

Tucson Electric Power and UNS Electric

2015 Summer Preparedness

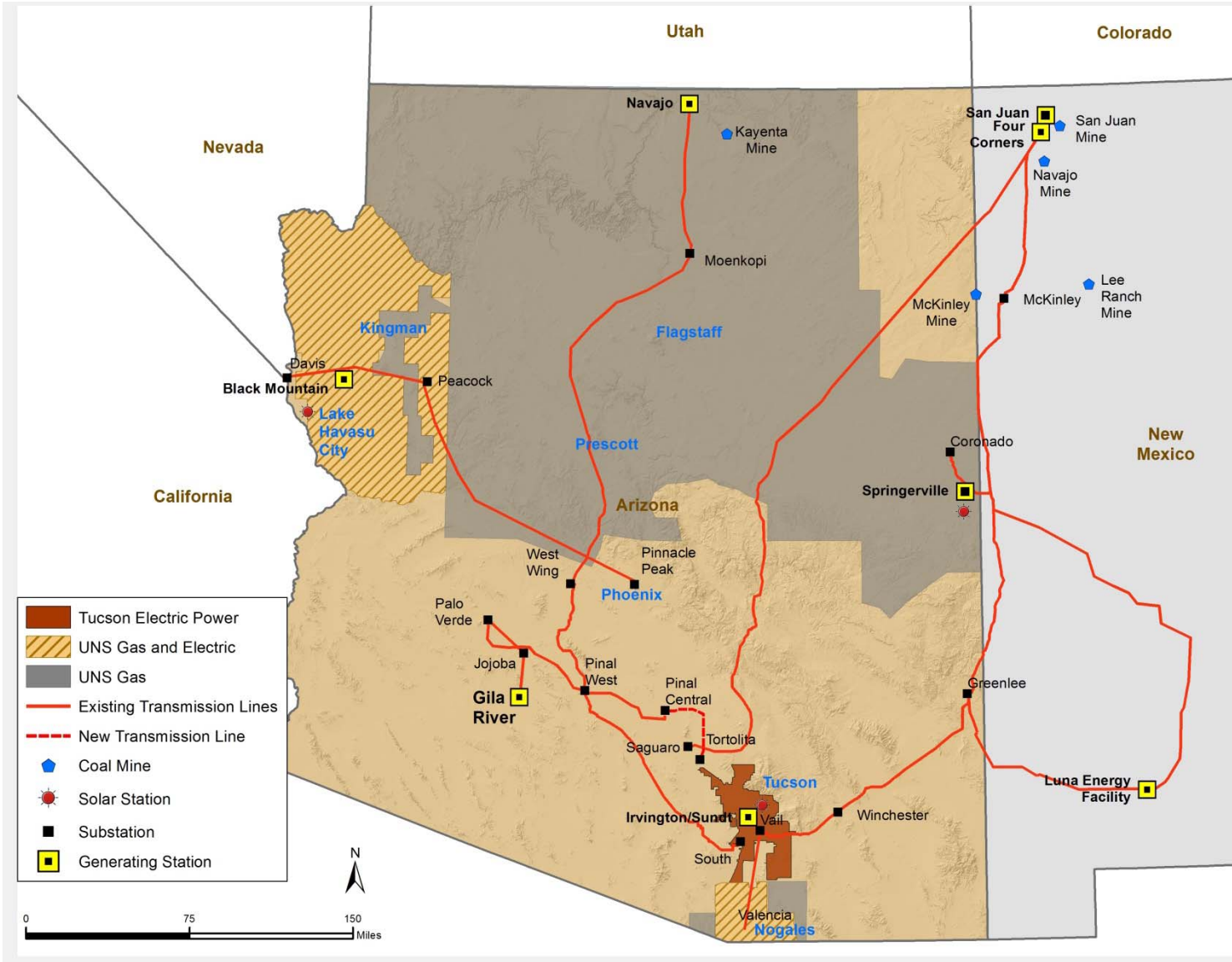
John Tolo

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System Control & Reliability and Planning

April 15, 2015

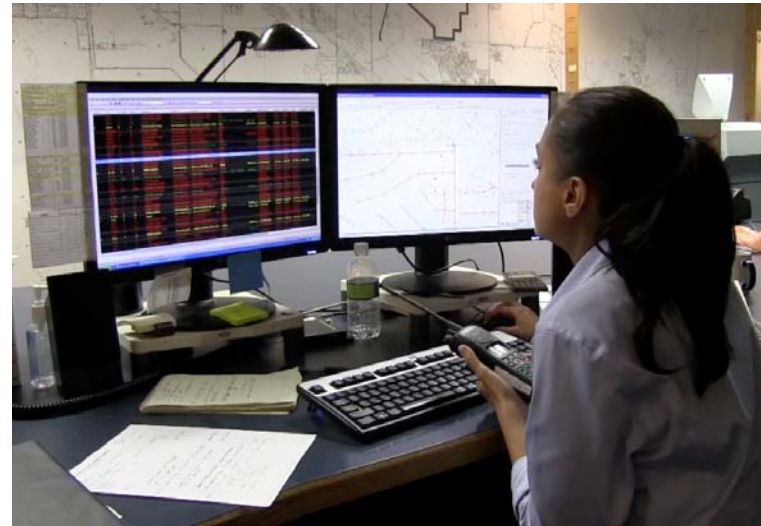


Utility Service Areas



TEP & UNS Electric Operations

- Regional black start drills between Balancing Authorities and the Reliability Coordinator are completed for the year
- Verification of TEP's Backup Control Center (BCC) readiness scheduled prior to summer
- Weekly check of BCC systems occurs
- Daily conference call between Reliability Coordinator and Balancing Authority operators to review system conditions
- During summer peak AZ entities anticipate holding daily reliability call
- Weekly updates from Transmission Construction & Maintenance regarding wildfires that may impact TEP facilities



