

Arizona Public Service Company 2015 Summer Readiness

Before the Arizona Corporation Commission
April 15, 2015



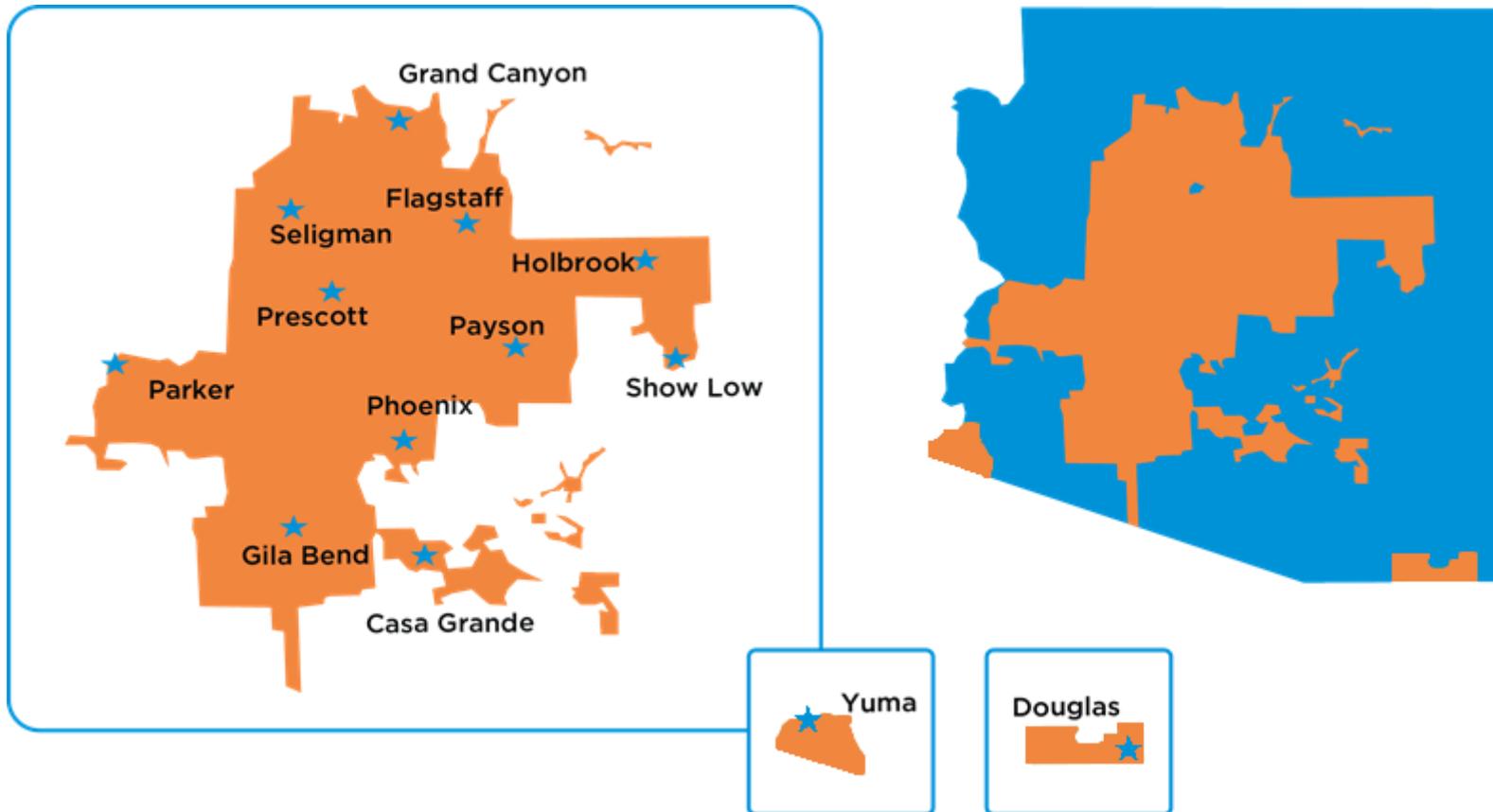
Presenters

- **Jim Wilde**
Director, Resource Planning
- **Jacob Tetlow**
General Manager, Transmission and Distribution
Operations and Maintenance

