



Tucson Electric Power Company UNS Electric, Inc.

- I. System Preparedness: Ron Belval
- II. Loads and Resources: Toby Voge

April 8, 2010



Transmission and Distribution Executive Summary

Ron Belval

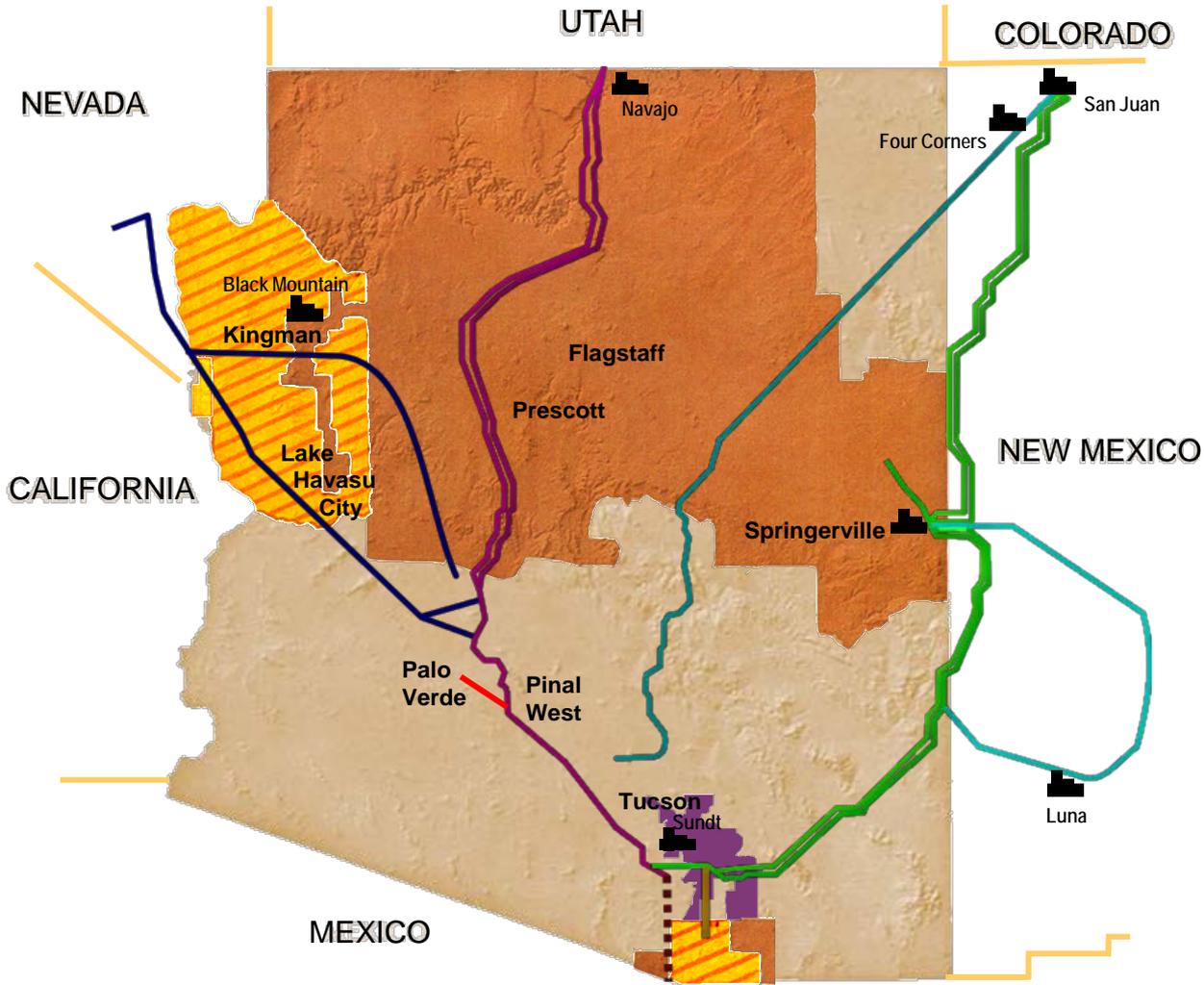
Supervisor Transmission Planning

T&D System 2010 Executive Summary



- T&D system is reliable and has adequate capacity
- System growth is minimal
- Minor system distribution system additions since 2009 to accommodate low rate of load growth
- Load forecasts are consistent with level of economic activity
- Companies are positioned to respond to emergencies quickly and efficiently
- Both TEP and UNS Electric have sufficient capacity to meet anticipated demand