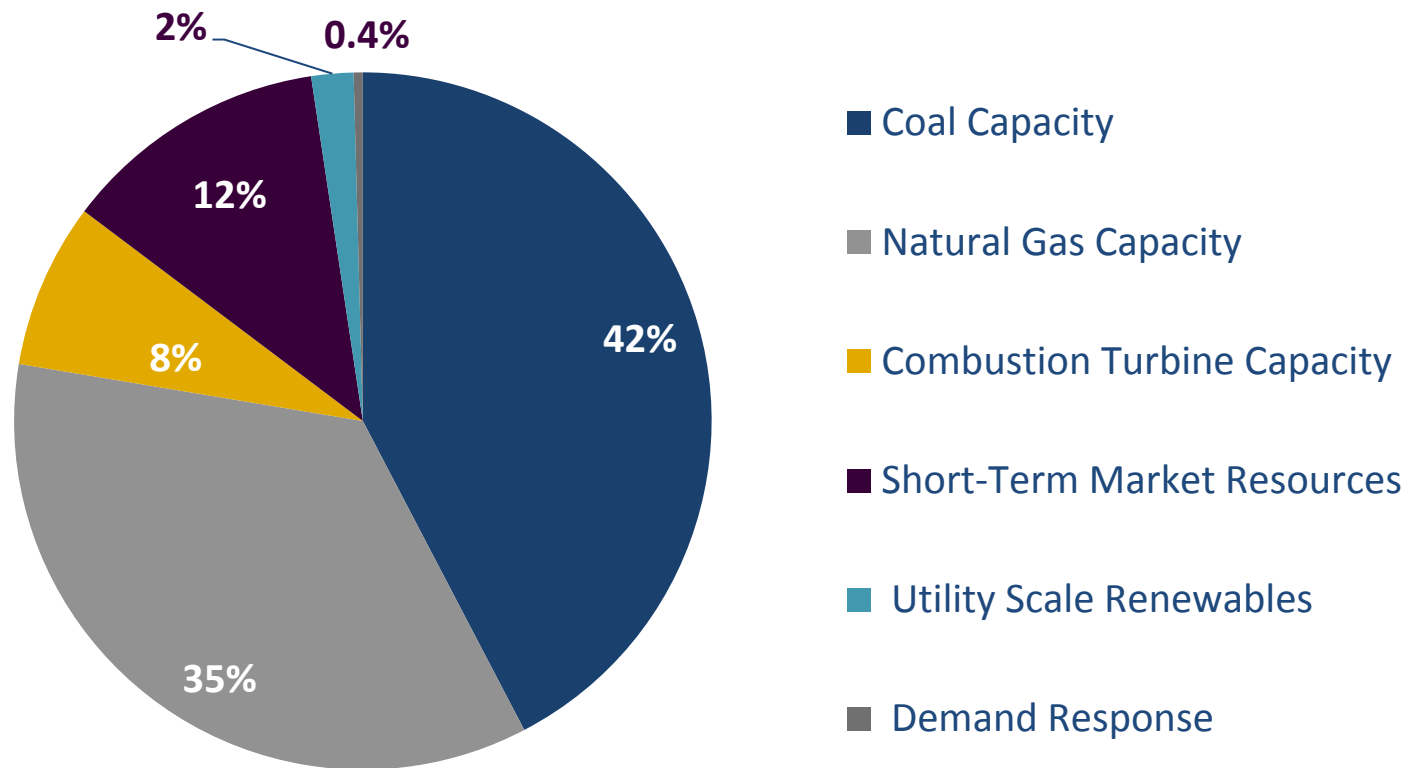
Gila River Unit 3

- **550 MW natural gas combined cycle unit**
- **Purchased in Dec. 2014**
 - 75% TEP / 25% UNS Electric
- **Shared dispatch between TEP and UNS Electric**
- **Located in TEP's Balancing Authority Area**
- **Dual gas supply (EPNG and TW)**

