

# **APS and Regional Transmission Systems Overview**

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Director Energy Delivery

Asset Management and Planning

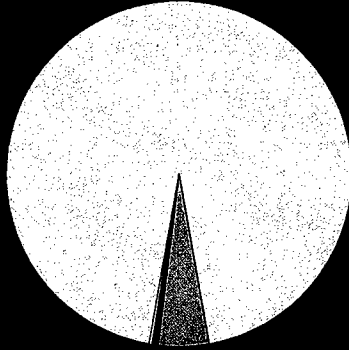


## **Agenda**

- **About APS**
- **Regional Transmission System Overview**
- **APS Transmission System Overview**
- **Industry Challenges**
- **APS Unique Challenges**

# Pinnacle West Financial Snapshot

**\$12 Billion Assets**  
December 31, 2008



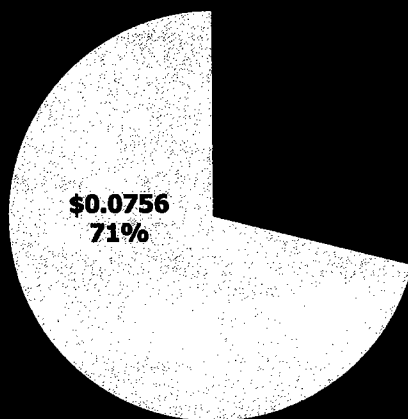
■ APS   ■ SunCor   ■ APSES   ■ El Dorado

- ✓ Approximately \$3 billion market cap
- ✓ 4<sup>th</sup> largest employer headquartered in Arizona
- ✓ S&P 500 Index member
- ✓ Approximately 75% of shareholders are institutional investors
- ✓ \$11 billion utility assets
- ✓ \$242 million net income
- ✓ \$2.10 per share annual dividend

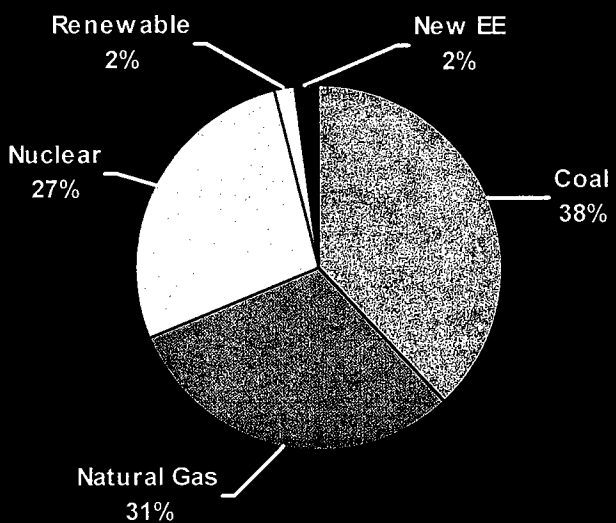
## Stock Price Comparison December 31, 2007 – March 27, 2009



### APS Cost Components

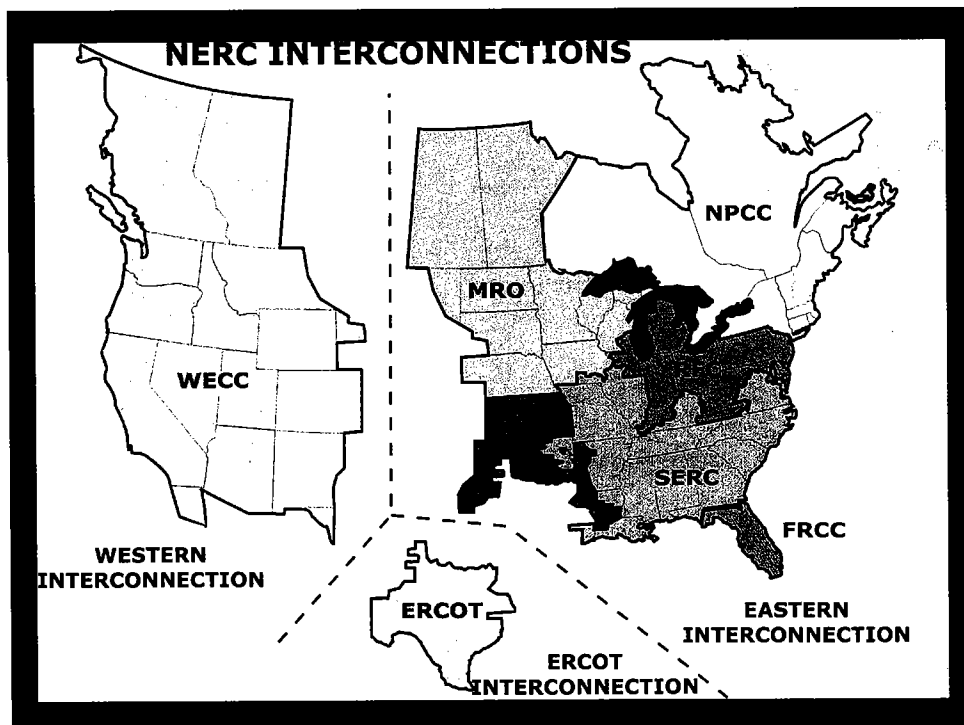


### 2009 Projected Energy Mix



## Western Interconnection System

- US Electric Grid
- NERC and Regional Reliability Organizations
- Three US Interconnections
- WECC
- Major Western Interconnection Transmission
- Planning and Operational Issues
- DOE Congestion Study



