



Problems of Siting Long-Distance Electric Transmission Lines

NARUC Electricity Committee Meeting

**Kris Mayes, Chairman
Arizona Corporation Commission**

February 16-17, 2009

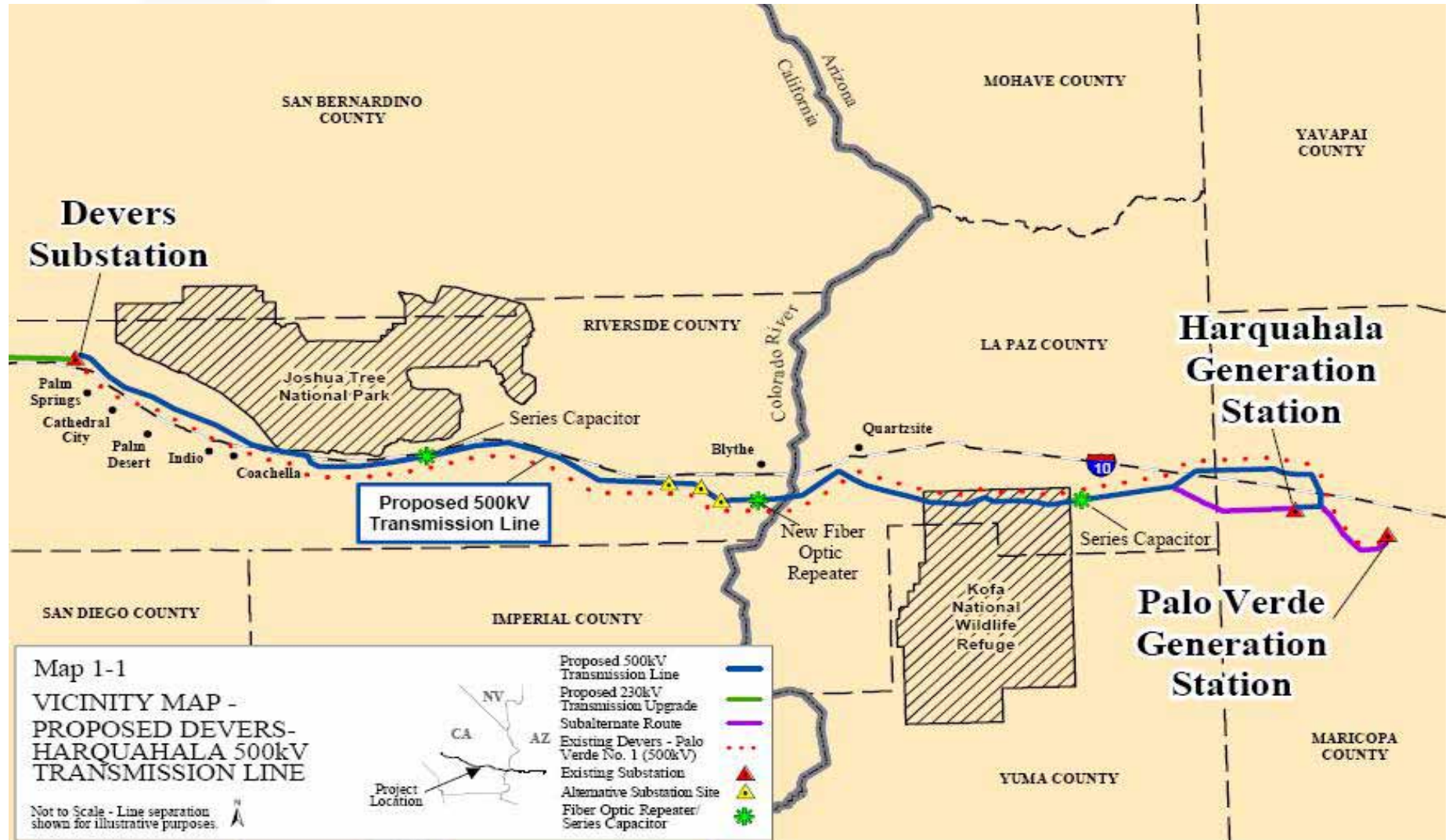


Key ingredients to successful interstate line siting

- **Cooperation between states**
- **Co-ownership/co-development of lines by utilities**
- **Consensus regarding the need for the line**
- **Commingling of benefits – no state should be asked to shoulder all burdens, all states should receive some benefit**