Service Territories



Service Areas

- TEP Electric Service Area
- UNS Gas Service Areas
- UNS Gas & Electric Service Areas
- UNS Electric Service Area

High Voltage Transmission Lines

- TEP Owned & Operated
- TEP Joint Ownership
- Proposed Mexico Transmission Line
- TEP Transmission Rights
- WAPA Transmission Rights
- UNS Electric

Other

- Generating Station
- TEP: 1,155 Sq. Miles / 402,000 Customers
 UNSE: 6,057 Sq. Miles / 90,000 Customers

TEP Electric System



- Delivery System Improvements

	2009	2010 (Est)
New Meter Sets	2,589	2,744
Subs – Distribution	1	1
Distribution Sub MVA	56	65
Feeders	4	3
Distribution Line Miles	36	21

UNS Electric System – Mohave



- Delivery System Improvements

	2009	2010 (Est)
New Meter Sets	505	555
Subs – Distribution	0	1
Distribution Sub MVA	55	72
Feeders	1	0
Distribution Line Miles	10.9	0
69kV Line Miles	-0.3	8.9

UNS Electric System – Santa Cruz



- Delivery System Improvements

	2009	2010 (Est)
New Meter Sets	123	100
Subs – Distribution	0	0
Distribution Sub MVA	0	0
Feeders	0	0
Distribution Line Miles	9	9

Emergency Equipment TEP Electric System



- Mobile / Portable Transformers (138/115/46kV)
 - One 25 MVA – (138kV or 46kV)/14kV
 - One 40 MVA – (138kV or 115kV)/14kV
 - One 100 MVA – (138kV or 46kV)/(14kV or 4kV)
- Spare Transformers (138/46kV)
 - One 138/14 kV (30/40/50 MVA)
 - One 46/14 kV (12/15 MVA)
 - Two 46/4 kV (12/15 MVA)

Emergency Equipment TEP Electric System



- Emergency Equipment
 - Emergency Towers
 - Restoration Kits – 4
 - Spare 345 kV Towers – 10
 - Spare 345 kV Monopoles – 3
- Spare Poles (46kV and 138kV Class)
 - Structures in inventory – 50+ capable of supporting 46kV through 138kV loading and framing
 - Specialty kit for Santa Cruz County
 - Multi-pole dead-end structures for emergencies
 - Common standard allows use of structures for Mohave, Tucson and Santa Cruz

