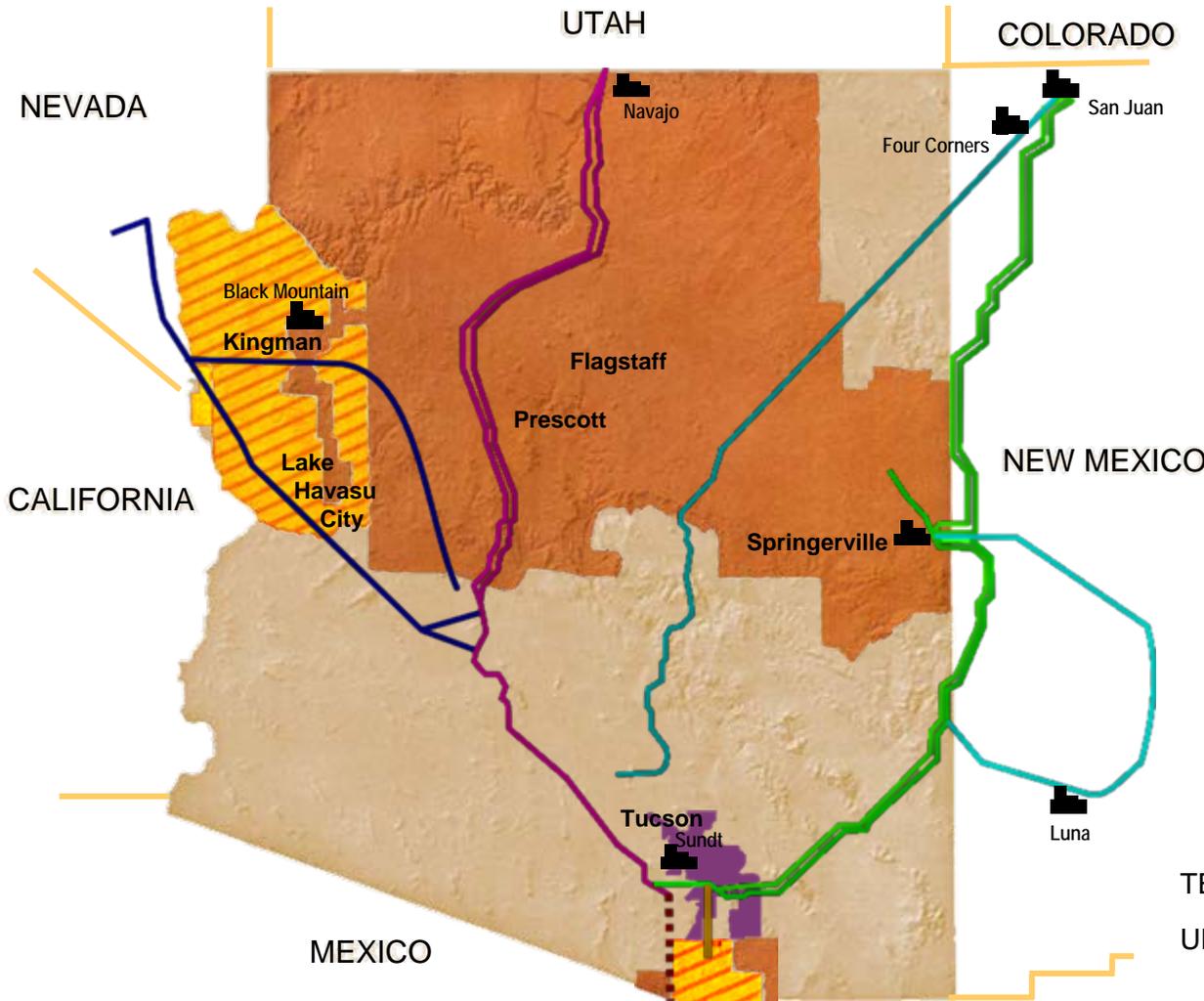
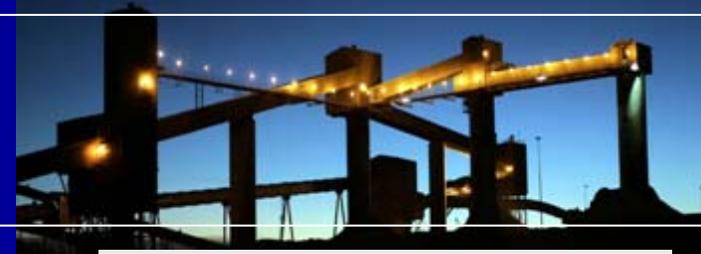


# Tucson Electric Power & UNS Electric

March 24, 2009

Ron Belval – Supervisor Transmission Planning  
Dave Hutchens – Vice President Wholesale Energy

# 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

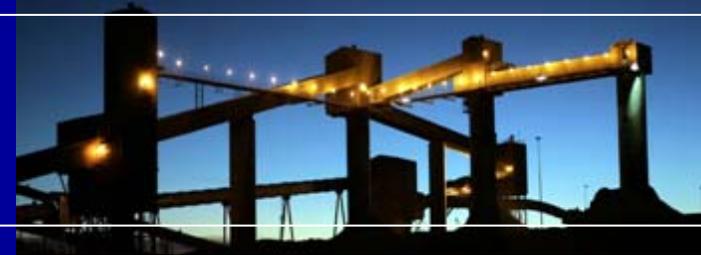
- TEP Owned & Operated
- TEP Joint Ownership
- Proposed Mexico Transmission Line
- TEP Transmission Rights
- WAPA Transmission Rights
- UNS Electric

## Other

- Generating Station

TEP: 1,155 Sq. Miles / 399,989 Customers  
 UNSE: 6,057 Sq. Miles / 89,889 Customers