Agenda

- Loads and Resources
- Fuel Supplies
- Planned Maintenance Activities
- Emergency Preparedness & Customer Outreach
- Conclusions

APS Service Territory



APS Service Statistics

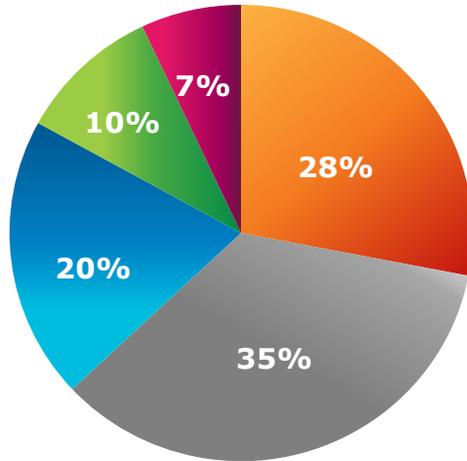
- 11 counties
- 34,646 square mile service area
- 1.2 million customers
- 425 substations
- 28,979 distribution line miles
- 5,958 transmission line miles
- 64 generation units

2015 Total Generation Resources

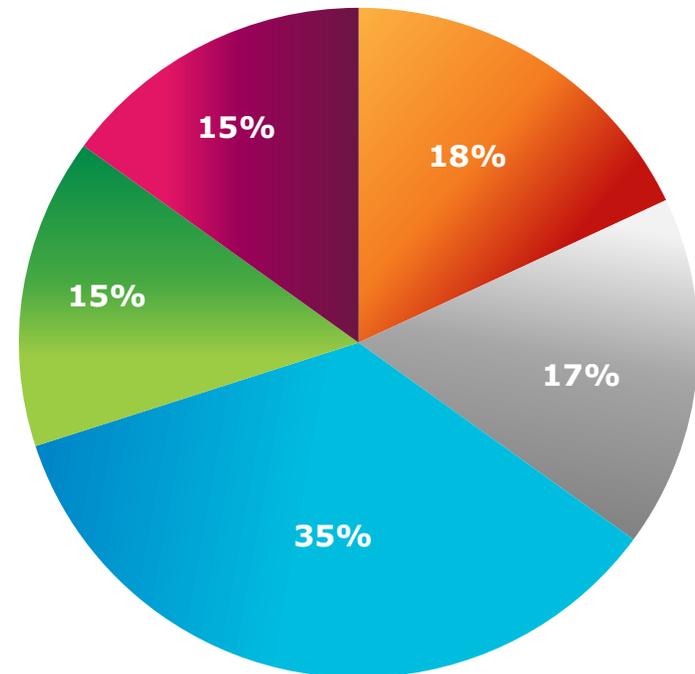
Fuel Source	Capacity at Peak (MW)
Nuclear	1,146
Coal	1,932
Gas Combined Cycle	1,852
Gas/Oil CT, Steam	1,253
Long-Term Contracts	2,407
Renewables (nameplate 753MW)	505
Total	<hr/> 9,095

Diverse Energy Mix

2014



2029



- **Over 50% of energy growth planned to be supplied by zero emission resources**
- **Growth in natural gas generation to meet peak demand and integrate renewable energy resources**



