



2019 Summer Preparedness

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APRIL 30, 2019

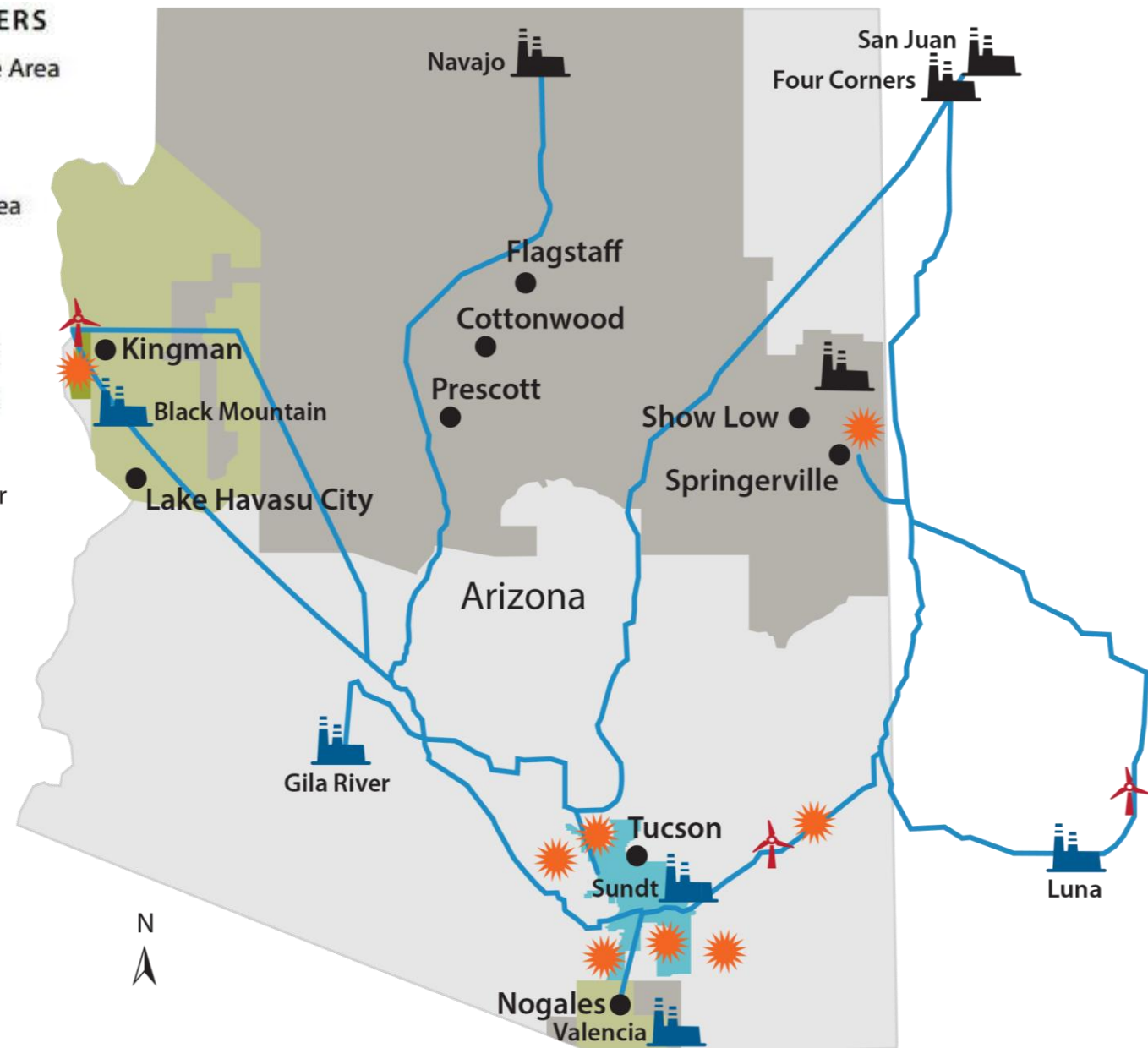




Service Area

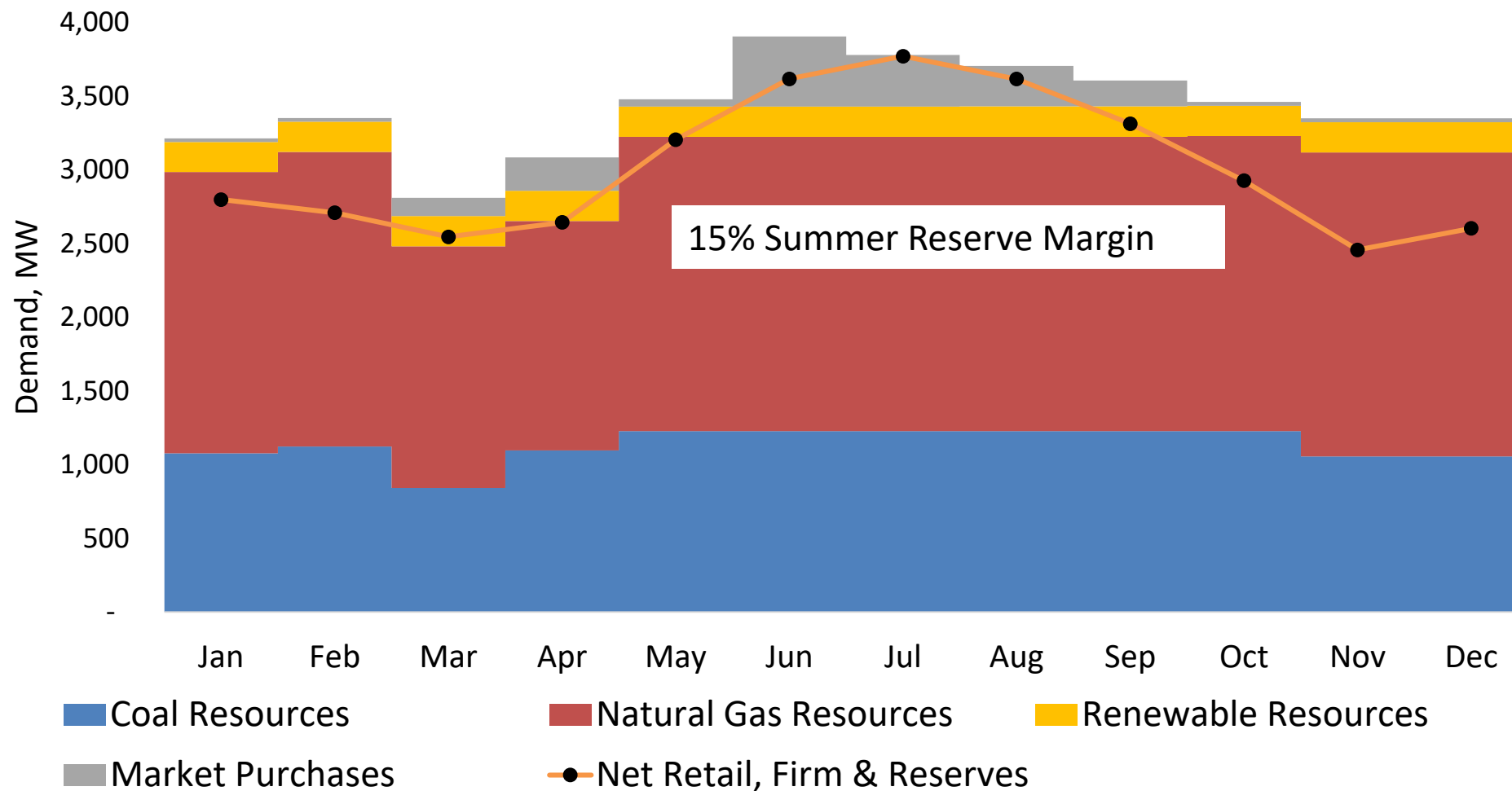
SERVICE AREAS / CUSTOMERS

-  Tucson Electric Power Service Area
-  UNS Gas Service Area
-  UNS Electric Service Area
-  UNS Gas & Electric Service Area
-  Transmission Line
-  Coal-Fired Power Plant
-  Natural Gas-Fired Power Plant
-  Community-Scale Solar Power
-  Company Offices
-  Community-Scale Wind Power