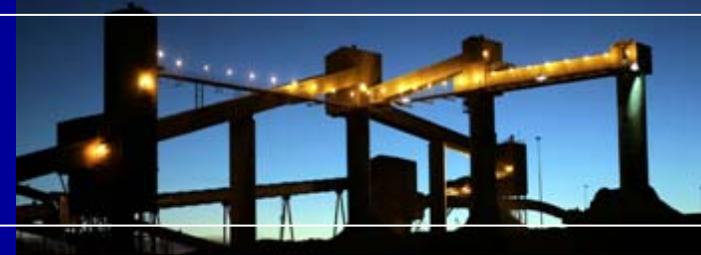
# TEP Electric System



- Delivery System Improvements

	2008	2009
New Meter Sets	2969	1500 (est.)
Subs – Distribution	2	2
Distribution Sub MVA	65 MVA	65 MVA (est.)
Feeders	4	9
Distribution Line Miles	86	54 (est.)
Static VAR Compensator (SVC)	1	

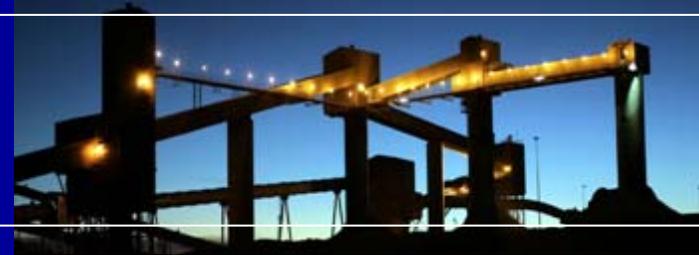
# UNS Electric System – Mohave



- Delivery System Improvements

	2008	2009
New Meter Sets	535	400 (est.)
Subs – Distribution	0	0
Distribution Sub MVA	20 MVA	55 MVA (est.)
Feeders	3	1
Distribution Line Miles	39.0	5.6
69kV Line Miles	12.3	4.5 (est.)

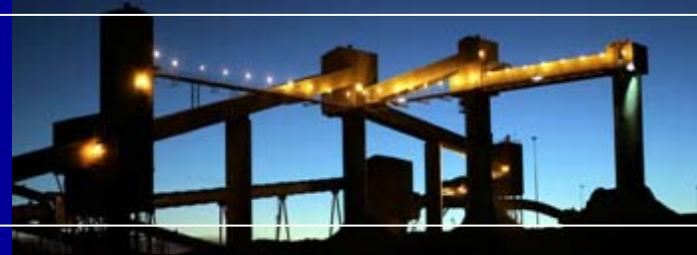
# UNS Electric System – Nogales



- Delivery System Improvements

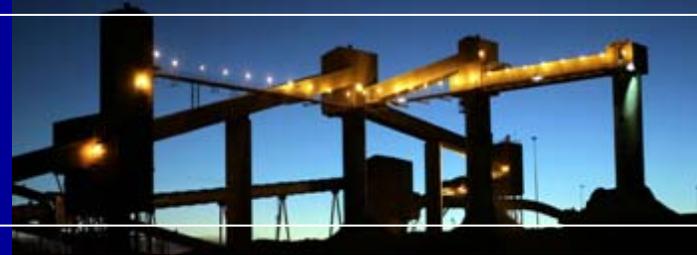
	2008	2009
New Meter Sets	294	180 (est.)
Subs – Distribution	0	0
Distribution Sub MVA	30 MVA	0 MVA
Feeders	0	0
Distribution Line Miles	15	10

# Emergency Equipment TEP Electric System



- Emergency Equipment
  - Emergency Towers
    - Restoration Kits – 4
    - Spare Towers - 7
- Mobile Transformers (46/138kV)
  - One 25 MVA
  - One 40 MVA
  - One Portable 100 MVA
- Spare Transformers (46/138kV)
  - One 138 (30/40/50 MVA)
  - Three 46 (12/15 MVA)
- Spare Poles (46kV and 138kV Class)
  - Standard replacements – 20 of each category
  - Minimum of 10 heavier 46kV (useful for emergency due to extra capacity)