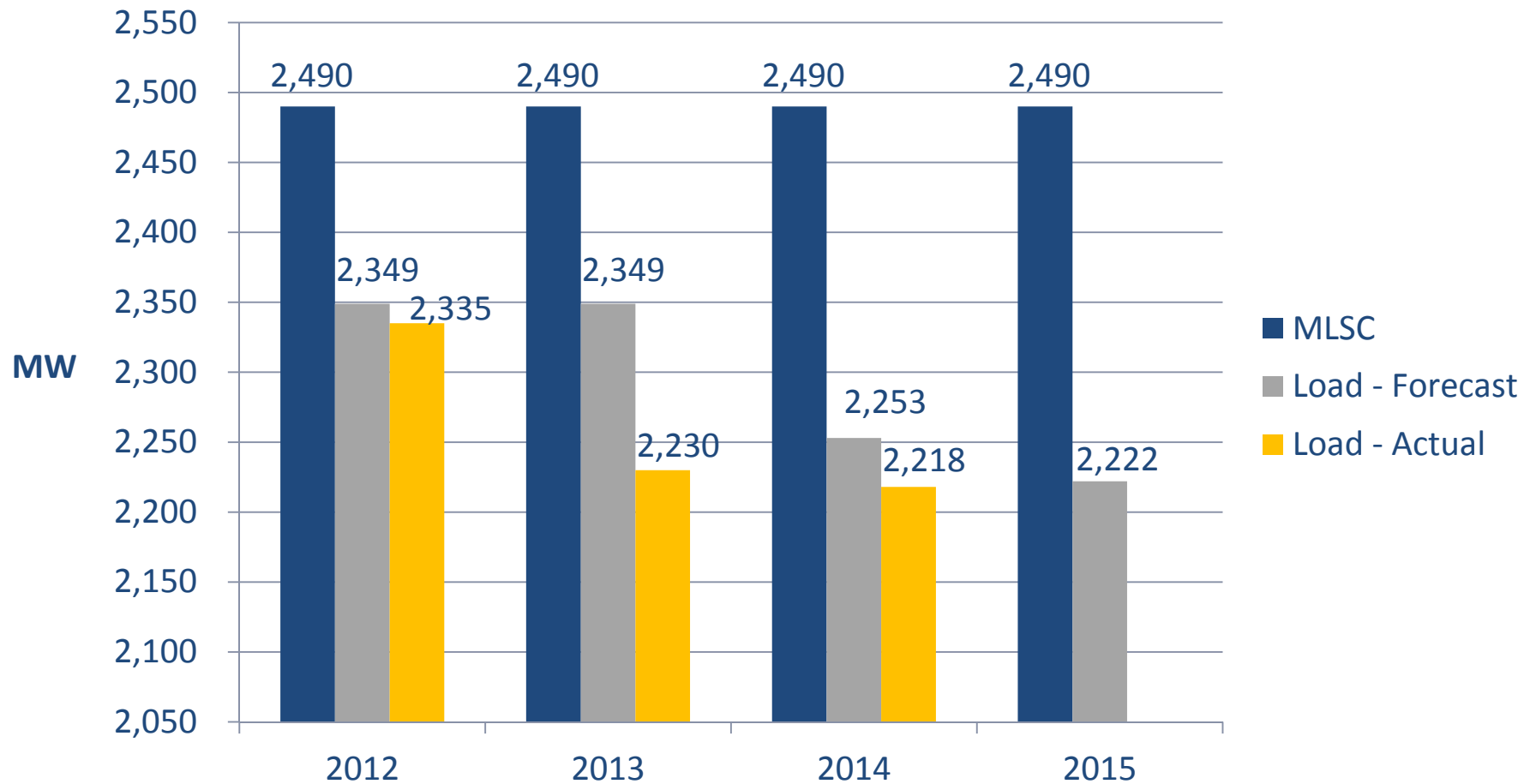


TEP's 2015 Resource Capacity

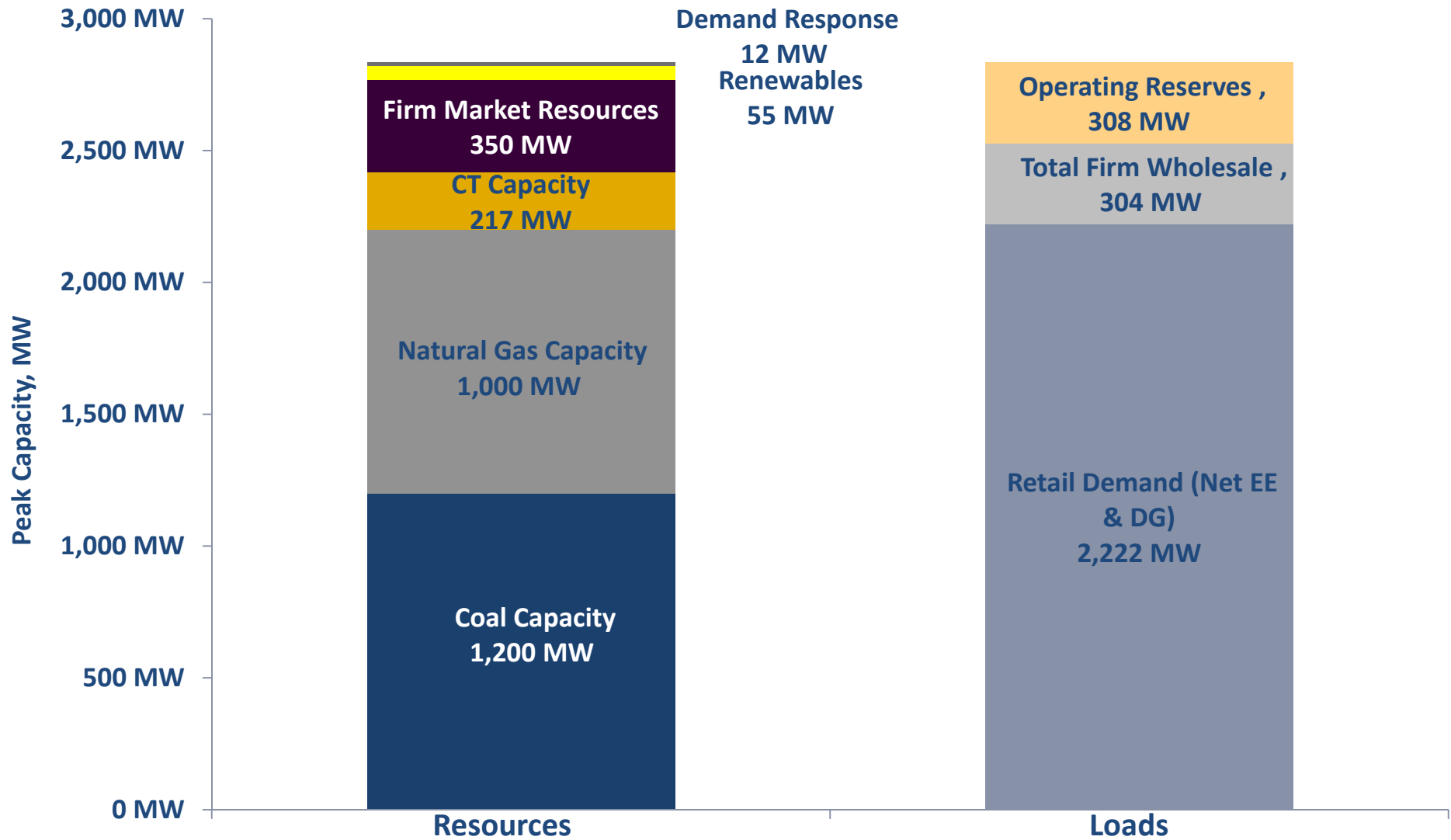
Total Resource Capacity – 2,834 MW



TEP Maximum Load Serving Capability



2015 TEP Loads & Resources



Note: EE and DG offset peak demand by approx. 53 MW. Renewables reflect capacity coincident to system peak.

TEP and UNS Electric Fuel Supply

TEP Fuel Supply

Coal

- Current and future coal inventory will meet the projected 2015 requirements.
- Any source or delivery issues will be mitigated by on-site inventories.

Natural Gas

- Gas transportation agreements with El Paso and Transwestern will meet the projected 2015 requirements.
- Variations in demand and/or delivery issues will be addressed through monthly and daily purchases.