Nuclear



Coal



Natural Gas

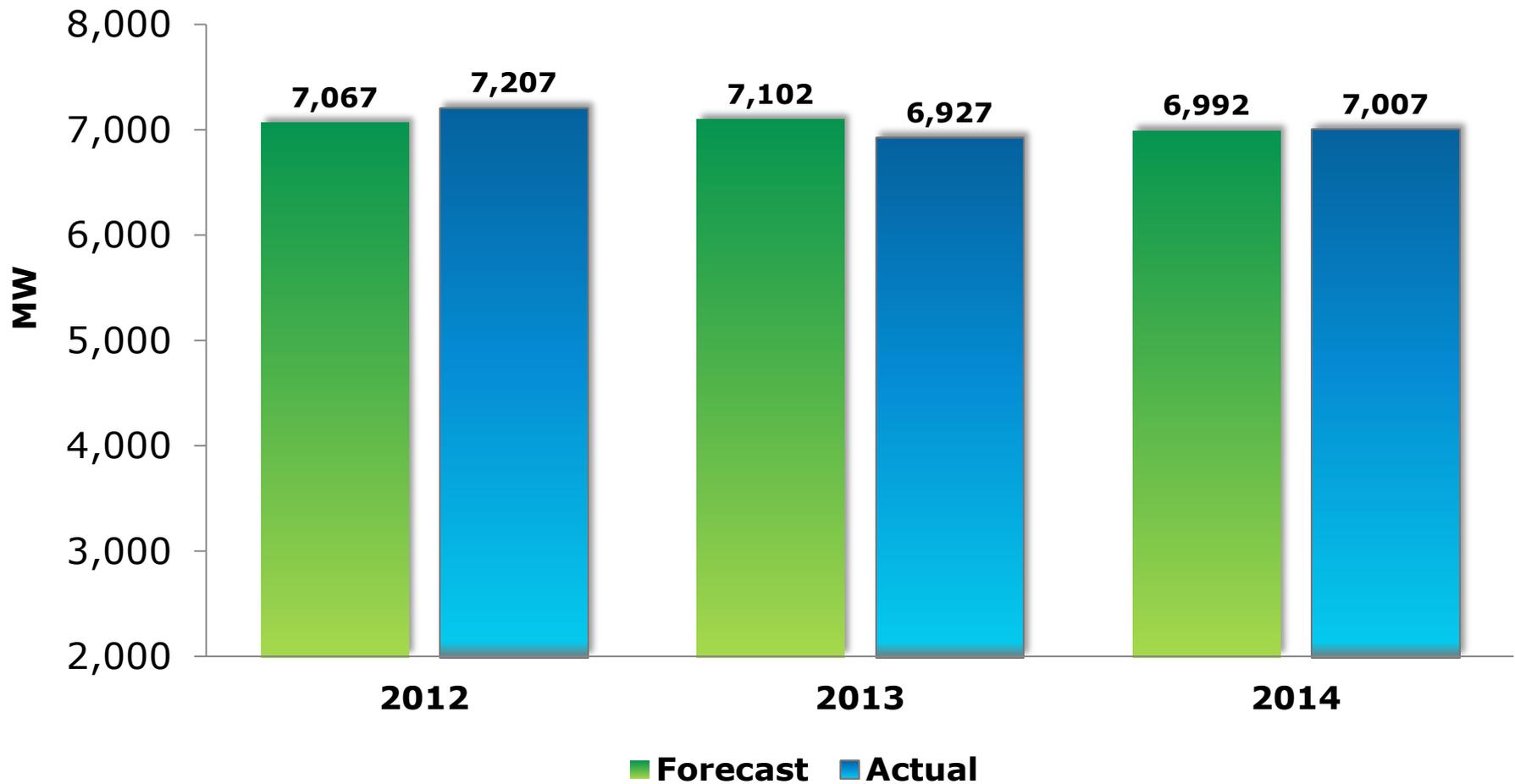


Renewable Energy



Energy Efficiency

APS System Peak Demand

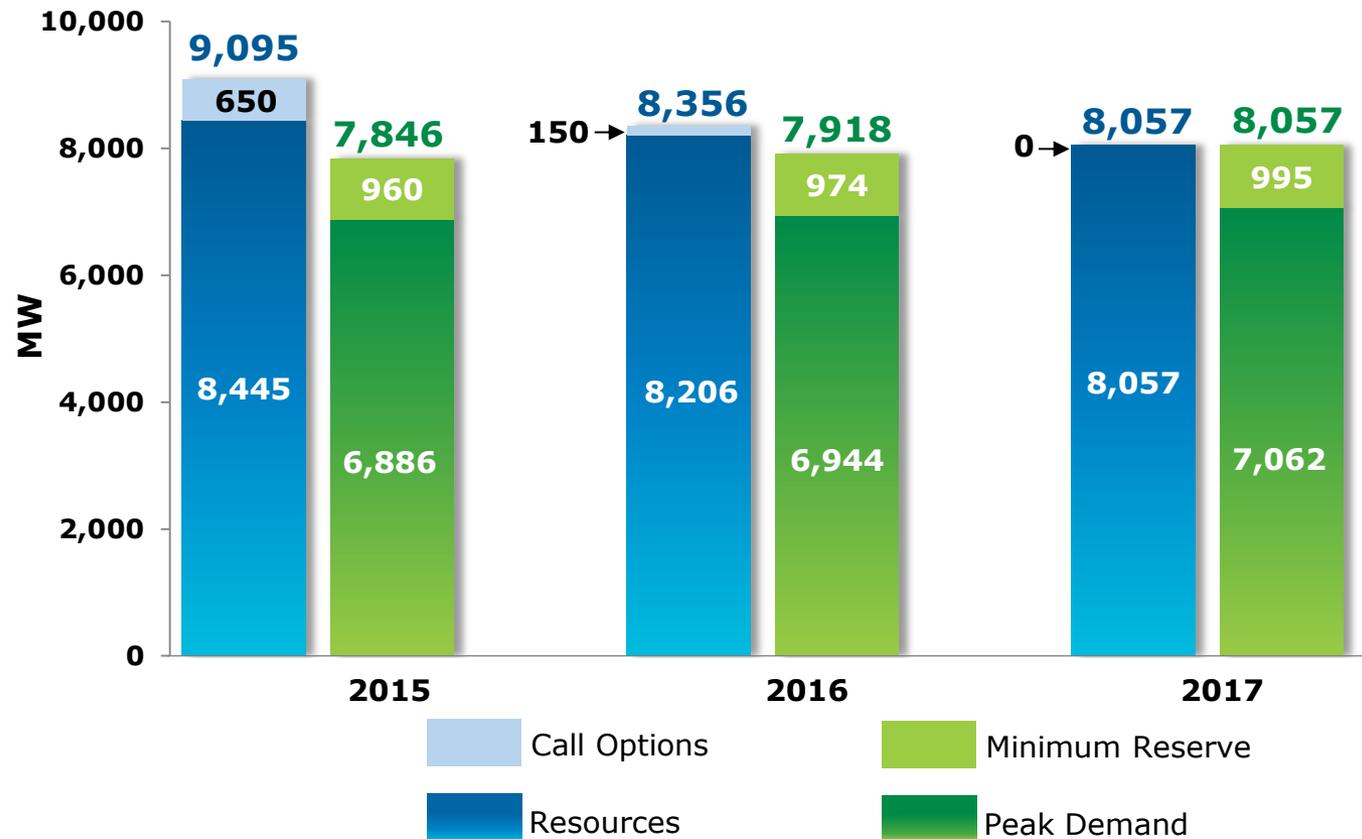