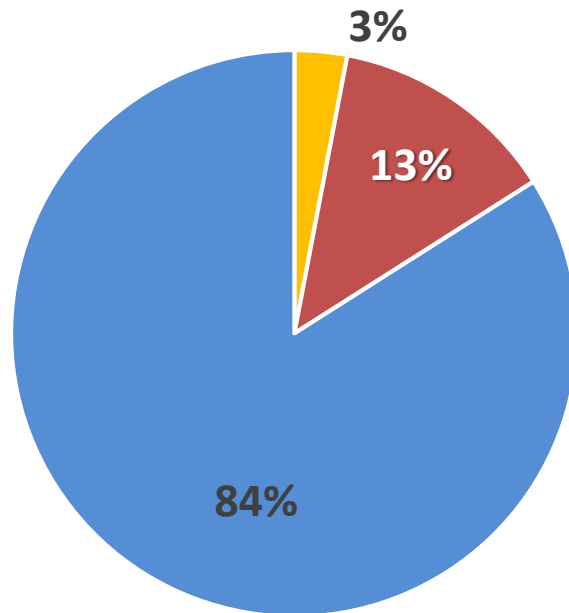
TEP & UNSE Loads and Resources



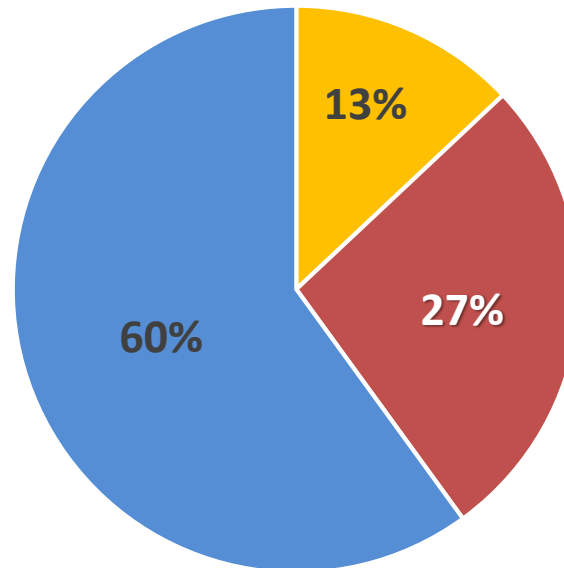


Increasing Renewable Resources TEP to Reach 28% by 2023

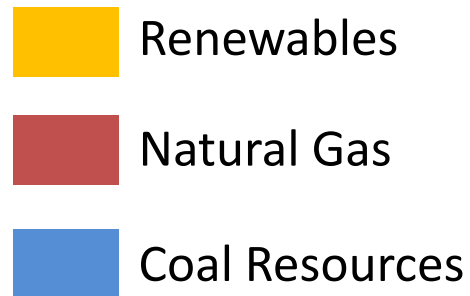
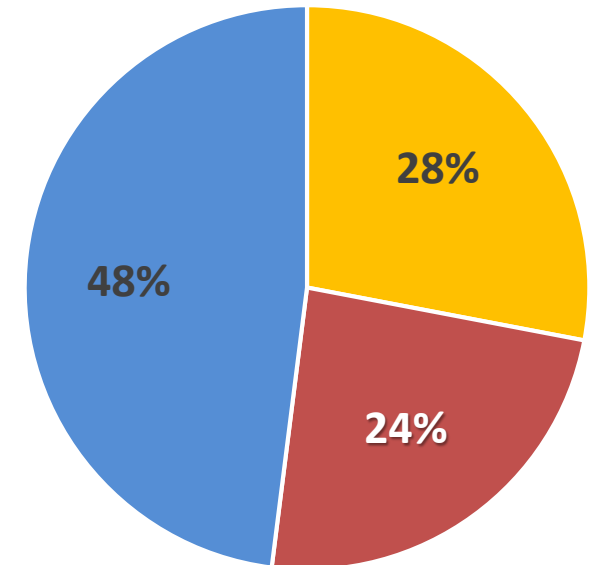
2013