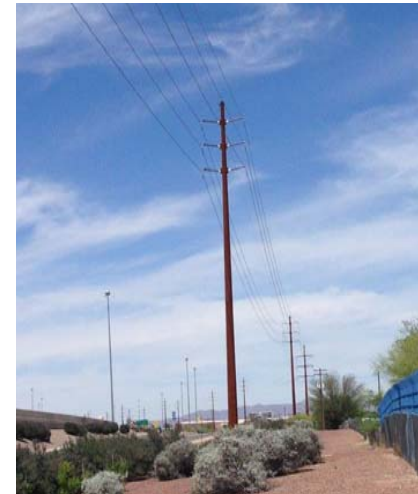
UNS Electric Fuel Supply

Natural Gas

- Gas transportation agreements will meet projected 2015 requirements
- Gas transportation for Gila River Unit 3 on Transwestern and El Paso is procured by TEP and then allocated to UNSE
- Transportation on Transwestern (for Black Mountain Generating Station) and El Paso (for Valencia turbines)
- Variations in demand and/or delivery will be addressed through monthly and daily purchases

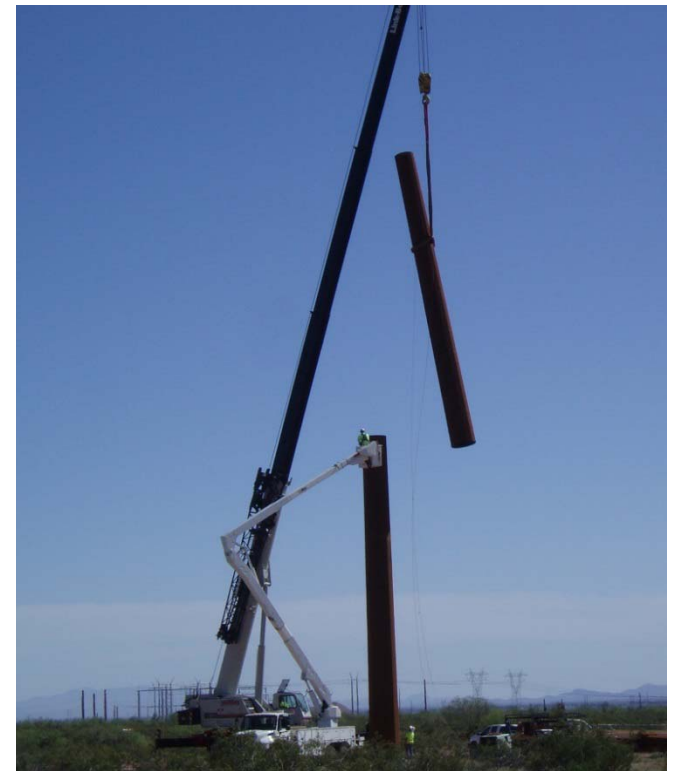
TEP - System Reliability Enhancements

- Completing phase 3 of 138kV breaker upgrades to North Loop substation
- Construction of new 138kV line between DeMoss Petrie Substation and Tucson Substation
- 138kV reconductor project