2015 - 2017

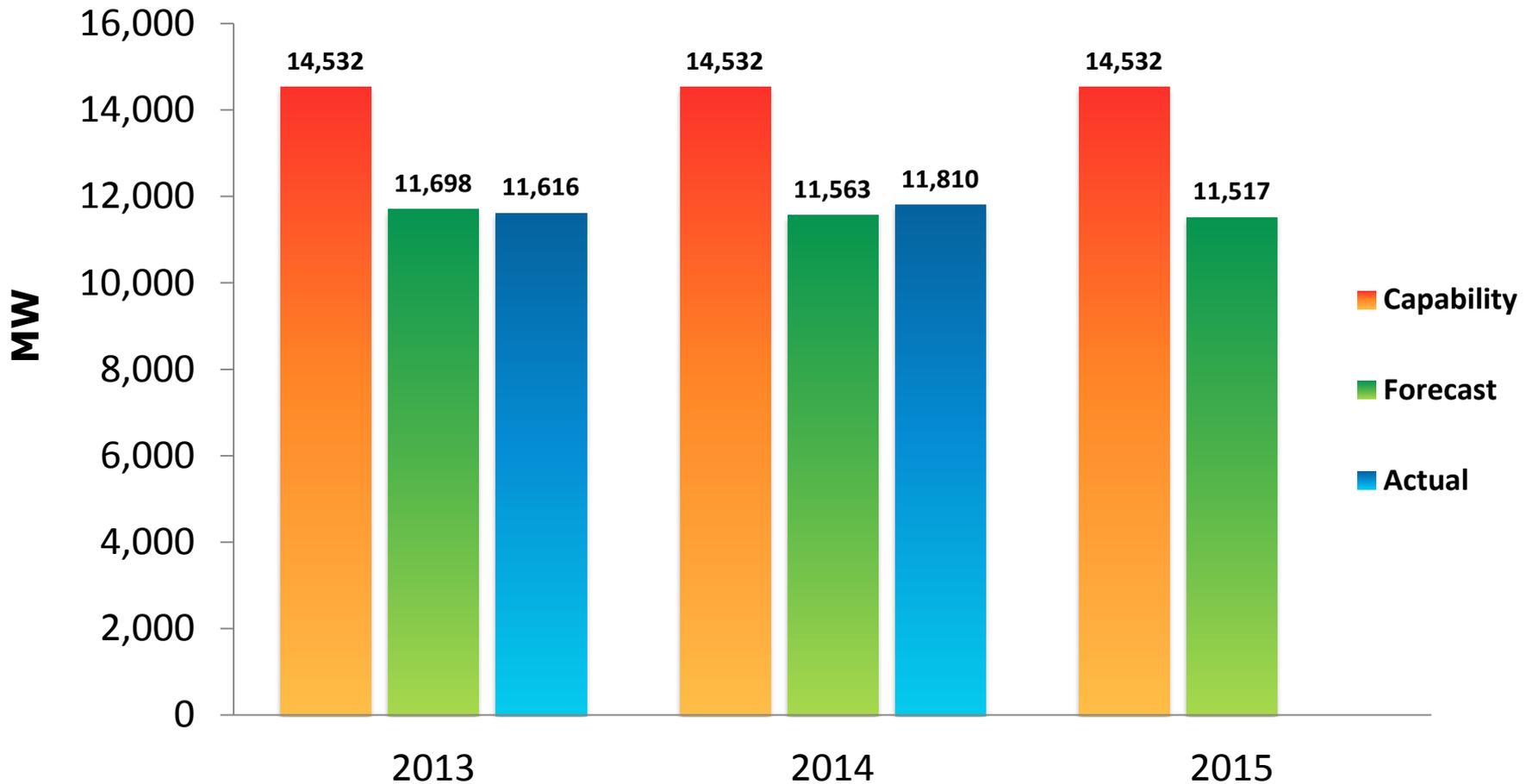
Peak Generation Resources and Demand

Planned minimum reserves to manage uncertainties

- Load forecast uncertainties (weather, economy)
- Unplanned unit outages
- Varying levels of customer participation in resource standards
- Minimum reserve drops from 35% in 2015 to 15% in 2017