# Emergency Equipment UNS Electric System



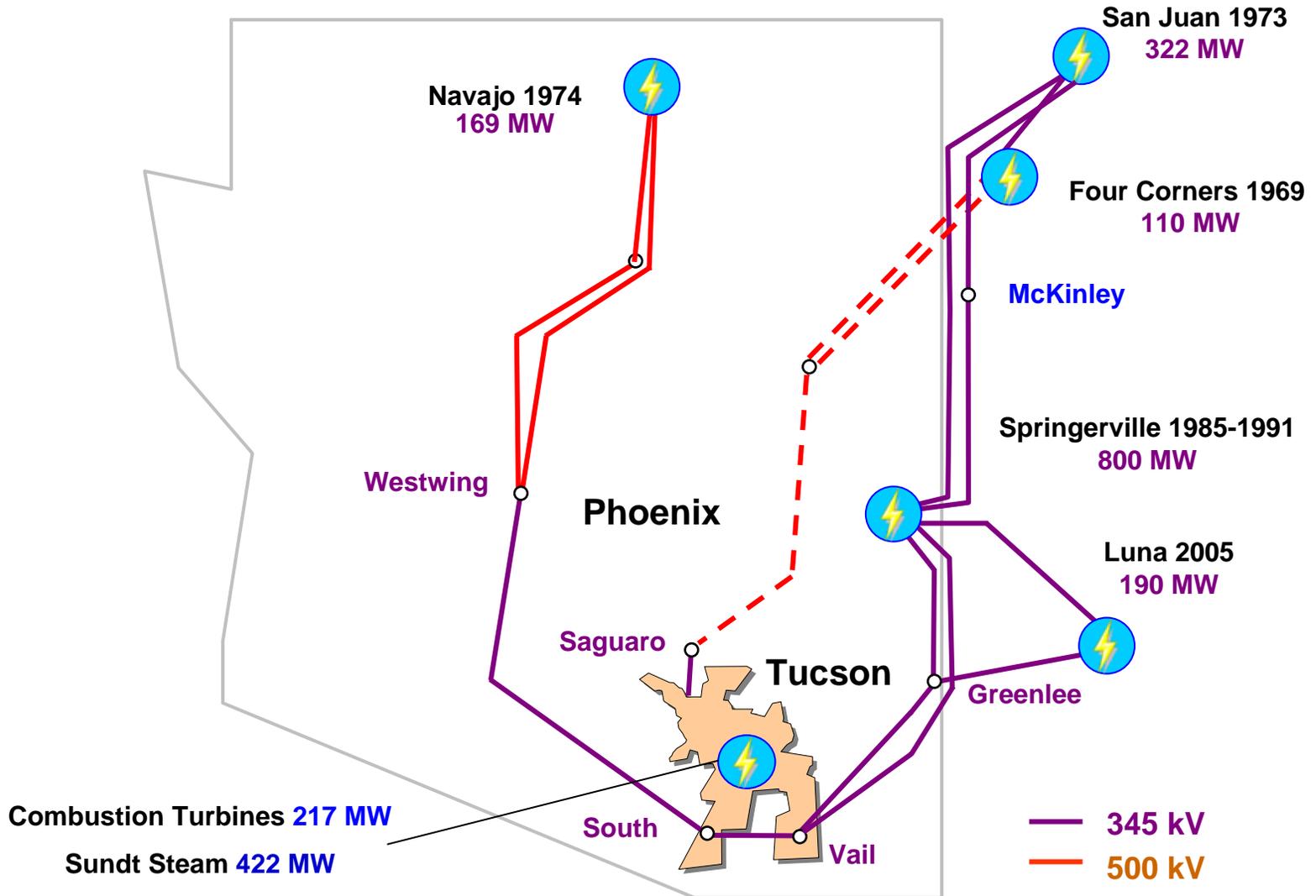
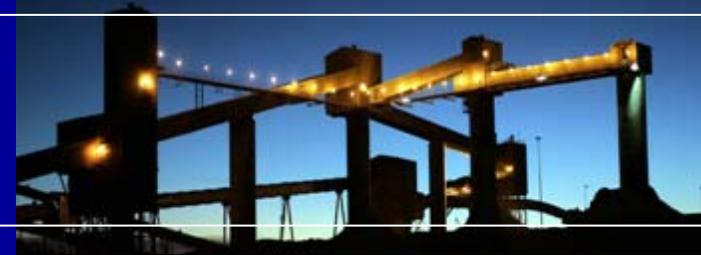
## **Mohave**

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

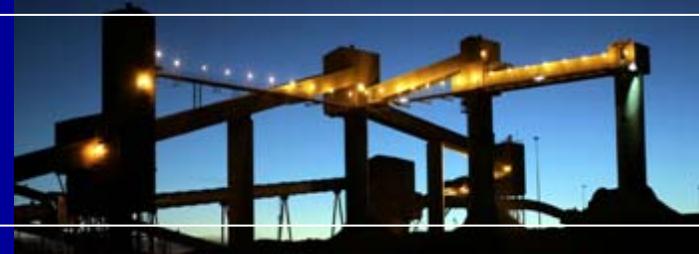
## **Nogales**

- Emergency Equipment
  - Spare 115 kV Transformer (20 MVA)
  - Spare poles available

