

2016 N-1: SATS

- APS
 - Element Loading
 - Mural loading during outage of AdamsTap/Adams, Boothill/Adams or Boothill/Mural
 - Voltage Issues
 - .05+ voltage deviations at San Pedro, San Pedro Tap, Palominas, Don Luis, Mural
- SWTC
 - Element Loading
 - Green_SW Xfmr during outage of Apa-DosCond
 - Sag. E/Marana during outage of Sag.E/Naviska
 - Voltage Issues
 - Low voltage on 69 kV system (SSVEC)
- TEP
 - Element Loading
 - N. Loop/Rillito during outage of Tort/Naranja or Ranivisto/Naranja
 - Voltage Issues
 - .05+ voltage deviations at CopperVR and Hartt
- WAPACAP
 - Element Loading
 - None seen, used outage list provided by WAPA.
 - Voltage Issues
 - .05+ voltage deviations at AdamsTap/Apache

2010 N-1-1: SWTC

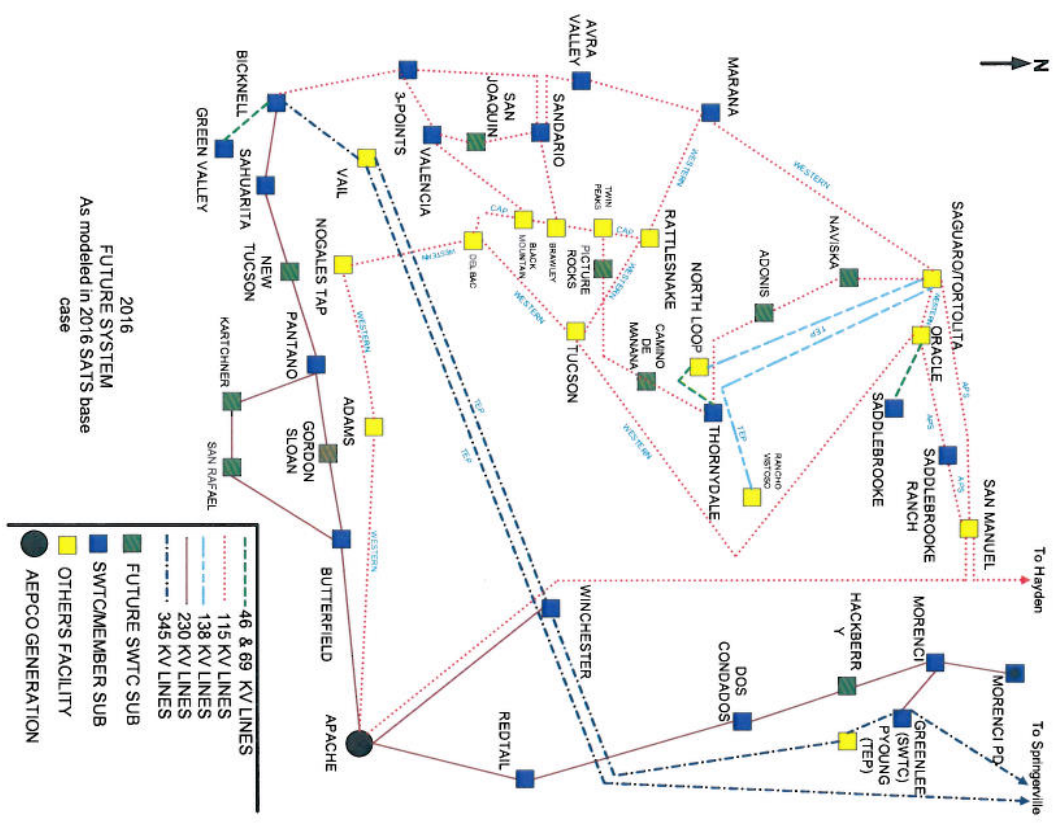
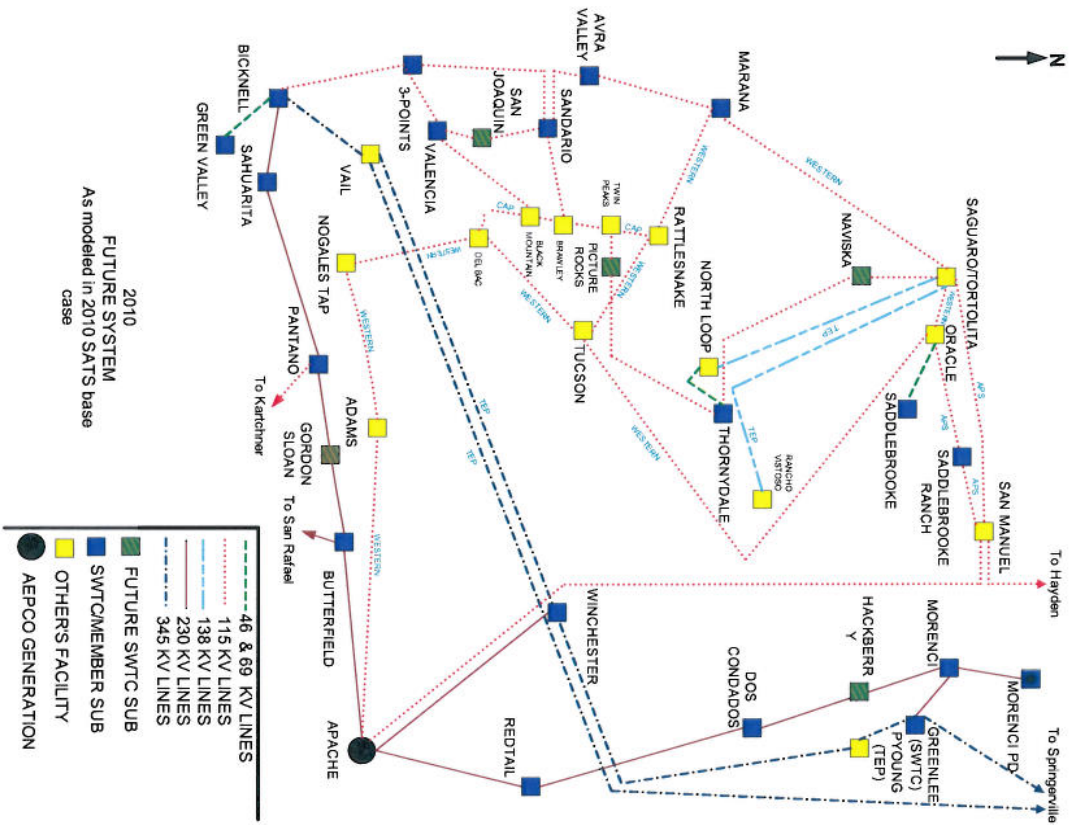
- Line Loading
 - Outage of Bicknell/Three Points paired with other 115-230 kV outages create loading at Avra/Marana
 - Outages of Apache/Butterfield or Bicknell/Vail paired with other 115-230 kV outages creates loading on the Bicknell 345/230 kV Xfmr or on the Avra/Marana line
- Low Voltages
 - Loss of Apache/Butterfield paired with loss of any other 115-230 kV line creates low voltage issues primarily on the 69 kV SSVEC system (SWTC is working with SSVEC to mitigate these issues)