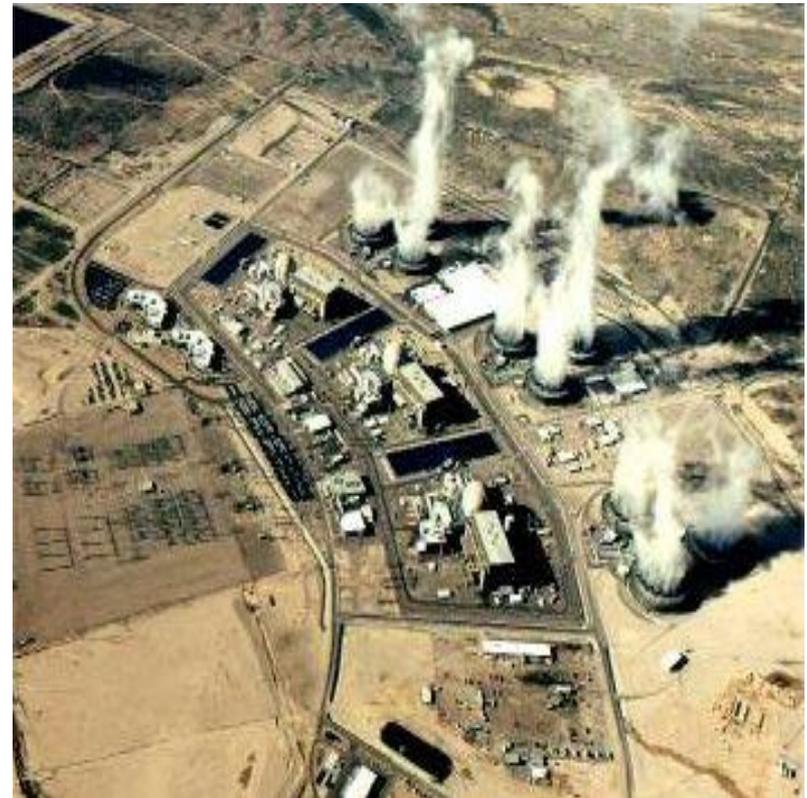


APS/SRP Valley Maximum Load Serving Capability



Nuclear: Palo Verde

- Fuel sourced from multiple suppliers
- 100% of 2015 fuel in pipeline
 - Spring outage, all fuel is on site
 - Fall outage, all fuel components procured, fabrication on normal schedule
- 100% of fuel requirements contracted through 2018
- Overall station capacity factor at 93.7% in 2014



Coal Supply

Four Corners Power Plant

- Mine-mouth plant with NTEC – Term through 2031
- BHP is mining contractor through 2016
- 80-90 days of reserves