Emergency Equipment UNS Electric System



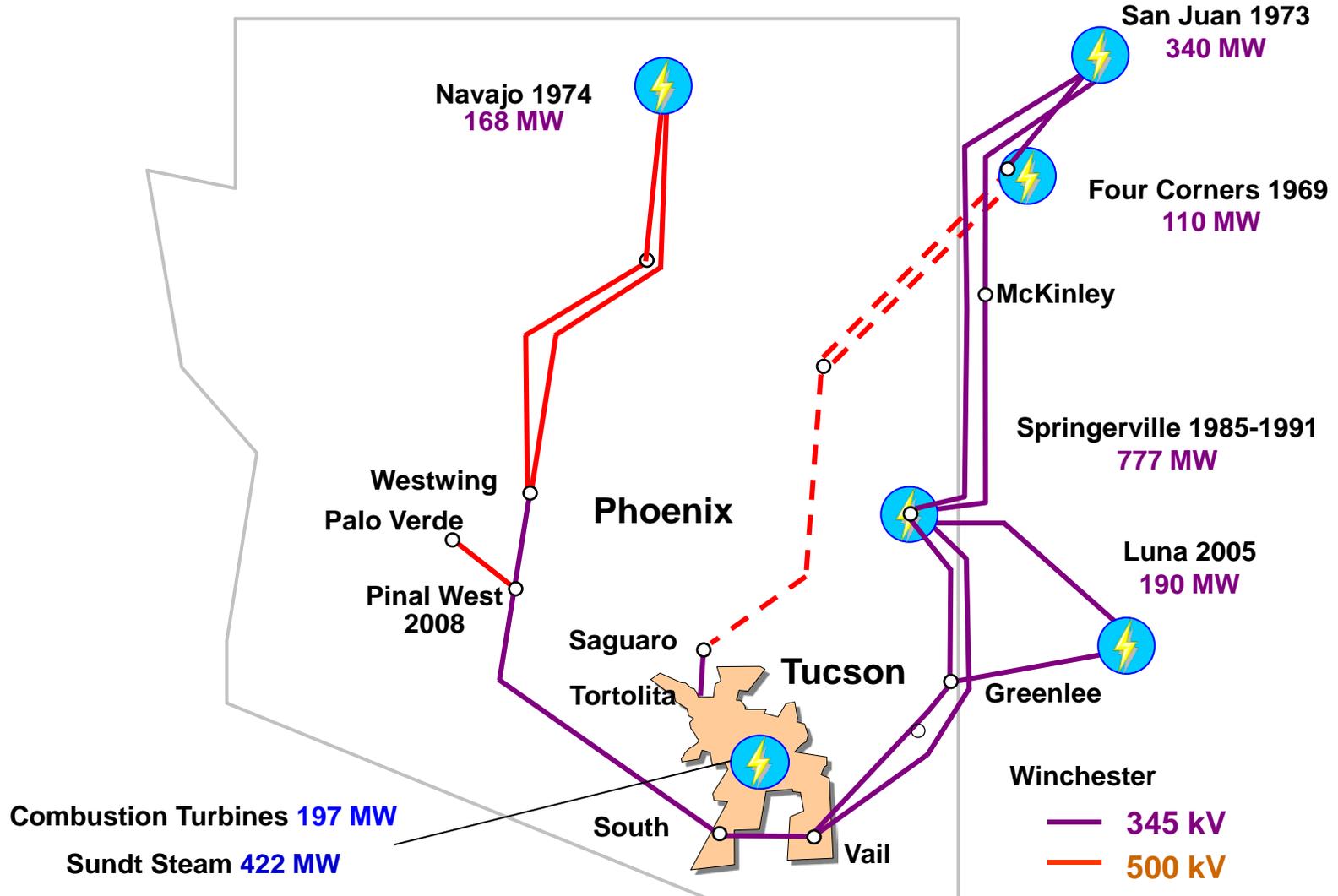
Mohave

- Emergency Equipment
 - Mobile 69/13.2 X 20.8 X 12kV Transformer
 - 25MVA Dual Distribution Voltage Mobile
 - Poles
 - Twenty 69 kV Class