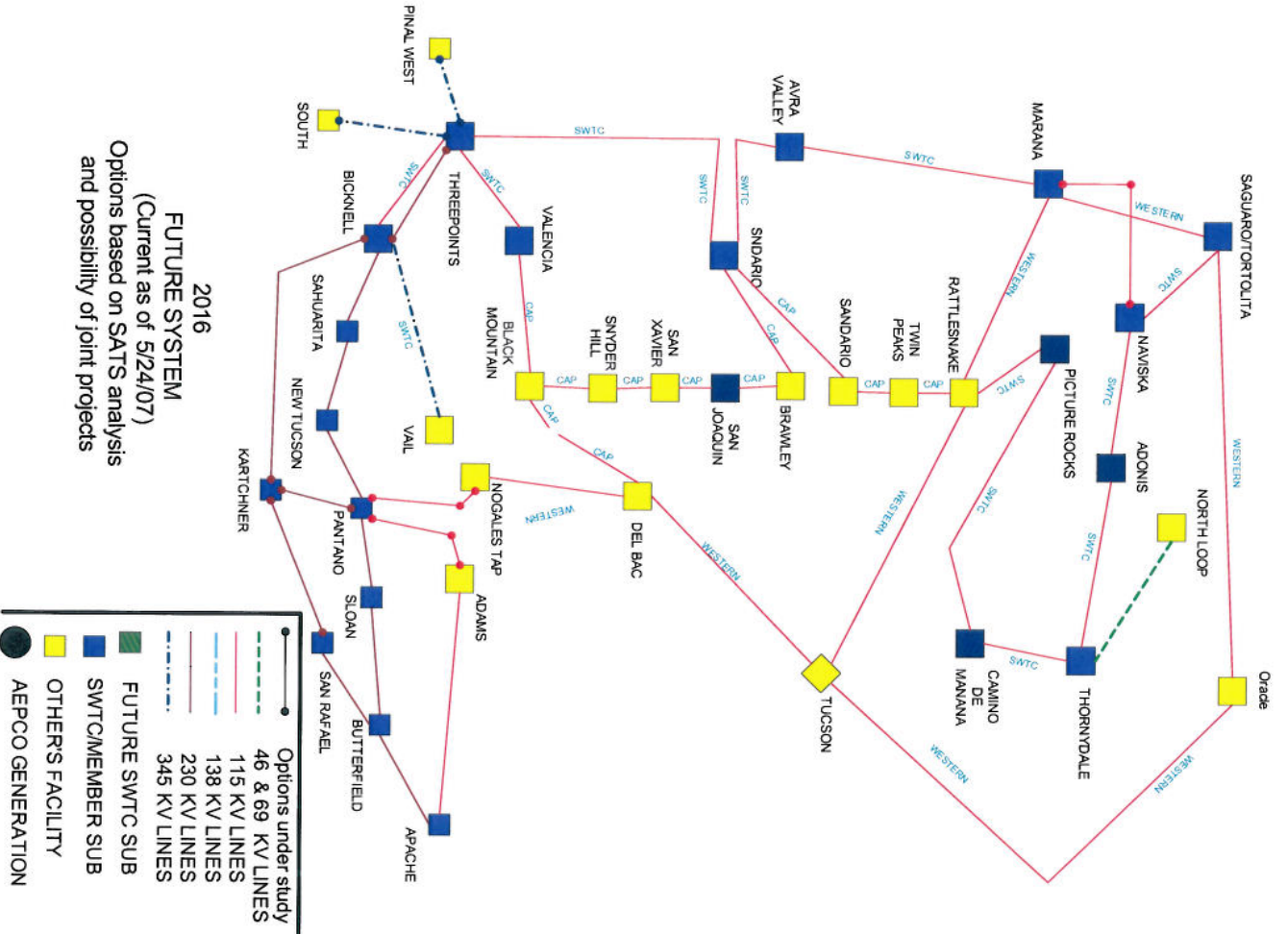
2016 N-1-1: SWTC

- Line Loading
 - Loading of Avra/Sandario created for a loss of any two elements on system
 - Loading of Sag. E and Marana for loss of any two elements on the system
 - Loss of Apache/Redtail and any other element creates loading on SWTC Greenlee 345/230 kV Xfmr
- Low Voltage
 - Low voltage on (TRICO) Tucson area buses during a loss of any elements in the area paired with a loss of Sag. E/Marana, Bicknell/Vail or Apache/Butterfield
 - Low voltage in much of the SVEC 69 kV system during a loss of Apache/Butterfield, Sag.E/Marana or Bicknell/Vail and an outage of any 115-345 kV element

2016 N-2: SWTC

- **Element Loading**
 - Greenlee Xfmr
 - Sag.E/Marana
 - Avra/Sandario
 - Dos Condados Xfmr
- **Voltage Issues**
 - 0.05+ voltage issues on 69 kV system (GCEC and SSVEC)





2016
FUTURE SYSTEM
 (Current as of 5/24/07)
 Options based on SATS analysis
 and possibility of joint projects