengthening the transmission system has many benefits
  - Broadening markets for renewable energy
  - Enhancing reliable electricity supply
  - Providing economic benefits to HPX states and cost-savings opportunities for consumers
- HPX planning involves significant stakeholder input and is a multi-year planning process
- HPX, with the involvement of public policy officials within each HPX state, has the opportunity to set a national standard for multi-state cooperation
- We have a plan – High Plains Express


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