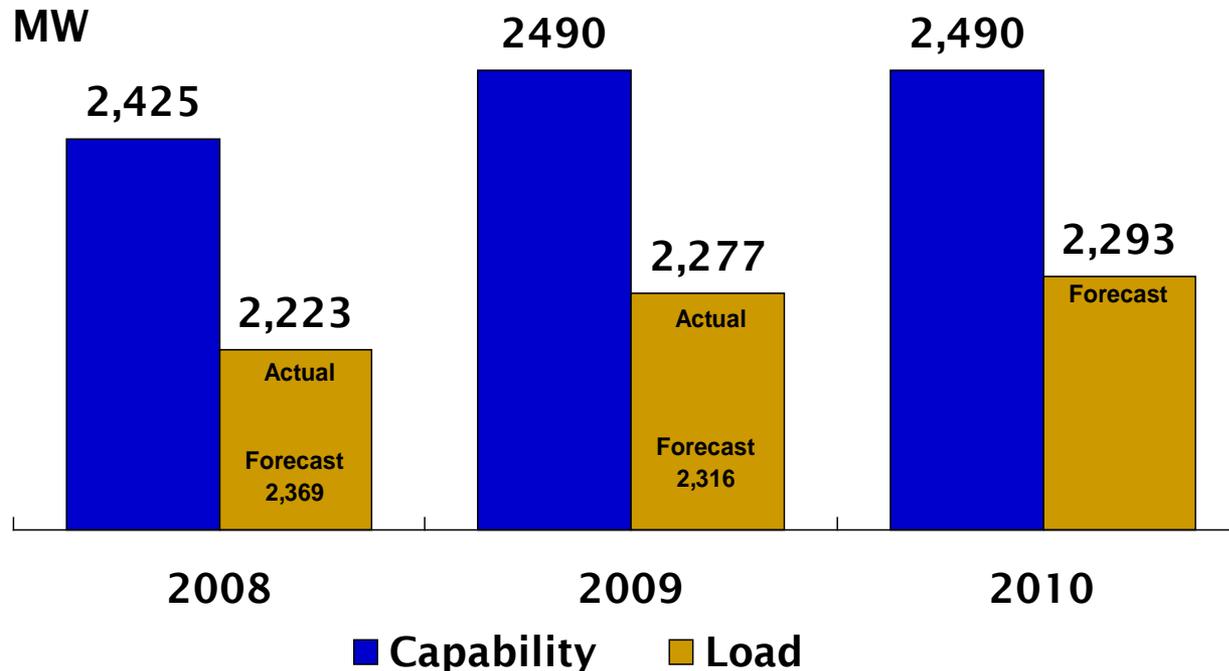
Santa Cruz

- Emergency Equipment
 - 115 kV Transformer (20 MVA)
 - Spare poles provided by TEP

TEP Resources and Paths



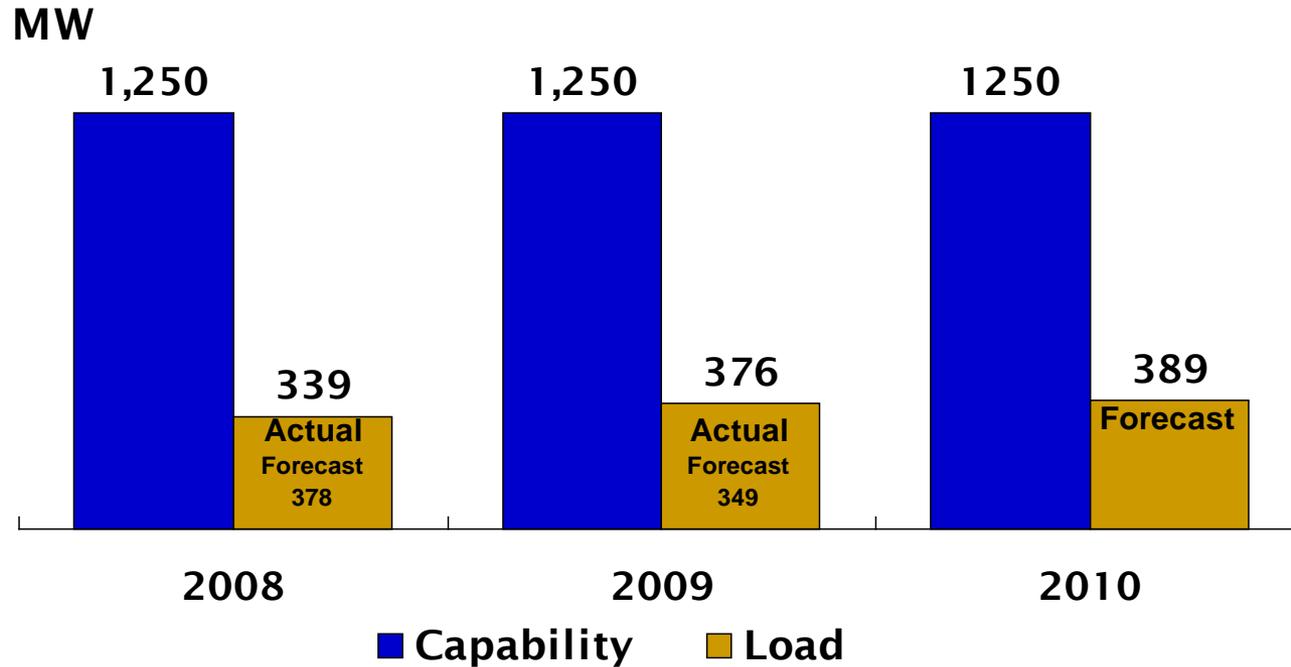
TEP Maximum Load Serving Capability



Loads & Capability are metered at 138 kV distribution buses

- Tucson City area served by Tortolita, Vail & South
- Excludes 138 kV System Losses