TEP - System Reliability Enhancements

- Pinal Central to Tortolita 500 kV project
- 40 mile line from northern Tucson to Casa Grande
- Total investment approx. \$75 million
- Construction underway
- Enhance system reliability
- Expand import capability
- Expected to be in-service prior to summer 2016



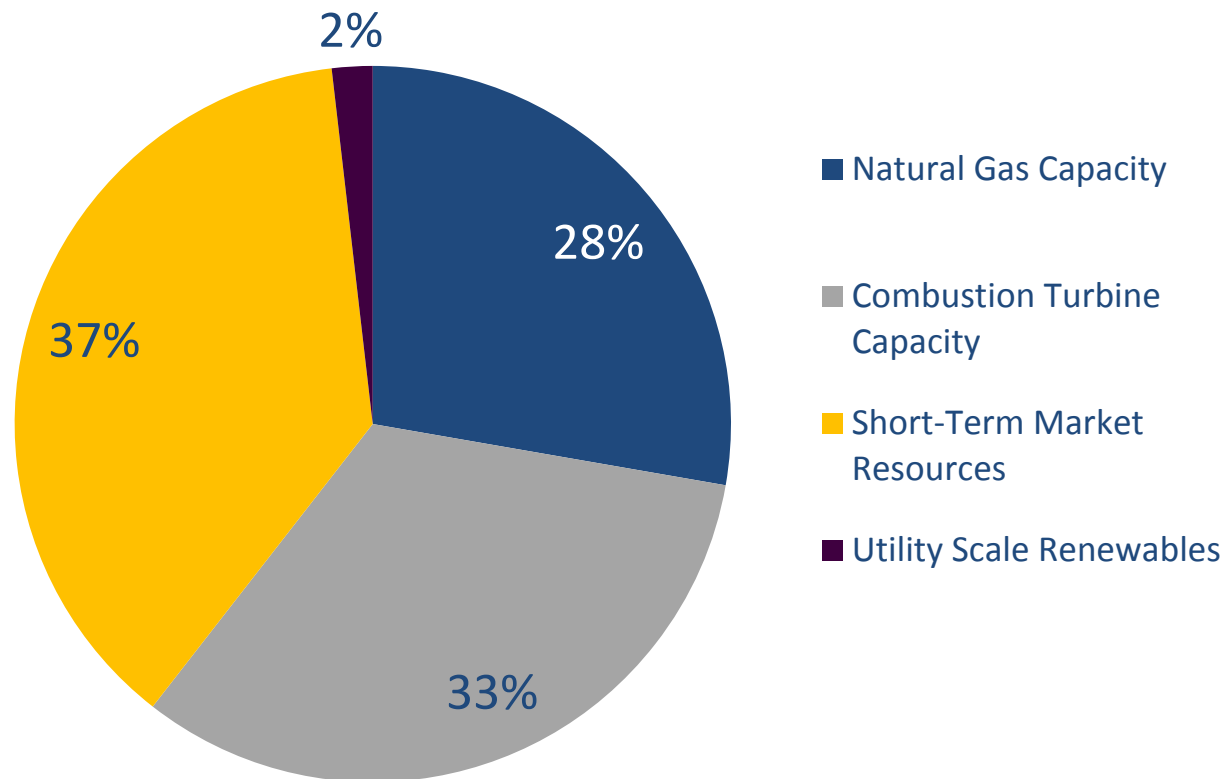
TEP Emergency Equipment Availability

- **Emergency Equipment**
 - Emergency Towers
 - Restoration Kits - (4) 4-pole emergency structures plus (2) hardware kits
 - 10 spare 345 kV towers
 - 8 spare lattice structures of various sizes
 - 1 spare 345 kV monopole
- **Spare Poles (46 kV and 138 kV Class)**
 - 50+ poles capable of supporting 46kV through 138kV loading and framing
 - Specialty kit for Santa Cruz County including multi-pole dead-end structures for emergencies
 - Common standard allows use of structures for Mohave, Tucson, and Santa Cruz
- **Mobile / Portable Transformers (138/115/46kV)**
 - One 25 MVA – (138kV or 46kV)/14kV or 4kV
 - One 40 MVA – (138kV or 115kV)/14kV
 - One 100 MVA – (138kV/46kV/14kV or 7.2kV)
- **Spare Transformers (138/46kV)**
 - One 138/14 kV (30/40/50 MVA)
 - Two 46/4 kV
 - Four 46/14 kV