2019



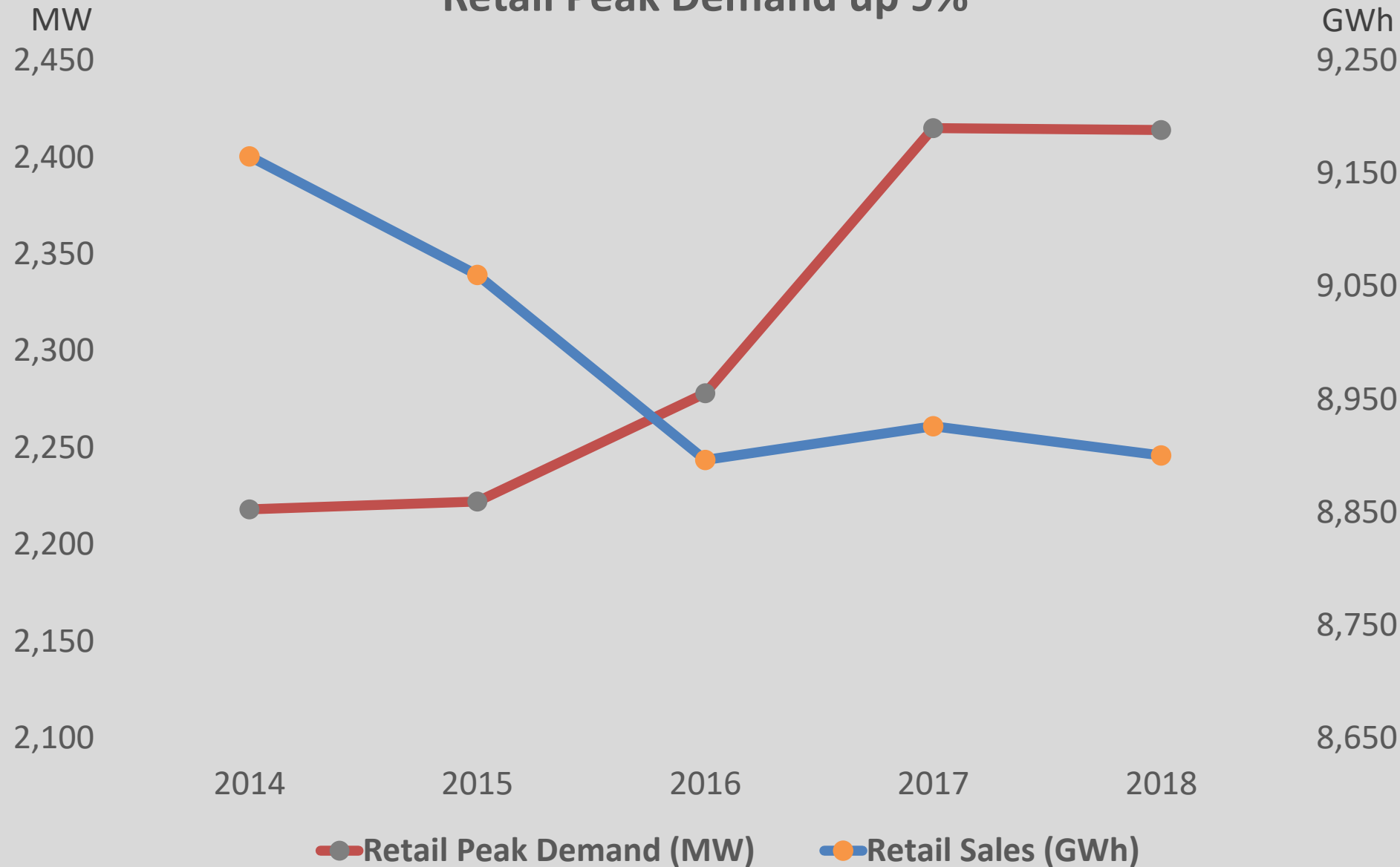
2023





Peak
Demand
Increasing

TEP Retail Sales Down 3% vs. Retail Peak Demand up 9%





Energy Delivery Investments

Notable System Enhancement

- Gila River-Two 550MW unit added to BA
- South Loop 345kV Switchyard Rebuild
- Transformer Capacity Replacements 115 MVA
- Communication/Automation Upgrades

Flexible Generation and Energy Storage

- 200 MW flexible generation online 2019-2020
- 21 MW existing storage / 51 MW online by 2020

NERC Real-Time Contingency Analysis

- Tie Open Load Shed Enhancements



Reciprocating Engines 200 MW
Flexible Generating Units
2019-2020



**51 MW Existing and Future
Energy Storage Projects**



Reliability Coordination & Regional Markets



- TEP transitioning from Peak RC to the Southwest Power Pool (SPP) for RC services December 2019
- Outage coordination, emergency restoration, wide area overview, Real Time model management, operator training and communication coordination.



