

# Arizona Extreme Contingency Analysis 2011 & 2016 6<sup>th</sup> BTA Presentation

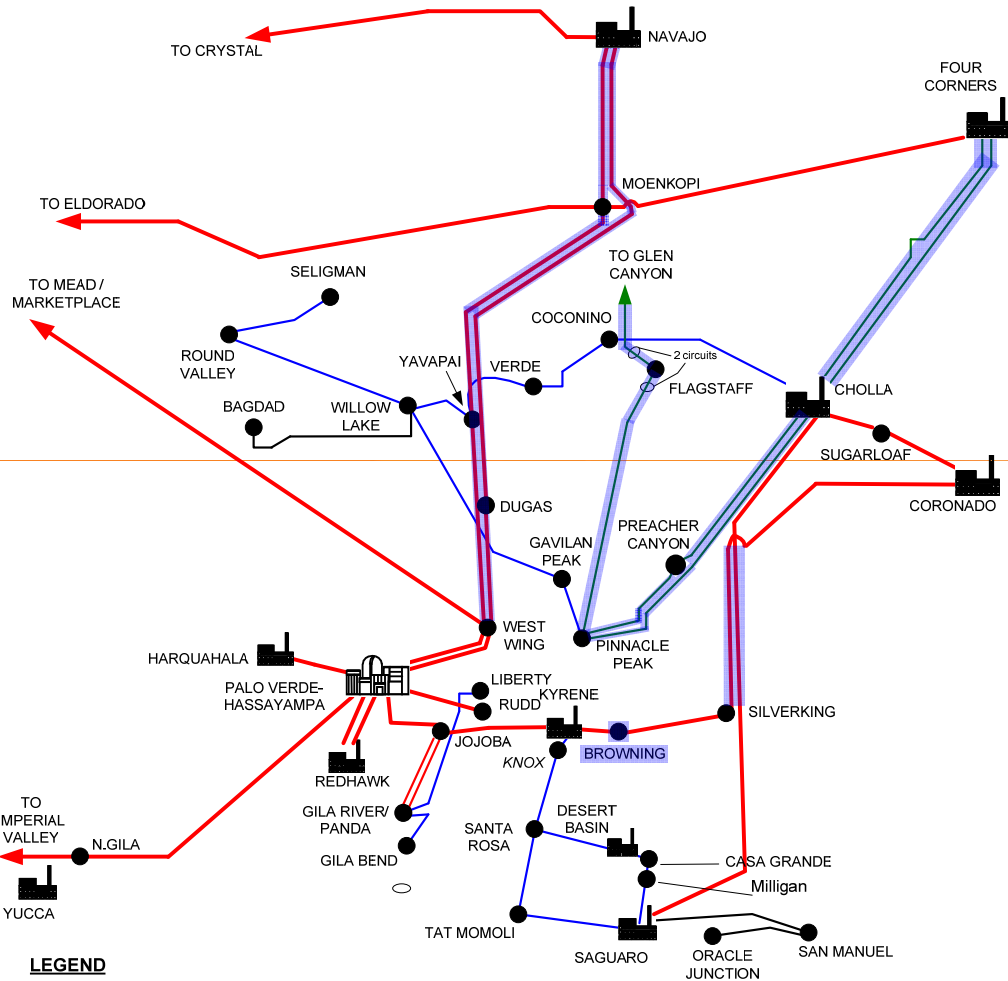
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# Study Assumptions



- Utilize the 2011 and 2016 heavy summer power flow cases
- The integrated Arizona power system is represented
- Corridors are chosen based upon exposure to forest fires and other extreme events
  - Cholla-Saguaro and Coronado-Silverking 500kV lines
  - Navajo South 500kV lines
  - Four Corners-Cholla-Pinnacle Peak 345kV lines
  - Glen Canyon-Flagstaff-Pinnacle Peak 345kV lines

# ARIZONA STATE EHV MAP



**LEGEND**

- EXISTING 500 KV LINES
- EXISTING 345 KV LINES
- EXISTING 230 KV LINES
- EXISTING 115 KV LINES
- - - PLANNED 500KV LINES
- - - PLANNED 230KV LINES
-  POWER PLANT
-  NUCLEAR POWER PLANT

-  115KV & ABOVE SUBSTATION (EXISTING)
-  230KV & ABOVE SUBSTATION (FUTURE)

Substation locations and line routings depict an electrical connection only and do not reflect any assumed physical locations or routing.



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# Study Assumptions

- Transformer banks studied
  - Browning 500/230kV
- Transformer banks not studied
  - Rudd 500/230kV transformer outage
    - Equivalent to single contingency of Palo Verde-Rudd 500kV line
    - This outage is studied under the 10 year plan
  - Pinnacle Peak 345/230kV transformer outage
    - Equivalent to outages of the 345kV lines into Pinnacle Peak
    - This is already studied with the 345 kV lines into Pinnacle Peak outage in the extreme contingency study

# SUMMARY OF RESULTS (2011)

- For all outages studied, all load can be served & local Phoenix reserve requirements met
  - Some outages from remote generation would require redispatching from other available sources
    - Maximum redispatch requirement is ~800MW @ Navajo
    - Generation made up or purchased from available AZ and CA units
  - Some outages would require some system reconfiguration to alleviate overloads

# SUMMARY OF RESULTS (2016)

- For all outages studied, all load can be served & local Phoenix reserve requirements met
  - Some outages from remote generation would require redispatching from other available sources
    - Maximum redispatch requirement is ~800MW @ Navajo
    - Generation made up or purchased from available AZ and CA units
  - Some outages would require some system reconfiguration to alleviate overloads

# QUESTIONS?