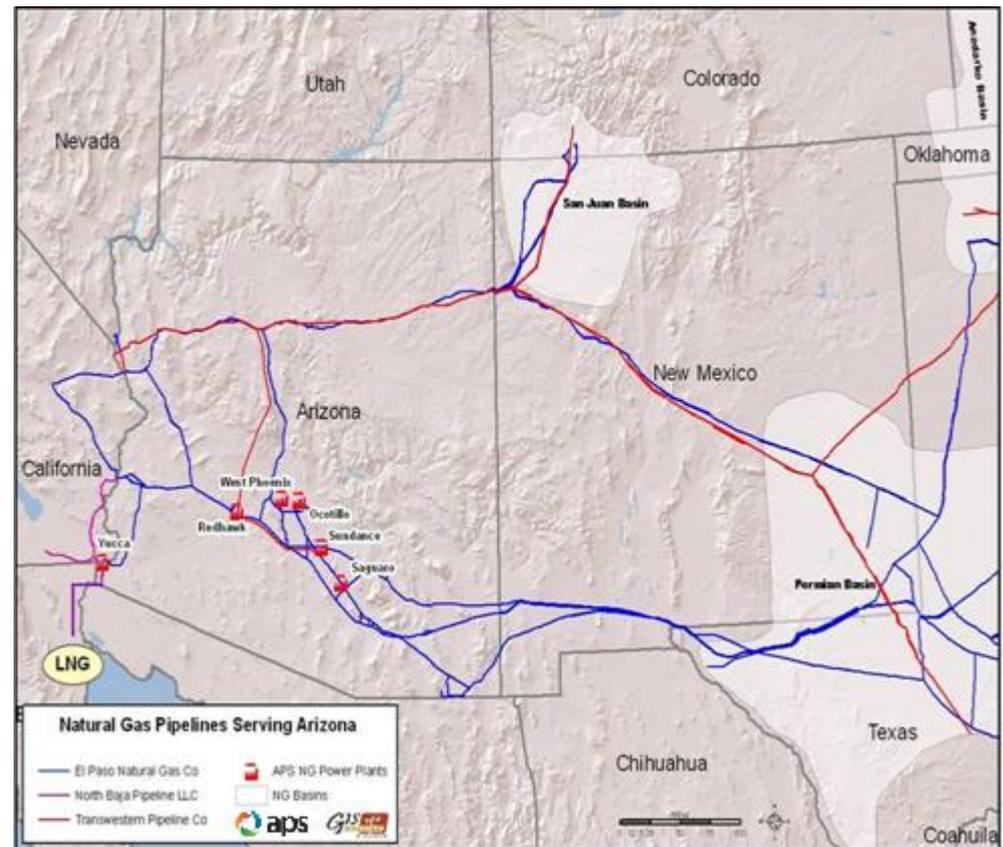
Cholla Power Plant

- Fuel Source: El Segundo mine near Grants, NM
- Contract commitments in place through 2024
- 60-70 days of reserves



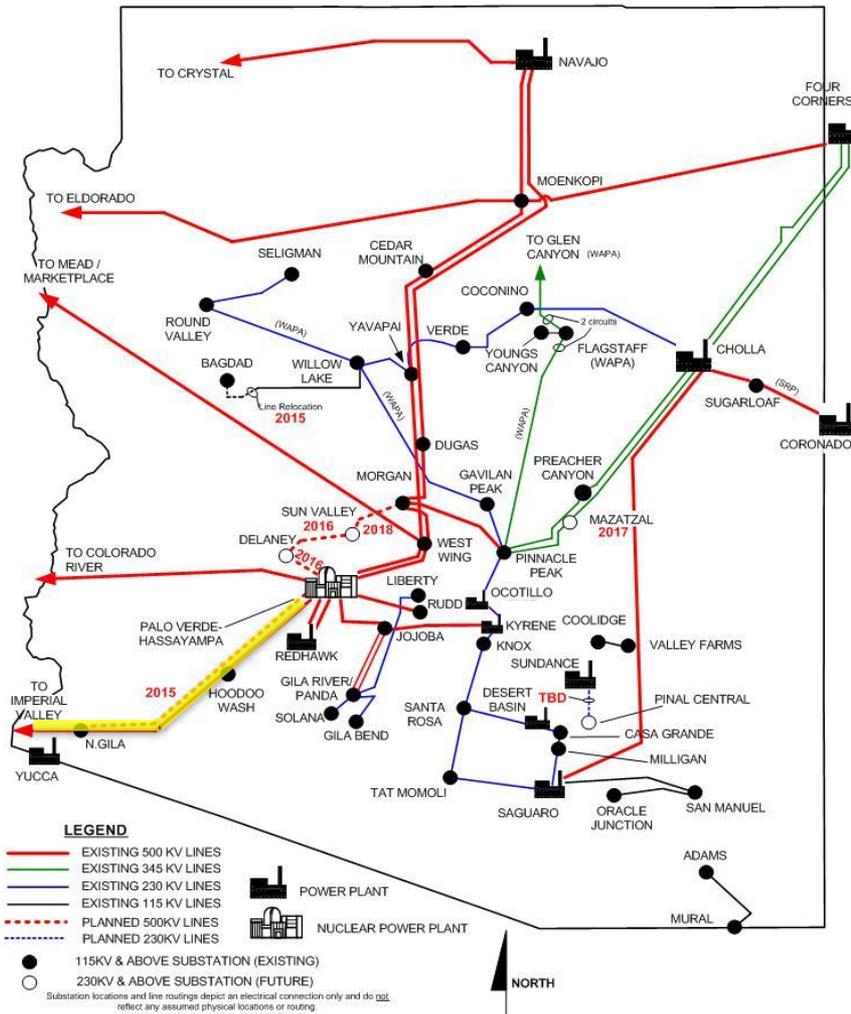
Natural Gas Supply

- APS has sufficient pipeline transportation and supply under contract to meet peak system needs
- El Paso Natural Gas supplies all APS natural gas plants
- Transwestern pipeline also supplies the APS Redhawk and Sundance power plants
- North Baja pipeline also supplies Yucca units 5 & 6
- Gas storage arrangement in West Texas contracted through May of 2018 connecting to both El Paso and TransWestern Pipelines