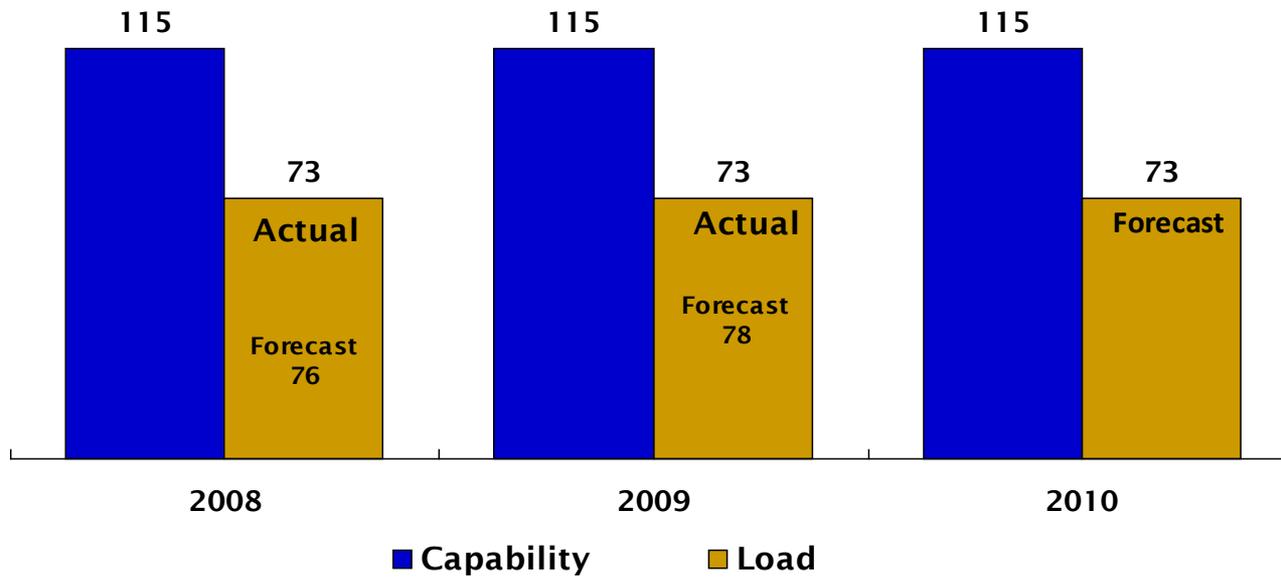
Mohave Maximum Load Serving Capability



Santa Cruz Maximum Load Serving Capability



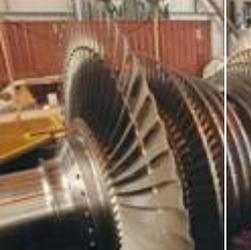
MW



TEP Operations Preparation



- Regional black start drills between Balancing Authorities and the Reliability Coordinator currently taking place
- Verification of TEP's Emergency Operations Center (EOC) readiness scheduled prior to summer 2010
- Weekly check of EOC 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 current wildfires that may impact TEP facilities



Loads and Resources Executive Summary

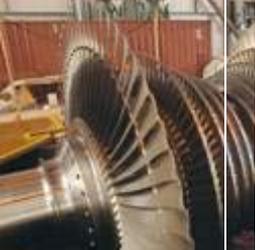
Toby Voge
General Manager Wholesale Energy

Loads & Resources System 2010 Executive Summary



- Projected TEP Retail Peak Demand of 2,284 MW, Wholesale 116 MW and Reserve Margin of 249 MW
- TEP resources include 2,200 MW of generation and 450 MW of purchases
- Adequate coal supplies at all stations
- Firm gas transportation agreements with El Paso to supply Sundt and Luna

- Projected UNS Electric Peak Demand of 455 MW and Reserve of 46 MW
- UNS Electric resources include 153 MW of combustion turbines and 348 MW of purchases
- Sufficient firm gas transportation agreements with Transwestern for Black Mountain and El Paso for Valencia