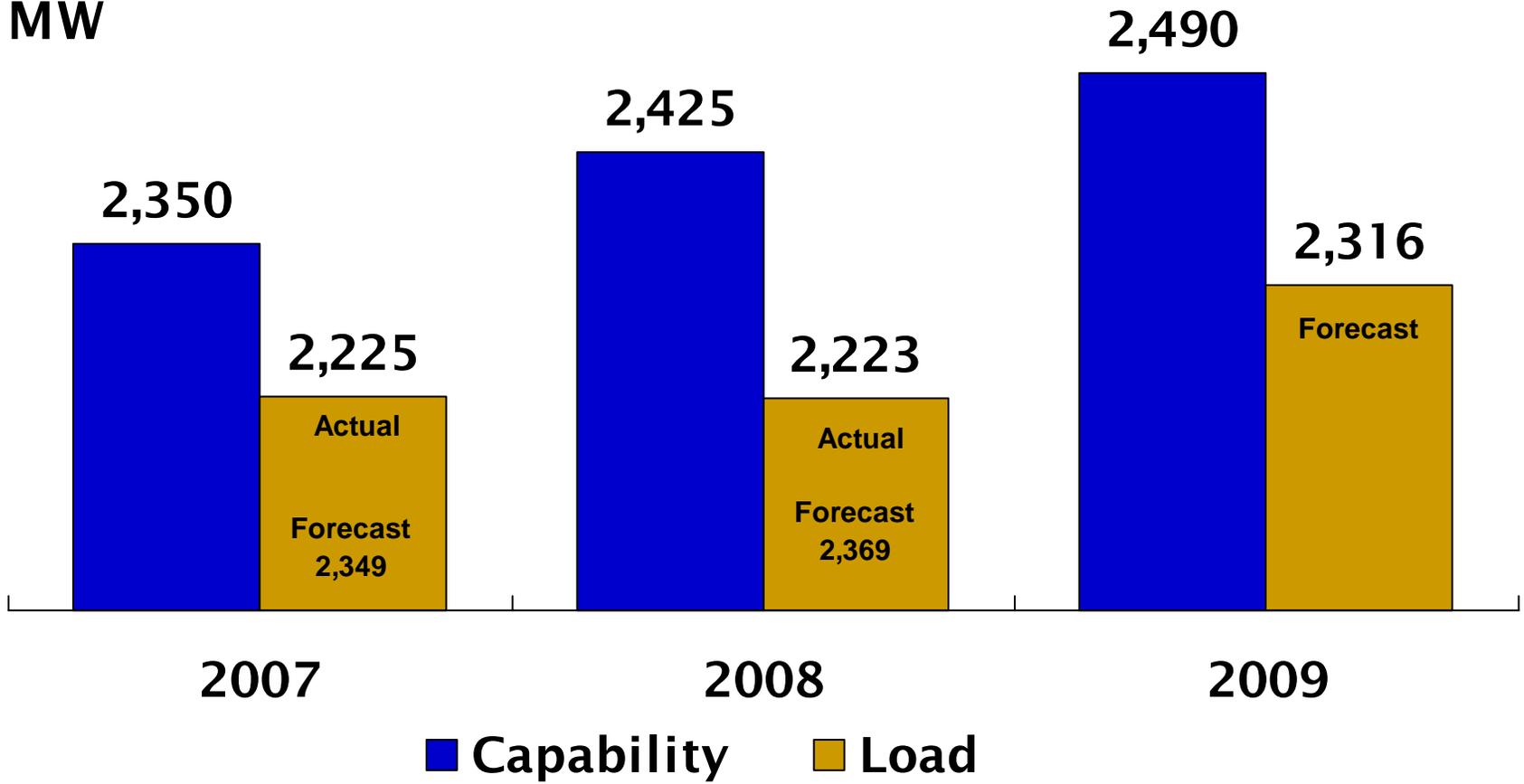
# TEP Resources and Paths



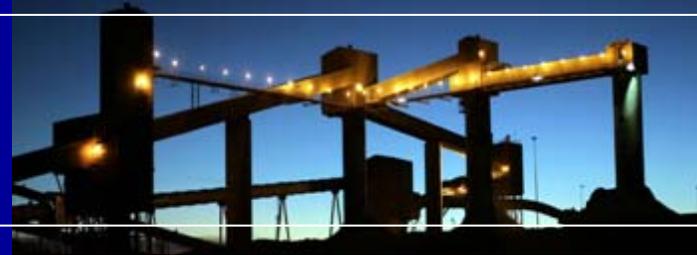
# TEP Maximum Load Serving Capability



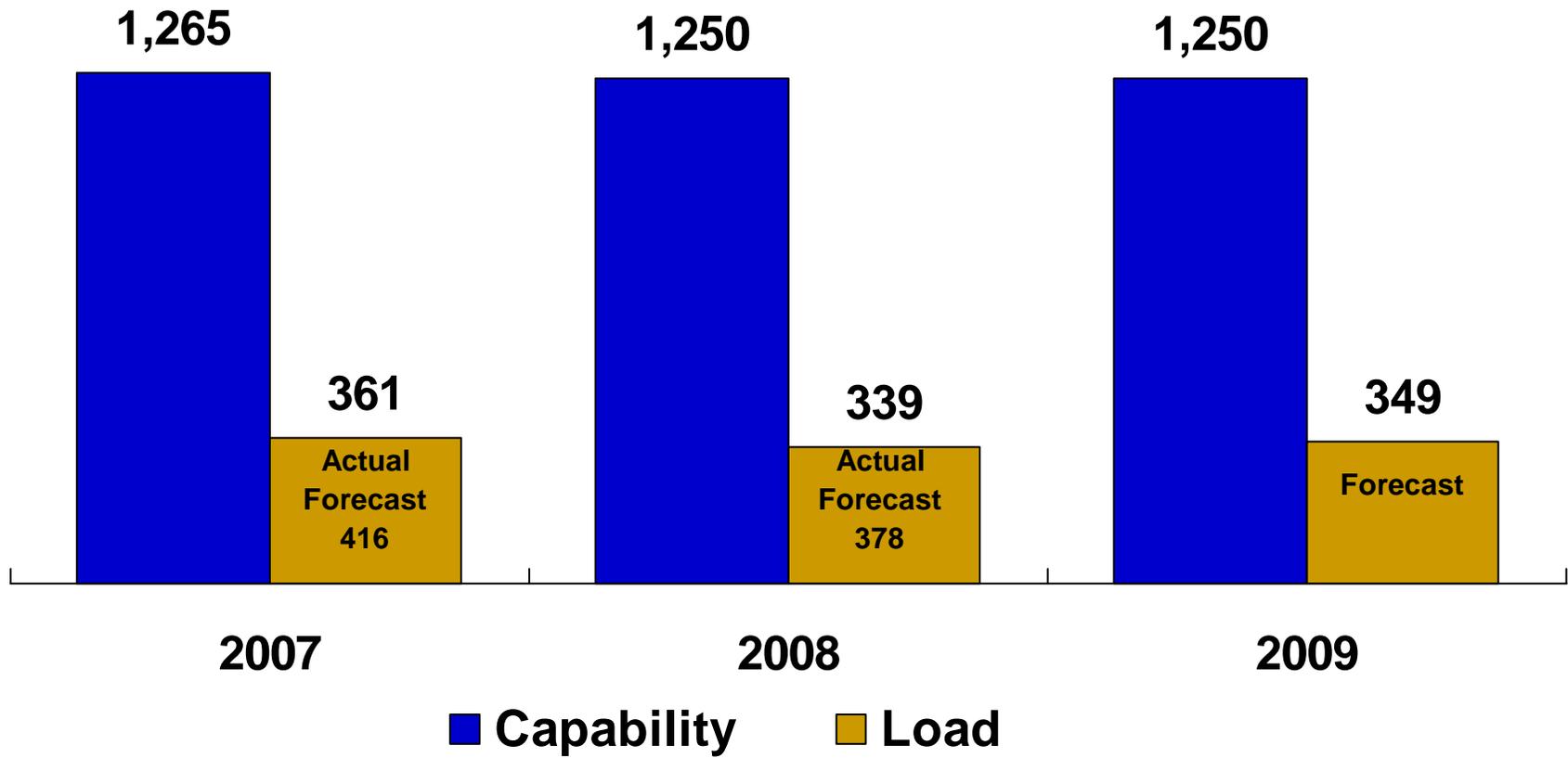
MW



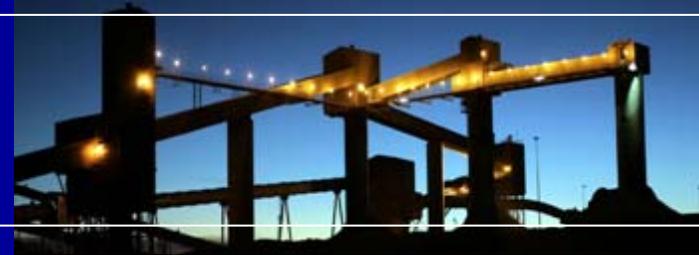
# Mohave Maximum Load Serving Capability