Southern California Edison Palo Verde-Devers No. 2





Southern California Edison Palo Verde-Devers No. 2

- Decision 69638 raised distinct objections.
- Specifically, the decision identified:
 - The identified project need is less compelling for Arizona and Arizona ratepayers than for California
 - Massive imbalance in benefits/ detriments: CA benefited by \$1 billion; AZ ratepayers were harmed by \$240 million
 - Absorption of Arizona's excess generating capacity will force the installation of new generation sooner
 - The project will not improve resource adequacy in the short term and could have a deleterious effect in subsequent years



Southern California Edison Palo Verde-Devers No. 2

- Economic benefits to Arizona and Arizona ratepayers can be characterized as temporary, indirect, illusory or speculative
- Environmental impacts found to the Kofa National Wildlife Refuge
- No cooperation between AZ & CA on the line; Arizona / Southwest has a tradition of cooperation/co-ownership of EHV power lines
- The Arizona Corporation Commission voted to turn down PVD2 in 2007.



Southern California Edison Palo Verde-Devers No. 2

- Southern California Edison (“SCE”) has not resubmitted an application for ACC approval
- SCE has begun pre-filing consultations with FERC, making use of National Interest Electric Transmission Corridor authority
 - On June 17, 2008, FERC issued a Notice of Intent to prepare an Environmental Impact Statement for the proposed line
 - SCE has indicated that they will decide whether to file an application with the ACC or FERC in early 2009



Southern California Edison Palo Verde-Devers No. 2

- On November 7, 2008, the Commission opened a Docket for purposes of gathering information on the progress of SCE and other parties in modifying the original PVD2 proposal to incorporate additional Arizona benefits.
- On February 9, 2009, SCE submitted a report detailing the progress of their efforts and it is currently being reviewed by the Commission for further steps.



Southern California Edison Palo Verde-Devers No. 2

- In SCE's February 9th filing, additional measures being proposed include:
 - “Right of First Refusal” for Arizona entities to acquire, at some future point, an ownership share of a portion of PVD2.
 - Interconnection for the Harcuvar Transmission Project to PVD2.
 - Interconnection for the TS-5 Project to Harquahala Junction.



WECC JOINT FACILITIES (DEVELOPED OR OWNED)

LEGEND:

- WECC BOUNDARY
- ⇄ JOINT DC TIES
- ▲ JOINT PHASE SHIFTER OPERATION
- JOINT LINES
- ◆ JOINT POWER GENERATION

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Cartographic & GIS Services
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SOURCE: POWERmap



Transmission Groups

- **Central Arizona Transmission System**
 - Three-phase process to identify the best locations for major new transmission, desired in service dates, and joint efforts for construction of the facilities.
- **Southwest Area Transmission (SWAT) Short Circuit Working Group**
 - The Southwest Area Transmission (SWAT) Short Circuit (SC) Working Group is comprised of transmission owners, transmission operators, and other interested WECC stakeholders. The goal of the SWAT SC Working Group is to promote regional short circuit studies and common methodologies for individually and jointly owned/operated transmission systems in the Desert Southwest



Biennial Transmission Assessment (BTA)

- BTA process fulfills a statutory obligation
- Under A.R.S. §40-360.02.E states “The (Ten-Year) plans shall be reviewed biennially by the commission and the commission shall issue a written decision regarding the adequacy of the existing and planned transmission facilities in this state to meet the present and future energy needs of this state in a reliable manner.”
- The BTA report is critical because it informs the Commission regarding the adequacy of the existing and planned transmission facilities in the state to meet the present and future energy needs of the state in a reliable manner pursuant to the obligation stated by A.R.S. §40-360.02, Title 40, Chapter 2, paragraph G.