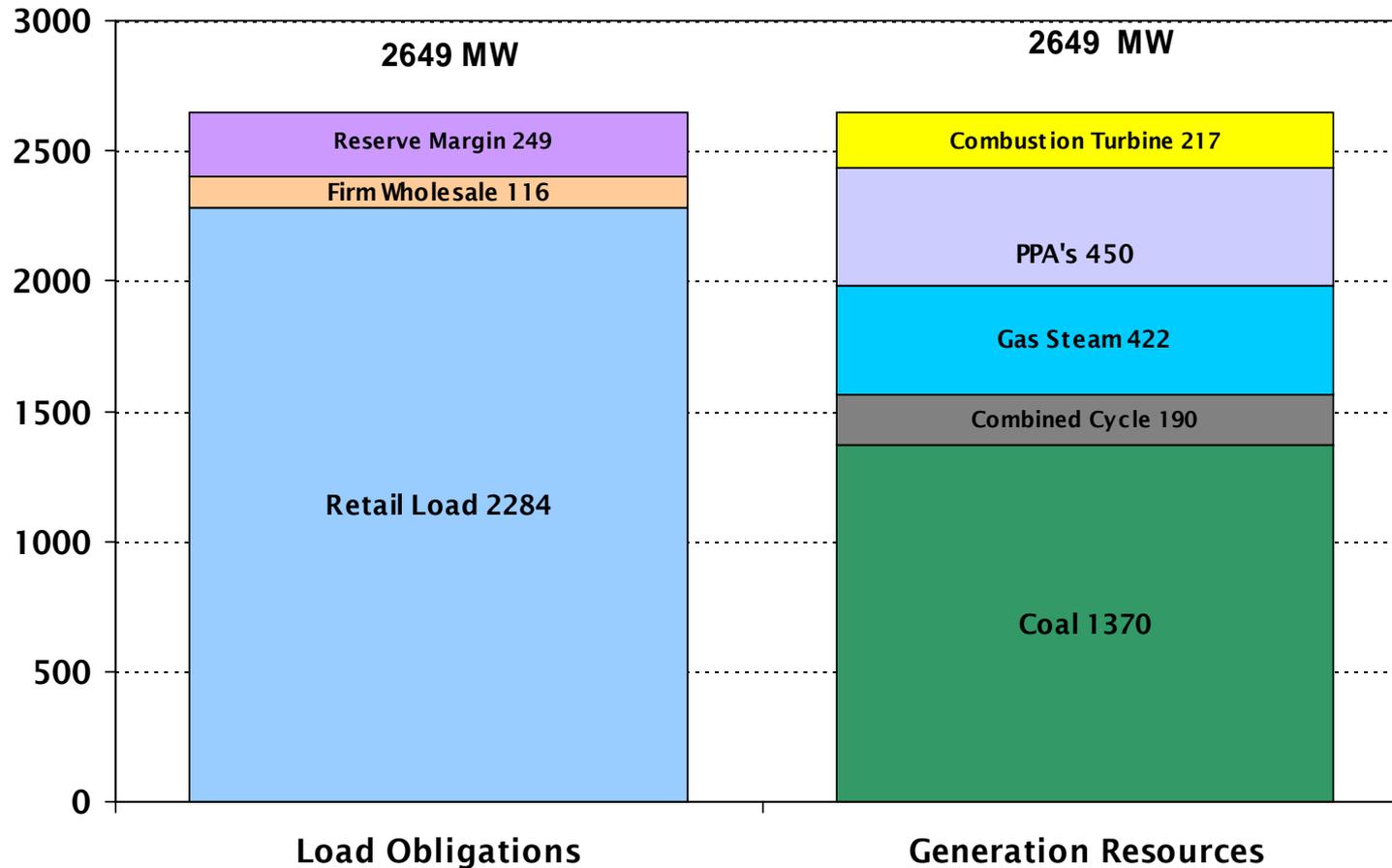
Loads and Resources Tucson Electric Power Company

2010 Generation Resources



TEP Generation Resources (MW)	
Steam Generation - Coal	1,370
Steam Generation – Gas w/ Sundt 4	422
Combined Cycle - Gas	190
Combustion Turbine – Gas	217
Springerville Solar	5
Total Generation Resources (MW)	2,204
Market Based Resources (MW)	
Firm PPAs	450
Total Market Resources (MW)	450
Total Generation & Market Based Resources (MW)	2,654