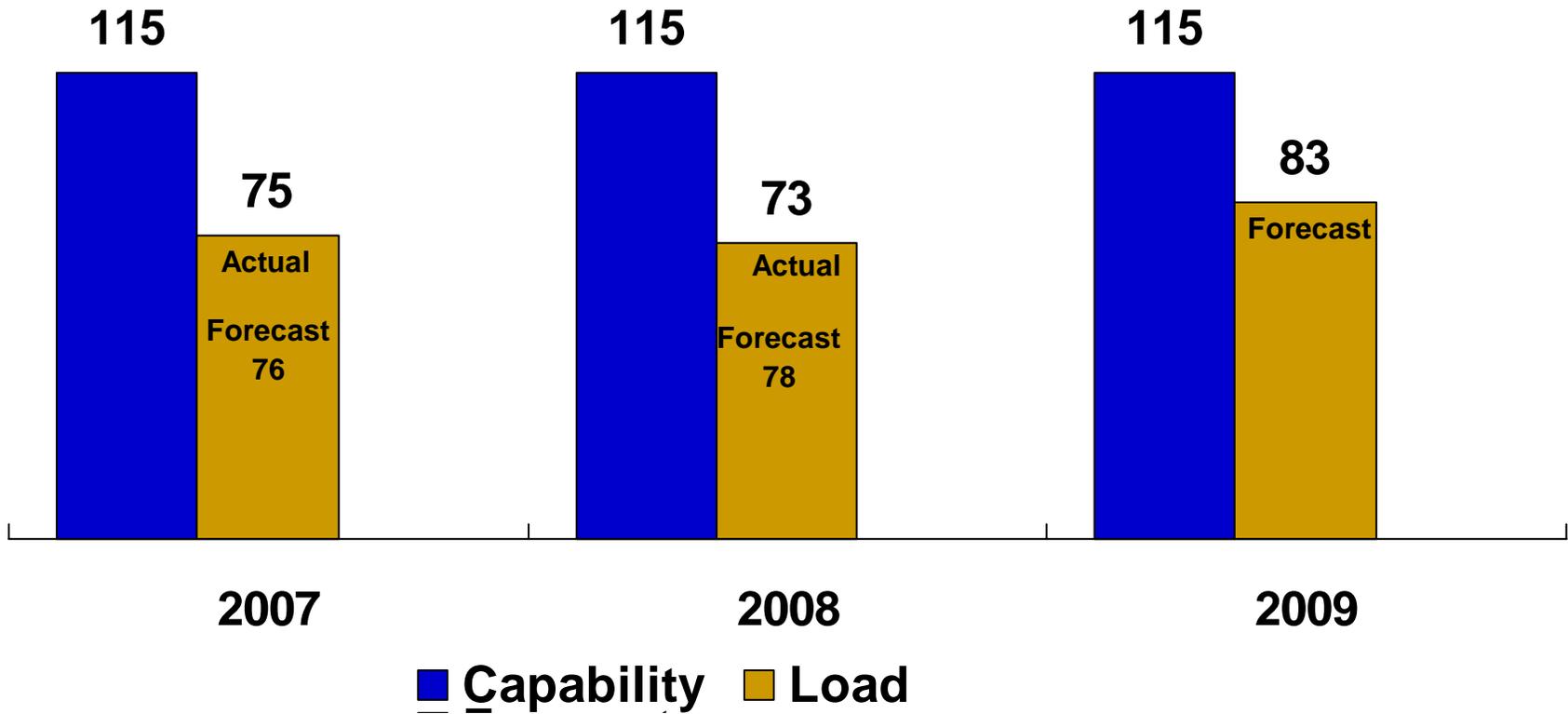
MW



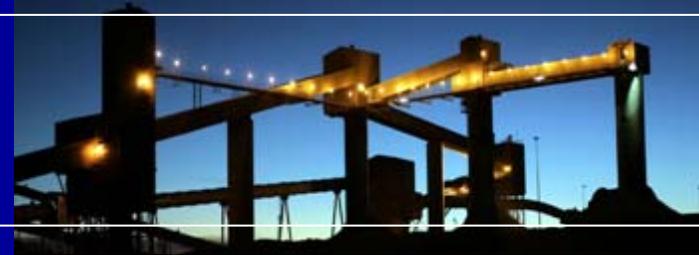
# Nogales Maximum Load Serving Capability



MW



# TEP Operations Preparation



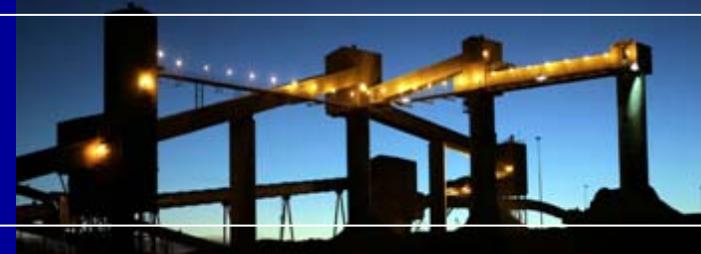
- Regional black start drills between Balancing Authorities and the Reliability Coordinator currently taking place
- Verification of TEP's Emergency Operations Center (EOC) readiness scheduled prior to summer 2009
- Weekly check of EOC systems occurs
- Daily conference call between Reliability Coordinator 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