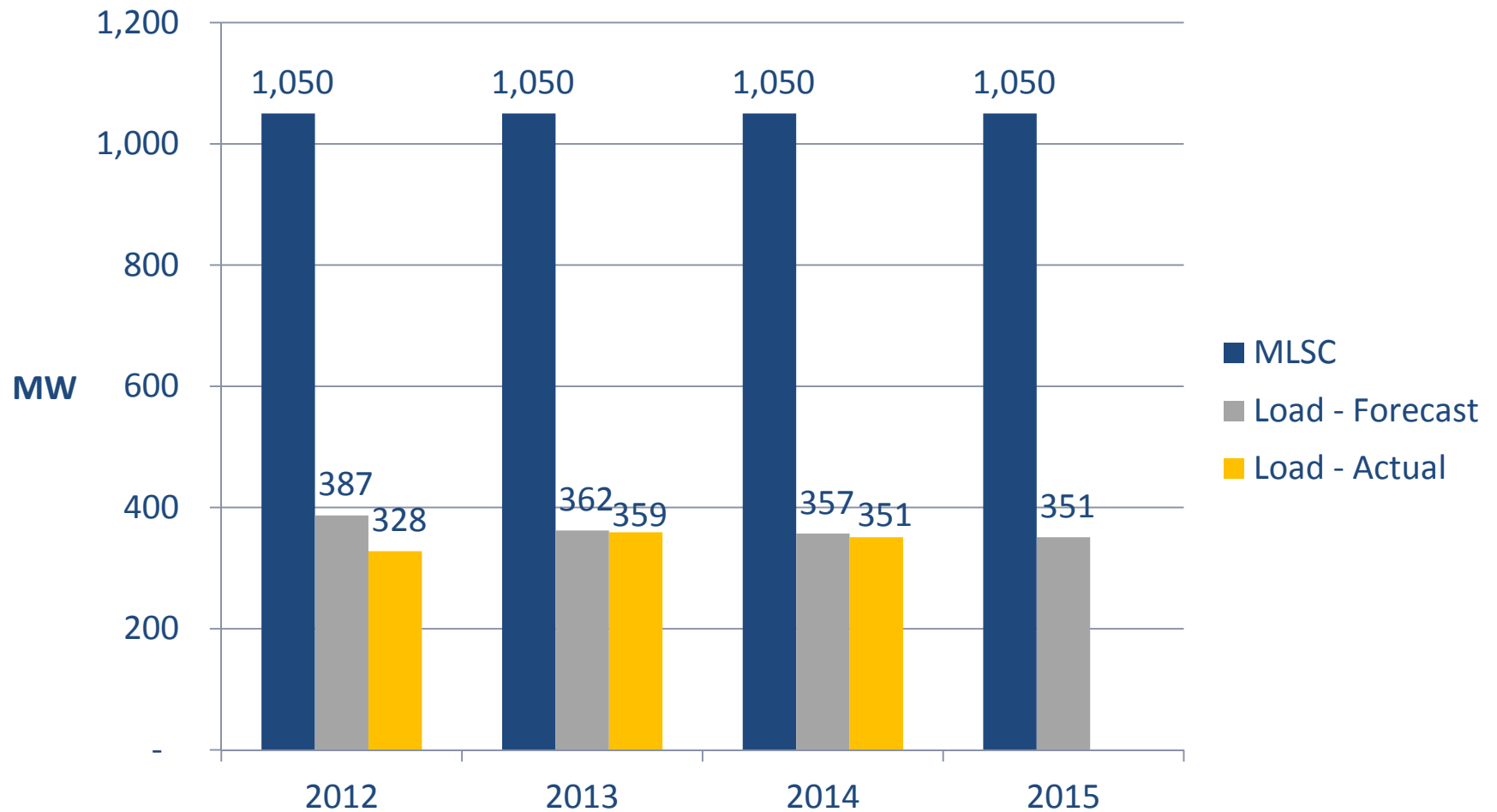


UNS Electric 2015 Resource Capacity

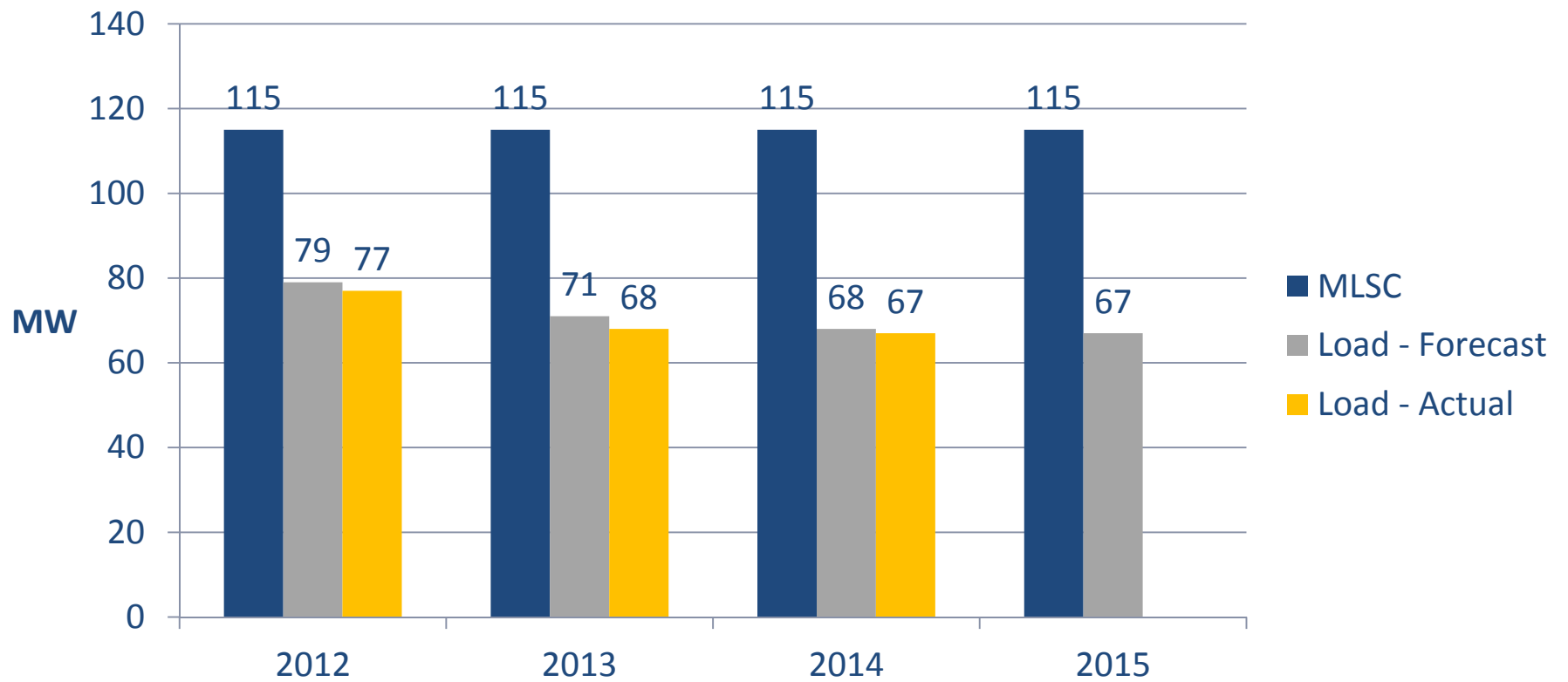
Resource Capacity – 465 MW



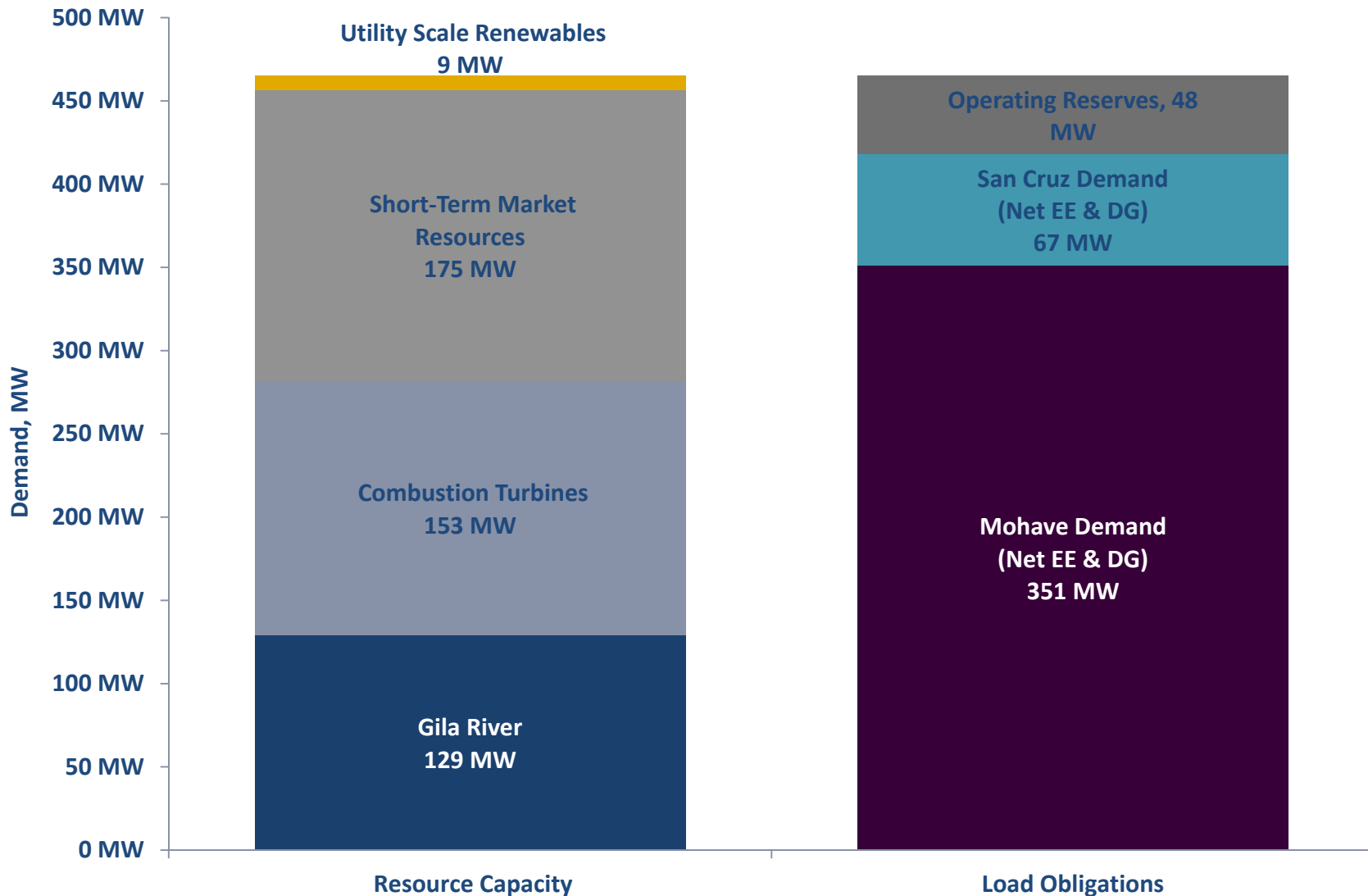
UNS Electric (Mohave County) Maximum Load Serving Capability



UNS Electric (Santa Cruz County) Maximum Load Serving Capability



2015 UNS Electric Loads & Resources



Note: EE and DG offset peak demand by approx. 10 MW. Renewables reflect capacity coincident to system peak.