Transmission System

APS EHV & OUTER DIVISION 115/230 KV TRANSMISSION PLANS 2015 - 2024



- Coordination of transmission system
- Access to markets is important factor in managing supply contingencies and bringing new resources to load
- Hassayampa to North Gila II 500kV line in final stages of construction
- Continued construction activity in NW Valley
- Situational awareness of the transmission grid within western interconnect



Fire Season 2014

Slide Fire, May 20th



Forestry

- Vegetation Management & Wildfire Planning
 - Pre-wildfire season meetings with Forest Service and BLM
 - Prepare APS personnel for fire season
 - Fire academy and hazard tree identification training
 - Training of employees and contractors on Wildland Fire & Prevention
 - Clearing vegetation around poles within wildland-urban interface areas providing combustible free space from sources of ignition
 - Clearing vegetation around APS's transmission and distribution lines
 - Fire Season - Most all of the factors point to a delayed fire season onset and overall normal fire potential. (SWCC)
 - A period of above normal fire potential to develop across mid and lower elevations of Arizona between final curing of fine fuels and monsoon onset. (Estimated June - Mid-July)



Arizona City-230KV-July 9th

Summer 2014 Monsoon Storms

59th Ave and Greenway – 69kV/12kV – September 28th



Reliability Activities

- Transmission / Distribution Operations & Maintenance:
 - Substation health monitoring – critical assets
 - Substation, predictive & preventative maintenance initiatives
 - Annual transmission and distribution line patrols
- Enhancements
 - Storm hardening of 69KV system in West Valley
 - Reliability improvements in downtown Phoenix networks
 - Physical and cyber security upgrades in progress throughout the system

Emergency Preparedness and Response

Emergency Management Coordination & Communication

- Continued interface with state, county, & local Emergency Managers
- Continued quarterly coordination meetings with utility Emergency Managers (SRP, TEP)

Training and Exercises

- Updated and Trained on critical Emergency Response Plans
 - Load Curtailment
 - Incident Command
 - Black Start
 - Business Continuity
 - Wild Fire and Summer Storm Response Plans
- Pinnacle Peak and Westwing Fire Emergency Plan training with local Fire Departments – March/April 2015

APS Customer Outreach

- Targeted communications for customers, emergency managers & public safety personnel, and community leaders
- Coordination with local emergency management organizations to establish temporary shelters and/or provide outreach for vulnerable populations (need for shelters determined by local emergency managers)
- Purchase or reimburse of dry ice and/or bagged ice (for residential customers' refrigerators and freezers)
- Medical Care Preparedness Program (life support/medical monitoring)

APS Customer Outage Information Sources

- Call Center staffed with live agents 24hrs, 7 days/week
 - Automated recorded outage messages updated regularly
 - Outbound customer calls when power is restored
 - Outage notification via email and text messaging (2015)
 - View and report outages at aps.com (2015)
- News media
 - APS media hotline monitored 24hrs, 7 days/week
 - Access to Arizona DPS media alert system
- Social media
 - Broadcast updates for large-scale outages
 - Response to individual outage inquiries

Social Media

- Facebook & Twitter
 - ETR's (estimated time of restoration)
 - General area affected
 - Outage cause – if and when known
- Response to customer service inquiries
 - Two-way communication

facebook.com/apsfyi



@apsFYI



Summary

- Generation resources, fuel supplies and transmission capacity in place to meet customer demand and reserve requirements
- Maintenance efforts on track
- On going coordination, integration with external emergency planners
- New and improved customer communication channels