# Energy Supply

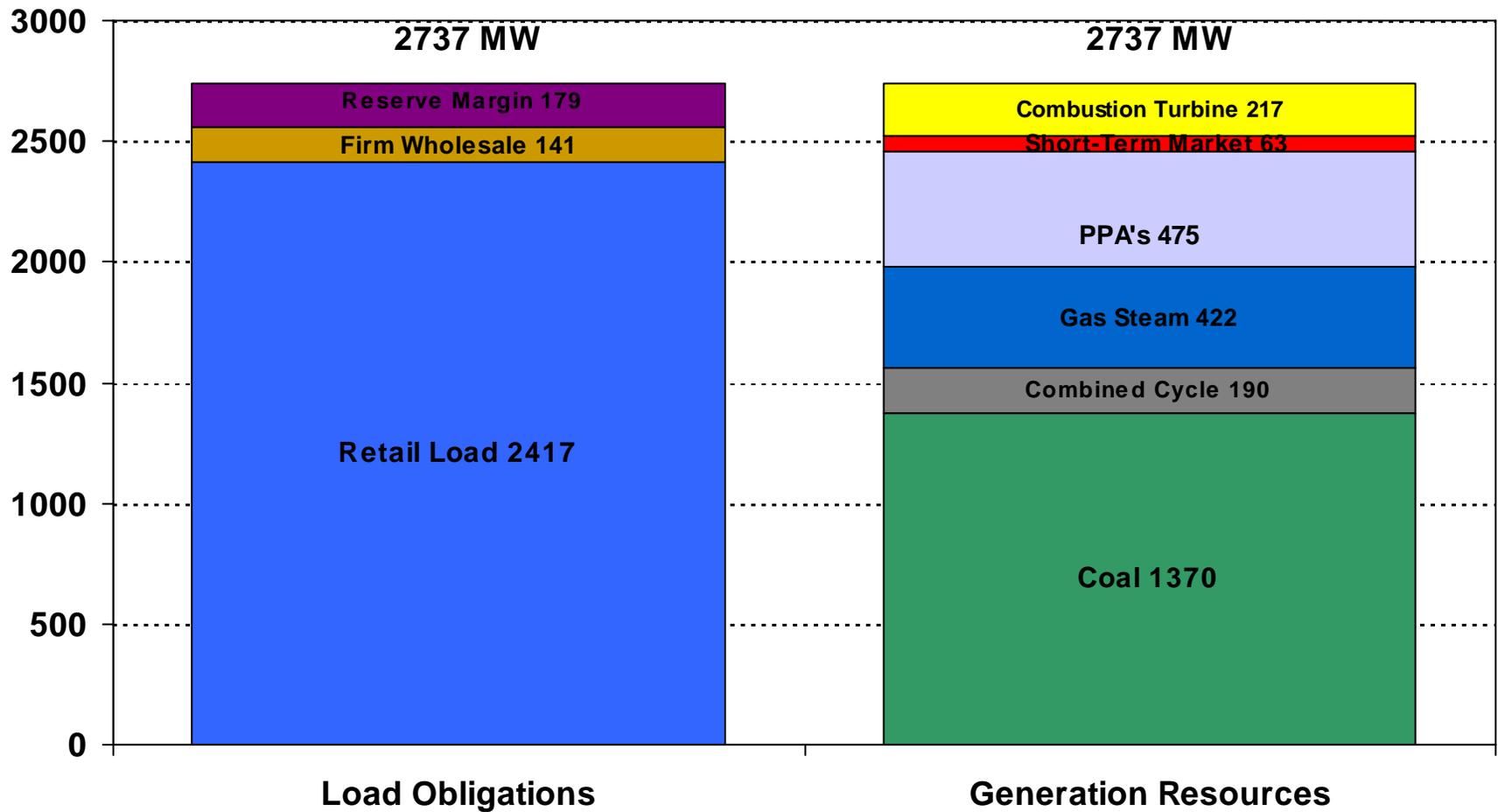
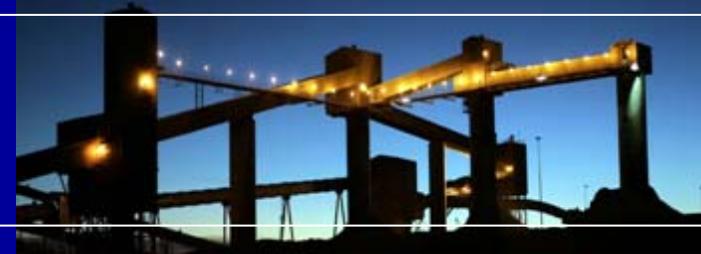
Tucson Electric Power

# 2009 Generation Resources

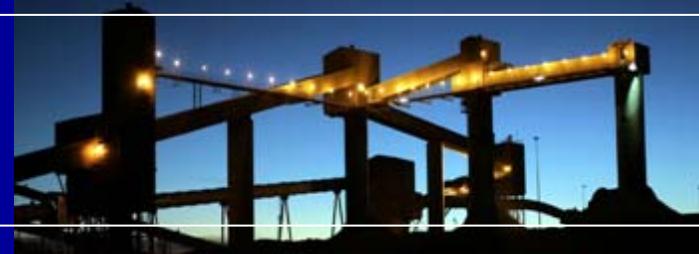


<b>TEP Generation Resources (MW)</b>	
Steam Generation - Coal	1370
Steam Generation – Gas w/ Sundt 4	422
Combined Cycle - Gas	190
Combustion Turbine – Gas	217
Springerville Solar	5
<b>Total Generation Resources (MW)</b>	<b>2,204</b>
<b>Market Based Resources (MW)</b>	
Firm PPAs	475
Short-Term Market Resources	63
<b>Total Market Resources (MW)</b>	<b>538</b>
<b>Total Generation &amp; Market Based Resources (MW)</b>	<b>2,742</b>