UNS Electric Emergency Equipment Availability

Mohave - Emergency Equipment

- Mobile 69/13.2 X 20.8 X 12 kV Transformer
 - 25MVA Dual Distribution Voltage Mobile
- 20 spare 69 kV poles


Santa Cruz - Emergency Equipment

- Spare 20 MVA transformer shared with TEP
- Spare poles provided by TEP



Outage Communications

Communications

- Prominent presence on TEP.com and UESAZ.com
- TEP outage map updated real time
- Frequent Facebook & Twitter updates 
- Automated customer call-backs on restoration progress
- Recorded phone message
- Call center staff available 24x7

Media updates

- “News Line” recordings
- 24x7 access to media relations staff
- Local media very attentive to even modest outages, particularly during monsoon season

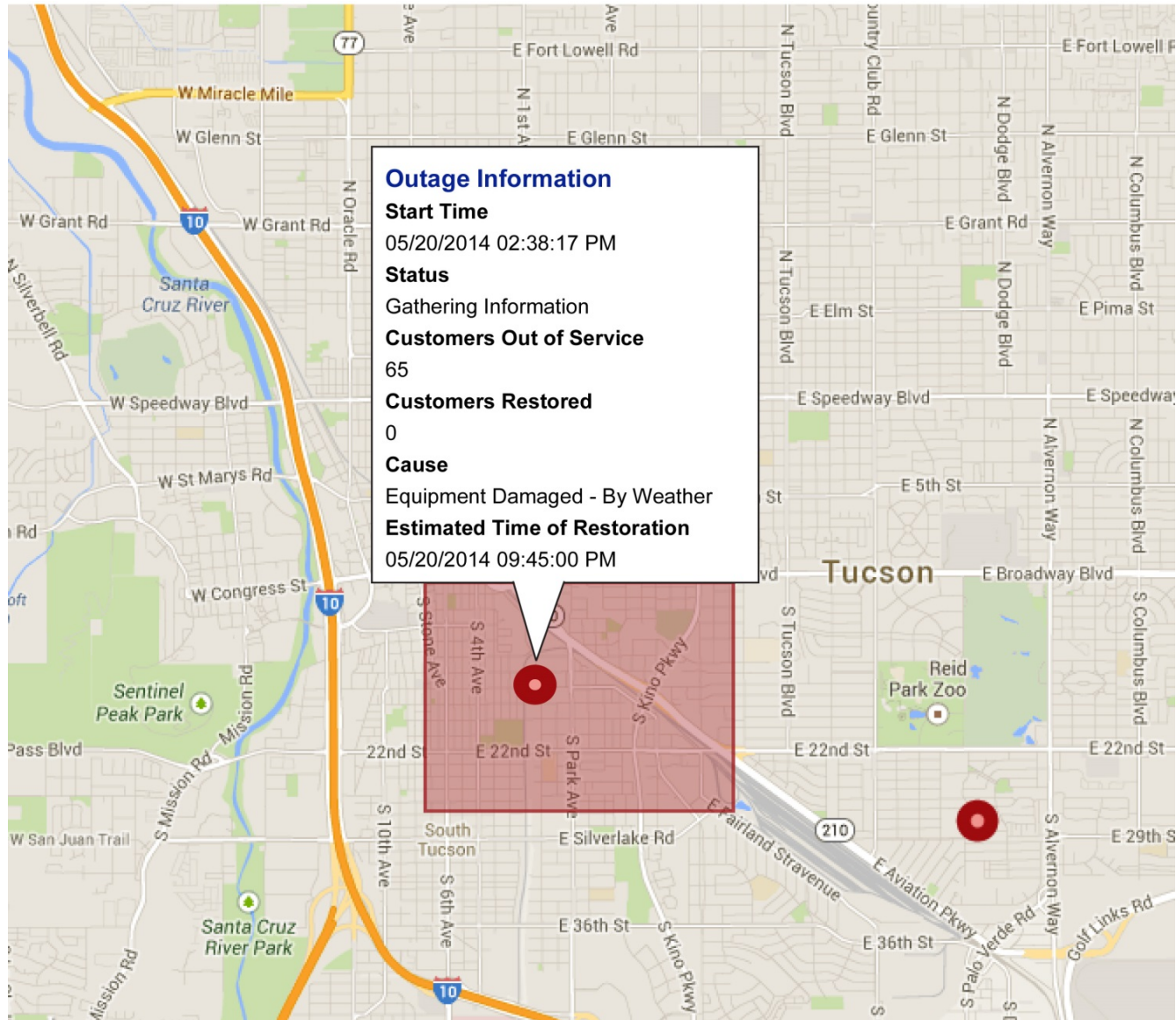
Critical Outages

- Press release; press conferences; customer outreach, as needed
- Coordination with state, local Emergency Operations Management officials
- Advance notice of scheduled curtailments
- Coordinated relief efforts



Customer Care

TEP Outage Map



TEP & UNS Electric Summer Preparedness

- Sufficient generation and transmission resources available to meet anticipated loads
- Reliable transmission & distribution systems with adequate capacity
- Operational testing conducted; summer system operations plans in place
- Equipment available to respond to emergencies
- Emergency response plans in place to respond quickly and efficiently
- Experienced staff (14 yrs.) and System Operators (17 yrs.)