2010 Peak Demand Loads and Resources - TEP



TEP Fuel Supply

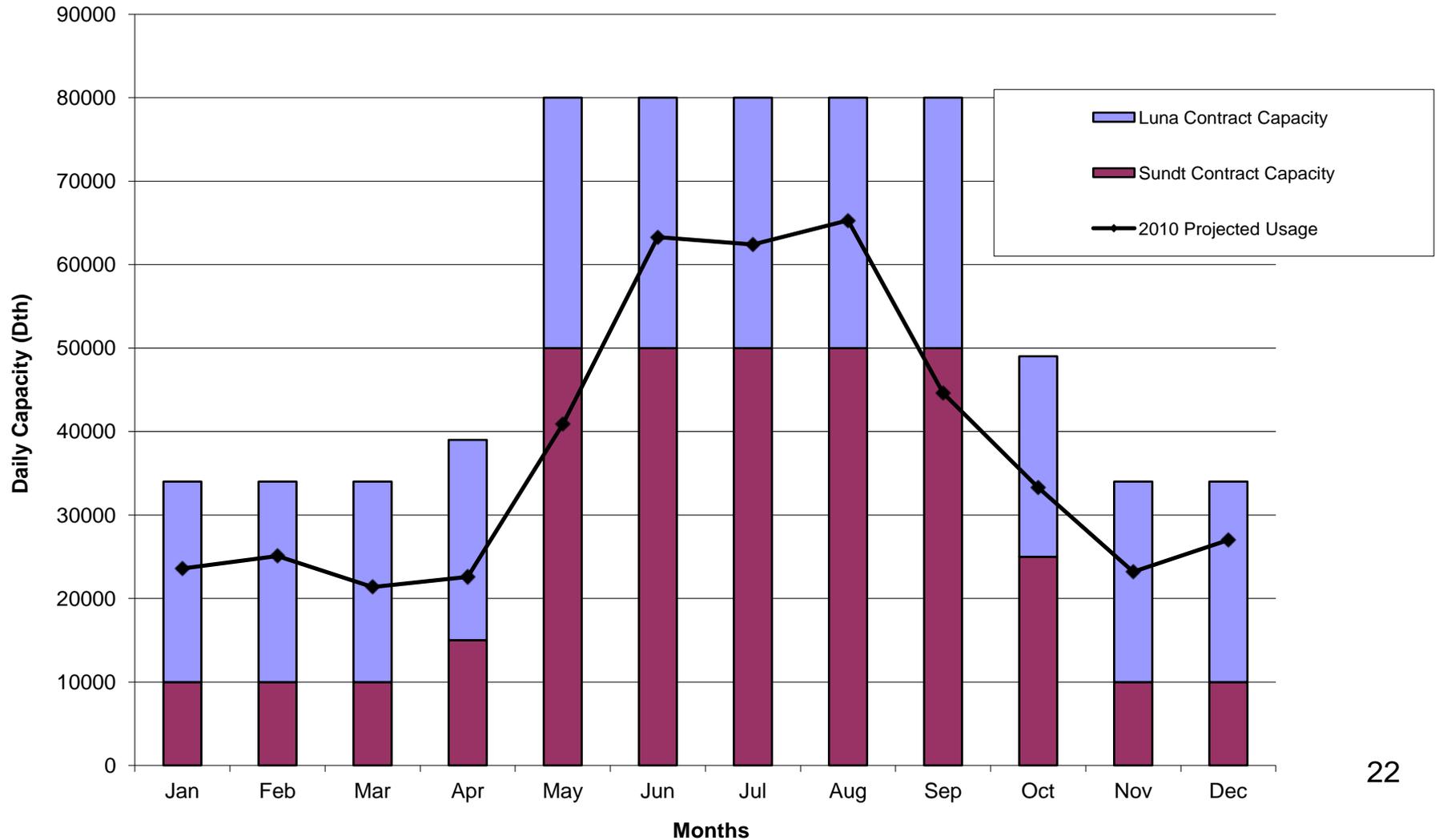


- Coal
 - Current inventory and contract commitments provide adequate coal for the projected 2010 requirements:
 - All stations but Sundt are under long term coal contracts
 - No significant source or delivery problems are foreseen. Minor perturbations in the supply chain are mitigated by on-site inventories
- TEP
 - Ample firm gas transport agreements with El Paso to supply gas requirements
 - Gas purchased in monthly increments and daily markets to meet variations in demand
 - Reliable supplies available from Permian/San Juan basins

