Transmission & Resource Planning

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APS Transmission

**Agenda**

- Arizona Transmission System
- APS lines/ownership
- Path Descriptions
- APS 10 Year Plan Projects
- Other Arizona and Regional Projects
- Renewable Energy Task Force
Palo Verde East Path
Owners: SRP, APS, PNM, & EPE
TTC = 7510 MW

Hassayampa-North Gila 500kV
Owners: SDG&E, APS, IID
TTC = 1525 MW
APS Transmission Paths
Palo Verde Area – Phoenix/Yuma

- Overall APS TTC (includes Yuma direction outlet): 3071MW
- Existing long-term resources that use path
  - Palo Verde
  - Redhawk
  - Tolling PPAs
  - Market purchases
- Amount available after long-term resource commitments: 628MW in 2008
- Future path utilization (as seen by APS)
  - Existing commitments
  - Long-term & short-term market purchases
  - Renewables
Mead-Phoenix 500kV
Owners: APS, SRP, WAPA, LADWP, & Other CA Entities
TTC = 1300MW
APS Transmission Paths

Mead – Phoenix

- Overall APS TTC: 236MW
- Existing long-term resources that use path: Market purchases
- Amount available after long-term resource commitments: 11MW in 2008
- Future path utilization (as seen by APS)
  - Market purchases
  - Renewables
Navajo South Path
Owners: SRP, APS, TEP, USBR
TTC= 2264 MW
APS Transmission Paths

Navajo – Phoenix

- Overall APS TTC: 559MW
- Existing long-term resources that use path: Navajo Generation
- Amount available after long-term resource commitments: 244MW in 2008
- Future path utilization (as seen by APS)
  - Navajo Generation
  - Renewables
  - Market purchases
FC/Cholla to Phoenix
Owners: APS
TTC= 1925 MW
APS Transmission Paths

Four Corners/Cholla – Phoenix

- Overall APS TTC: 1925MW
- Existing long-term resources that use path
  - Four Corners, Cholla, & Saguaro Generation
  - PacifiCorp Diversity Exchange
  - Wind & Biomass PPAs
  - Market purchases
- Amount available after long-term commitments: 0MW in 2008
- Future path utilization (as seen by APS):
  - Existing commitments
  - Renewables
10 Year Plan Projects (APS Capacity)

- Palo Verde to Sun Valley 500kV Line
  - Increases amount of resources that can be utilized at Palo Verde and taken to APS Phoenix load – 400MW in 2010 (estimated capacity)

- Sun Valley to TS9 500kV Line
  - Increases amount of resources that can be utilized at Palo Verde and taken to APS Phoenix load – 400MW in 2012 (estimated capacity)

- Palo Verde to North Gila 500kV Line
  - Increases amount of resources that can be utilized at Palo Verde area – 160MW in 2012 (160MW in 2012 and 500MW long term - estimated capacity)

- Navajo to Westwing Upgrade
  - Increases by 207MW in 2010

- Mead to Westwing Upgrade
  - Increases by 113MW in 2009
Resources & Transmission Paths

- Resource Planning assumptions in Transmission Planning
- Transmission Uses
- Scheduling Capability
Other Transmission Projects

- Arizona
  - Southeast Valley
  - Coronado upgrade
  - Navajo Transmission Project
  - Devers - Palo Verde #2

- Regional
  - TransWest Express
  - SunZia & High Plains Express
  - Gateway Projects
  - Northern Lights
Regional EHV Projects

- TransWest Express
- Northern Lights
- Frontier Line
- SunZia/High Plains
- PAC Gateway
Western Market Development Status

- Columbia Grid
- CAISO
- NTTG
- WestConnect
Renewable Energy Task Force

- Original BTA requirement
- Accomplished through open forum - SWAT
- Development of Resource Zones
- Transmission Solutions
- Next Steps – Regional Assessment
A renewable resource map displaying areas where resources development could occur was developed with input from three specific areas:

- **The Arizona Renewable Energy Assessment** recently prepared for APS, SRP and TEP by Black and Veatch (2007)
- The queue for renewable resource in Arizona requesting potential interconnection (as of October 15th 2007)
- Stakeholder/developer input on prospective development opportunities.

The renewable resource map was developed during workshop meetings on Oct 8th and Nov 16th 2007
The map was developed by the utilities and stakeholders during both meetings and included in the map are:

- existing transmission lines
- APS, SRP and TEP 10 year plans
- other WECC Projects in Phase II process
- potential transmission lines

Next steps