# 2009 Peak Demand Loads and Resources - TEP

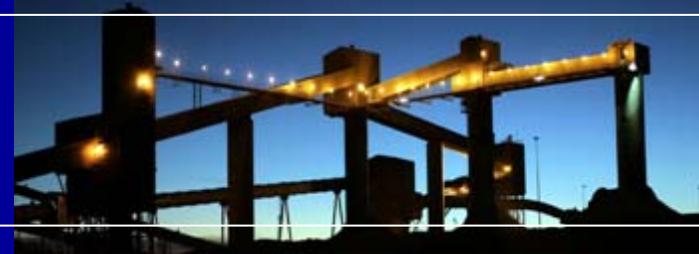


# TEP Fuel Supply

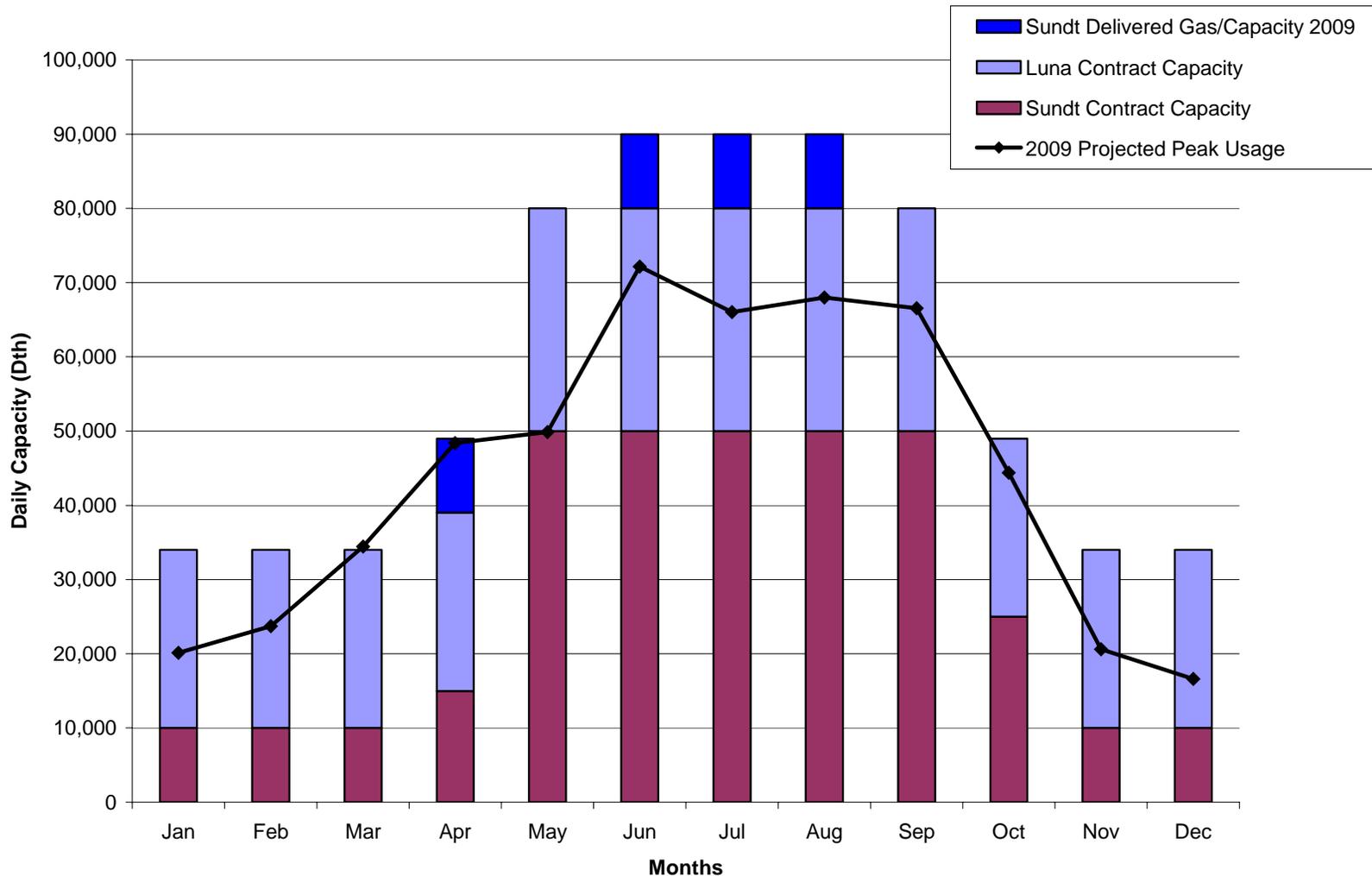


- Coal
  - Current inventory and contract commitments provide adequate coal for the projected 2009 requirements:
    - All stations but Sundt are under long term coal contracts
    - No significant source or delivery problems are foreseen. Minor perturbations in the supply chain are mitigated by on-site inventories
  - Sundt Station
    - Sundt Unit 4 with dual fuel capability will generate with natural gas at least through September 2009
- 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