TEP Pipeline Capacity



Luna & Sundt Interstate Gas Contract Capacity





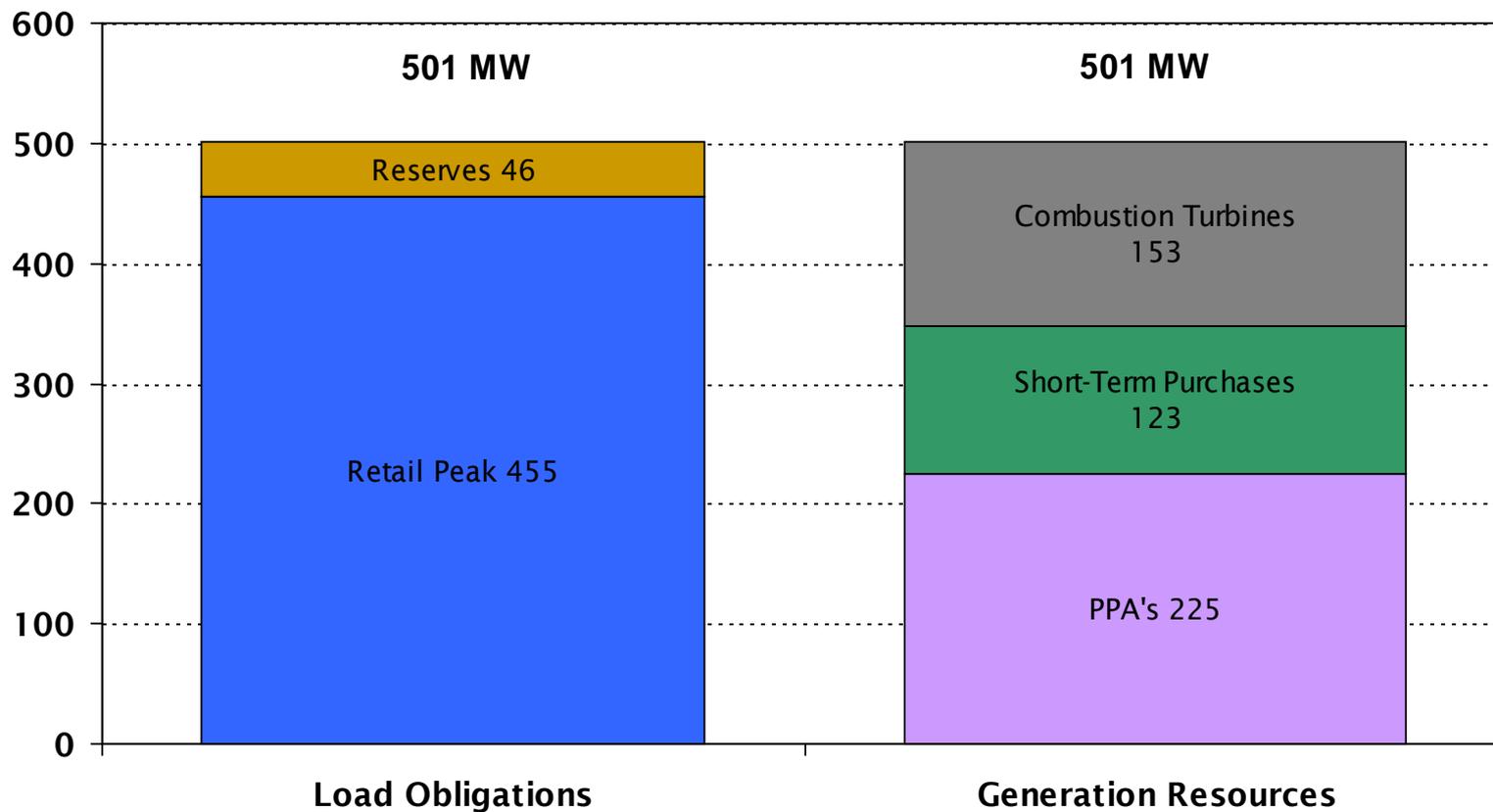
Loads and Resources UNS Electric

2010 Generation Resources



UNSE Generation Resources (MW)	
Total Generation Resources (MW)	153
Market Based Resources (MW)	
Firm PPAs	225
Short-Term Market Resources	123
Total Market Resources (MW)	348
Total Generation & Market Based Resources (MW)	501

2010 Peak Demand Loads and Resources - UNSE



UNSE Fuels Supply



- Natural Gas
 - Ample firm gas transport agreements with El Paso (for Valencia) and Transwestern (for Black Mountain) to supply gas requirements
 - Gas purchased in daily markets to meet variations in demand
 - Reliable supplies available from Permian/San Juan basins

Conclusion



- Sufficient generation resources are available to meet both TEP and UNSE load
- Sufficient Transmission is available to import remote generation and resources for TEP and UNSE Mohave
- Transmission in conjunction with local generation is sufficient to meet Santa Cruz load
- Plans in place for TEP/UNSE to respond to extreme conditions