Biennial Transmission Assessment

- In assessing the Arizona transmission system, the Commission utilizes the following considerations to frame its analysis:
 - Whether the proposed transmission system plans meet the load serving requirements of AZ during the 10 year period in a reliable manner.
 - Whether the transmission planning process is conducted in accordance with transmission planning principles and good utility practices.
 - Whether the steps taken in new planning studies effectively address concerns raised in prior BTAs about transmission system adequacy.
 - Whether generational interconnection practices adequately reflect technical aspects of the generation interconnection policies as defined in FERC orders.
 - Whether transmission plans adequately reflect NERC activities related to compliance with transmission planning standards as well as WECC reliability standards.



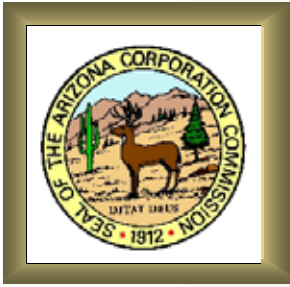
Biennial Transmission Assessment

- The Commission's BTA process ensures that transmission issues are not placed on a back burner until they reach a critical point. By regularly undertaking assessment and identification, the Commission is kept aware of the necessity of transmission.
- In Decision 70635, the Commission approved the 5th BTA Report. Within the decision, the Commission ordered parties to conduct a workshop or meetings "...to develop ways in which new transmission projects can be identified, approved for construction, and financed in a manner that will support the growth of renewables in Arizona." Arizona utilities were further ordered to "identify the top three potential renewable transmission projects in their respective service territories."



Line Siting Committee

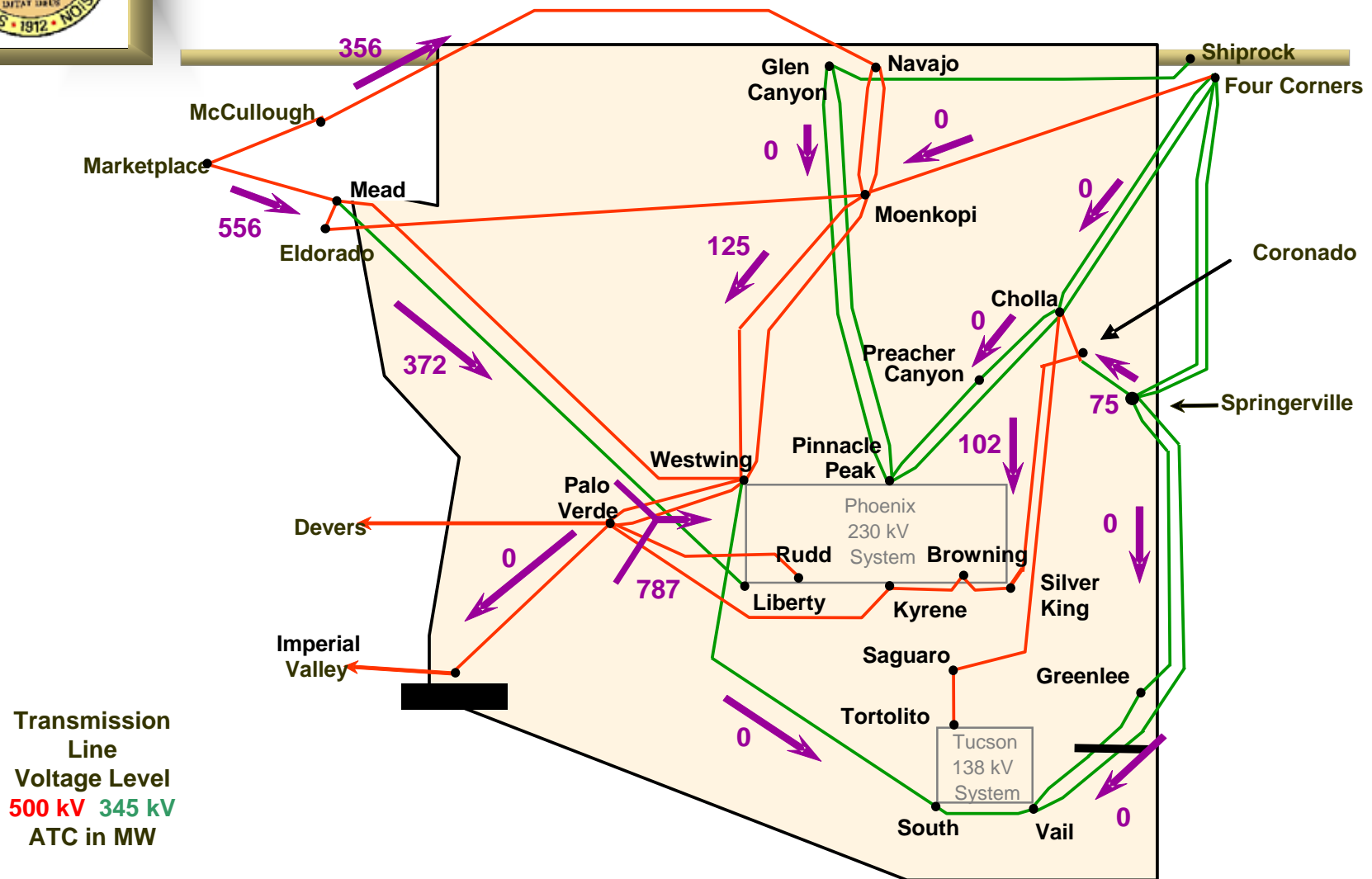
- While the BTA process is important for identifying transmission needs, siting and construction would not be efficiently conducted without the efforts of the Arizona's Line Siting Committee.
- Arizona's Line Siting Committee, in general, has 180 days to reach a decision from the date of filing of an application. The composition of the Committee reflects broad interests, contributing to well-considered decisions.
- This stream lined approach is in part one of the reasons why the ACC has approved over 20 major transmission projects totaling in excess of 600 linear miles of transmission corridor plus associated substation facilities since 2000.