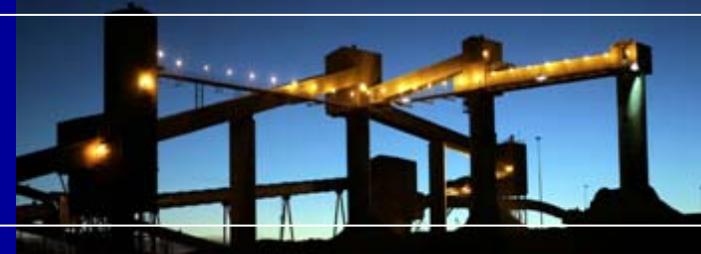




# Energy Supply

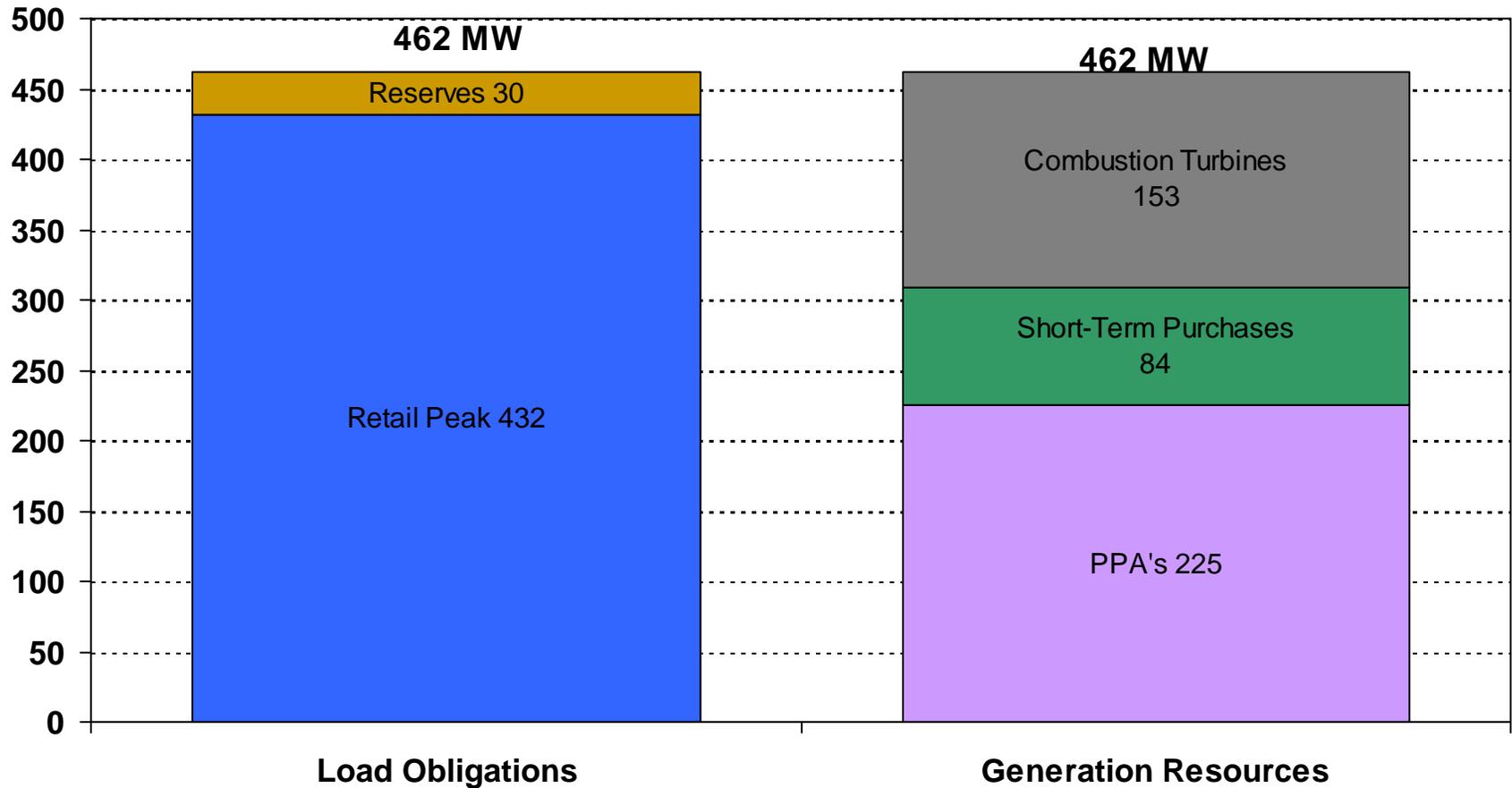
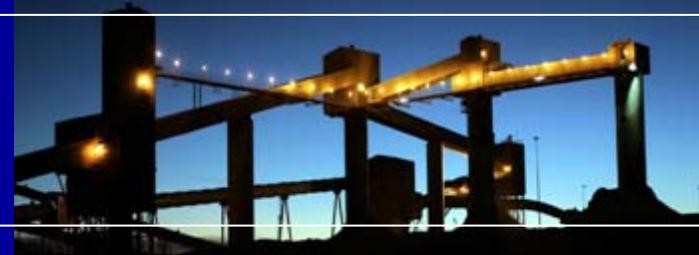
UNS Electric

# 2009 Generation Resources

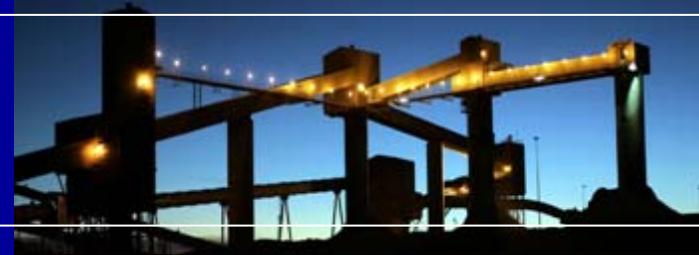


<b>UNSE Generation Resources (MW)</b>	
Total Generation Resources (MW)	153
<b>Market Based Resources (MW)</b>	
Firm PPAs	225
Short-Term Market Resources	84
Total Market Resources (MW)	309
<b>Total Generation &amp; Market Based Resources (MW)</b>	<b>462</b>

# 2009 Peak Demand Loads and Resources - UNSE

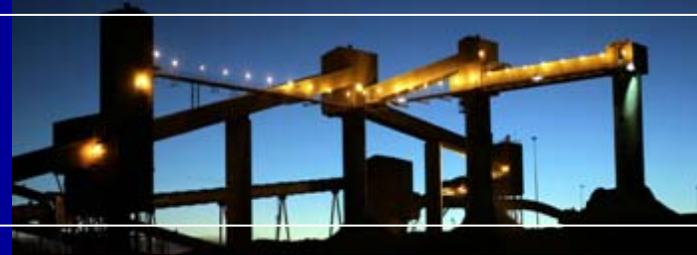


# UNSE Fuels Supply



- 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