CAISO Energy Imbalance Market

- A platform for matching energy supply and demand imbalances across the Western Interconnect in real time
- Additional reliability benefits

Emergency Preparation & Response

Emergency Preparation

- Regional black start drills between Balancing Authorities and the Reliability Coordinator
- Verification of TEP's Backup Control Center (BCC)
- During summer peak AZ entities hold weekly reliability calls
- Weekly updates from Transmission Construction & Maintenance regarding wildfires
- Annual Storm Preparation meeting with all departments
- First Responders/Utility Threat Assessment Group quarterly meetings

On-Hand Emergency Equipment

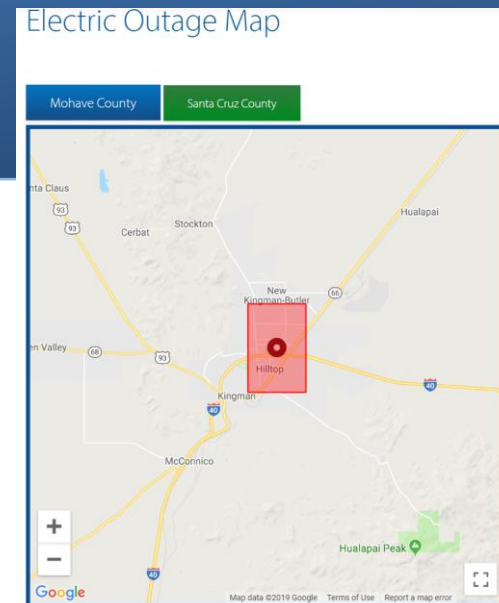
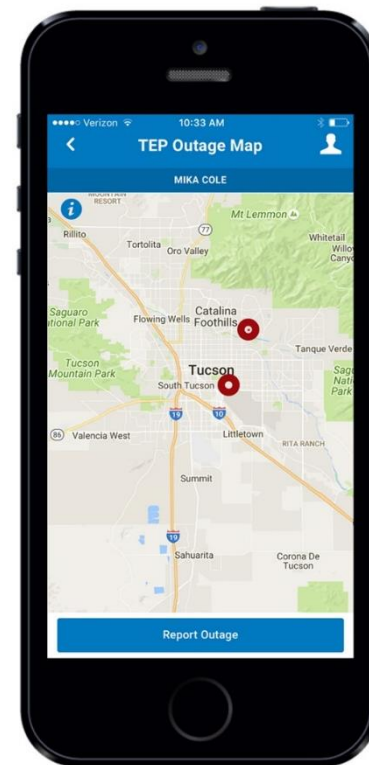
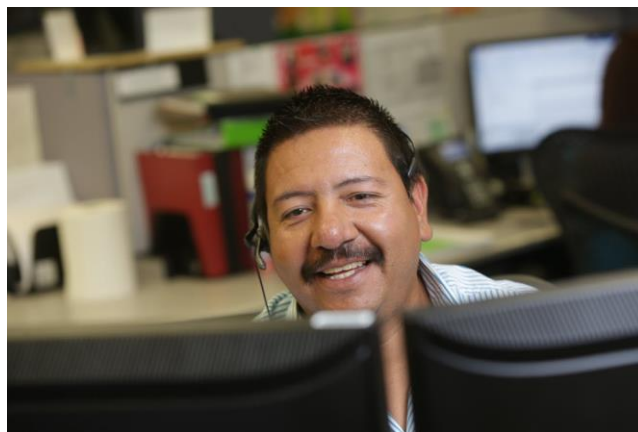
- 23 Emergency Towers
- 90 Spare poles
- 4 Mobile transformers
- 7 Spare substation transformers





Customer Outreach Platforms

- Automated customer notifications
- Real-time outage map (online and mobile app)
- Advance notice of scheduled curtailments
- Facebook and Twitter
- Call center staff available 24x7
- Mobile App





Q & A