Available Transfer Capacity (ATC)

- ATC information has recently been gathered for each utility in Arizona.
- ATC is a dynamic number that can change from day to day. Values observed in June 2007 are used to illustrate the status of the ATC in the Arizona transmission system.

Arizona EHV Transmission ATC (as of June 2007)



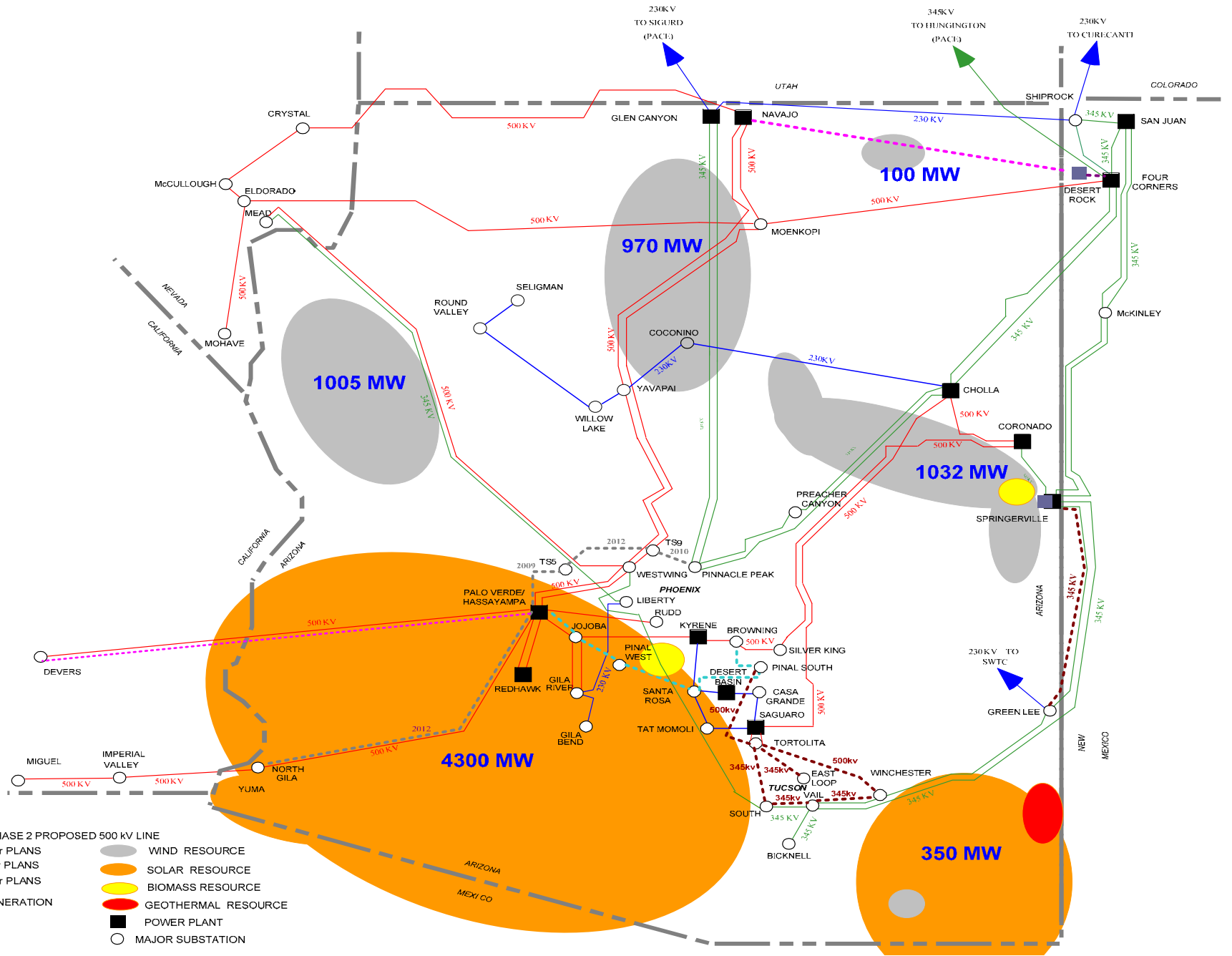
Black & Veatch Summary

Projected Resource Locations

- 1 Solar CSP/Yuma – 800MW
- 2 Solar CSP/Stoval – 1,900MW
- 3 Solar CSP/Phoenix – 800MW
- 4 Solar CSP/Tucson – 800MW
- 5 Wind/Project KS – 18MW
- 6 Wind/Project RS – 140MW
- 7 Wind/Project BR – 158MW
- 8 Wind/Project CV – 597MW
- 9 Wind/Project BH – 46MW
- 10 Wind/Project GP – 31MW
- 11 Biomass/Biogas – 60MW (22 sites)
- 12 Geothermal/Clifton – 35MW
- 13 Hydro – 82MW (7 sites, 90% @ GC)



September 21st 2007



- - - WECC PHASE 2 PROPOSED 500 kV LINE
- - - SRP 10 yr PLANS
- - - TEP 10 yr PLANS
- - - APS 10 yr PLANS
- NEW GENERATION
- WIND RESOURCE
- SOLAR RESOURCE
- BIOMASS RESOURCE
- GEOTHERMAL RESOURCE
- POWER PLANT
- MAJOR SUBSTATION



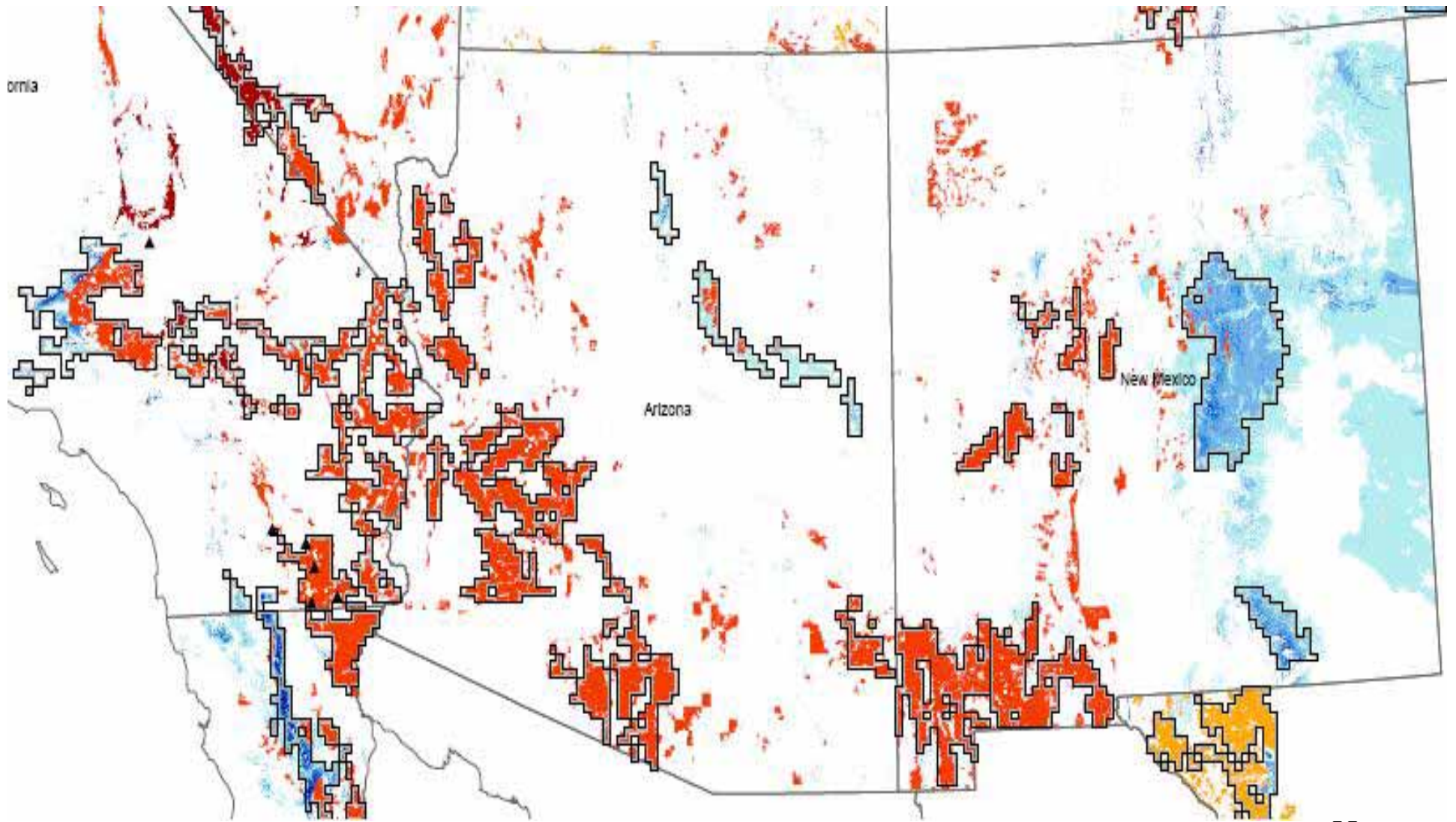
Western Renewable Energy Zones project (WREZ)

- **Western Governors' Association and U.S. Department of Energy launched the WREZ with the purpose of identifying western renewable energy zones and the transmission lines needed to access them.**
- **Four Phase Process contemplated**
 - Phase 1:
 - Identify developable renewable energy zones
 - Develop renewable resource supply curves for each zone
 - Phase 2:
 - Develop model to estimate delivered price of power from renewable energy zones to load centers
 - Develop conceptual transmission plans
 - Phase 3 and Phase 4
 - Foster coordinated renewable resource acquisition
 - Facilitate interstate transmission for renewables



WREZ: Key Elements of Phases 1 and 2

- **Identify developable lands and undevelopable lands**
- **Build on existing renewable energy zone analyses**
- **Integrate with existing and WECC planning processes**





WREZ Timelines

- **Currently**

- Draft documents and map open for Public Comment, February 2 – March 2, 2009

- Available at:

- <http://www.westgov.org/wga/initiatives/wrez/comments.htm>

- **Remainder of 2009**

- Conclude Phase 1

- Launch Phase 2

- Develop model to estimate delivered power prices from zones

- Integrate WREZ with other transmission planning efforts



Conclusion

**Arizona Corporation Commission documents and orders
can be found by visiting www.azcc.gov**

**Information on Arizona's Renewable Energy Standard
can be found by visiting**

www.azcc.gov/divisions/util/electric/environmental.htm

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