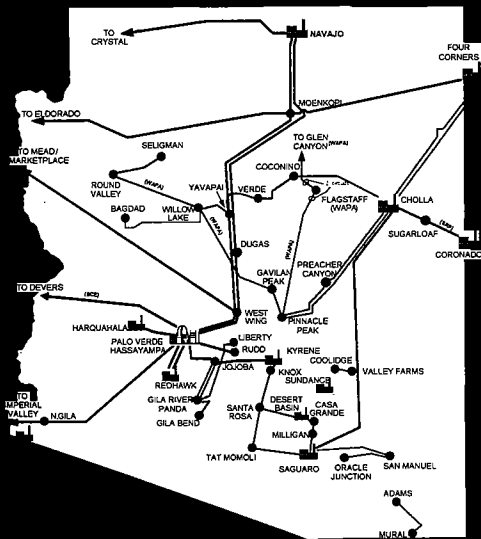
## **Planning and Operating Issues**

- **Planning**
  - Sub-Regional vs Regional (WECC)
  - Who
    - Decides
    - Builds
    - Pays
- **Operations**
  - Relay misoperations
  - Right of way maintenance difficulties

## **DOE Congestion Study**

# APS Transmission System

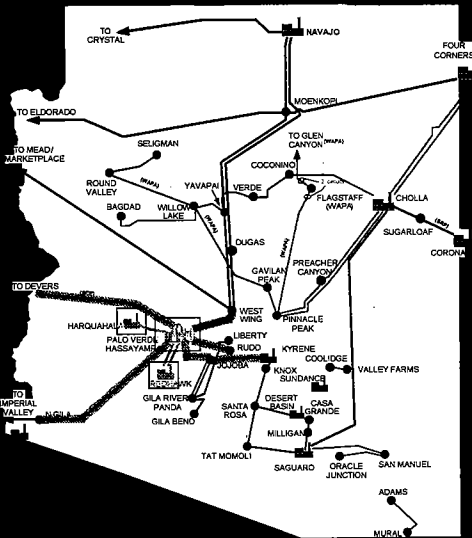
## State Area Transmission



Red = 500 kV  
Green = 345 kV  
Blue = 230 kV  
Black = 115 kV



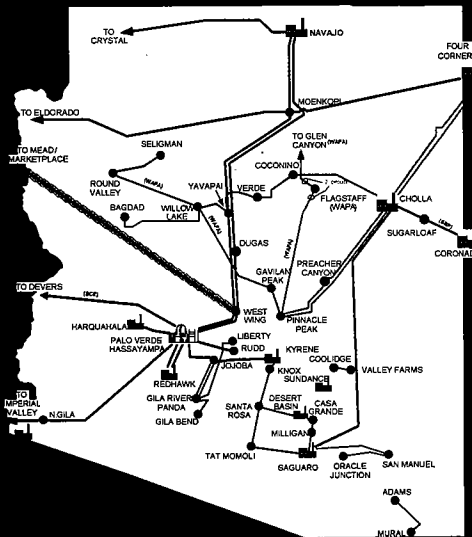
## Palo Verde Hub Transmission



- Palo Verde Nuclear Plant and Hassayampa Gas Power Plants
- Palo Verde West
  - PV-Devers 500kV line
  - Hassayampa-North Gila 500kV line
- Palo Verde East
  - PV-Westwing 500kV lines
  - PV-Rudd 500kV line
  - Hassayampa-Jojoba-Kyrene 500kV line



## Mead-Phoenix Transmission

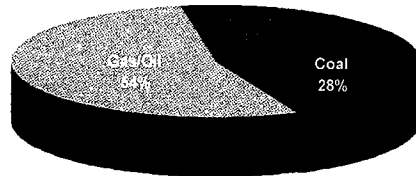


- Mead-Phoenix 500kV line

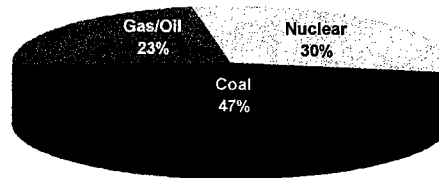


## Fossil Generation Plays a Key Role

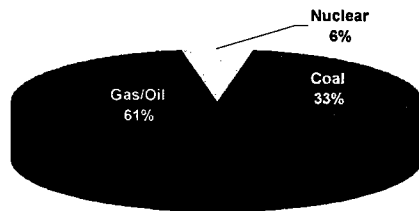
APS OWNED CAPACITY



APS GENERATION



APS FUEL EXPENSE



2008 ACTUALS - APS OWNED GENERATION

FUEL	CAPACITY	GWH	FUEL EXP
Nuclear	1,146	8,512	\$ 41,591
Coal	1,741	13,166	252,651
Gas/Oil	3,380	6,346	461,204
Renewable	6	10	0
<b>Total</b>	<b>6,273</b>	<b>28,034</b>	<b>\$ 756,446</b>

7.2 Million Tons of Coal

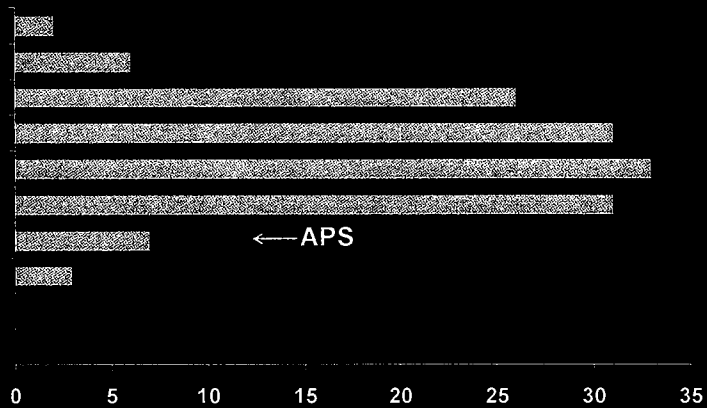
47.6 BCF Natural Gas

## Major Challenges Confronting APS and the Utility Industry

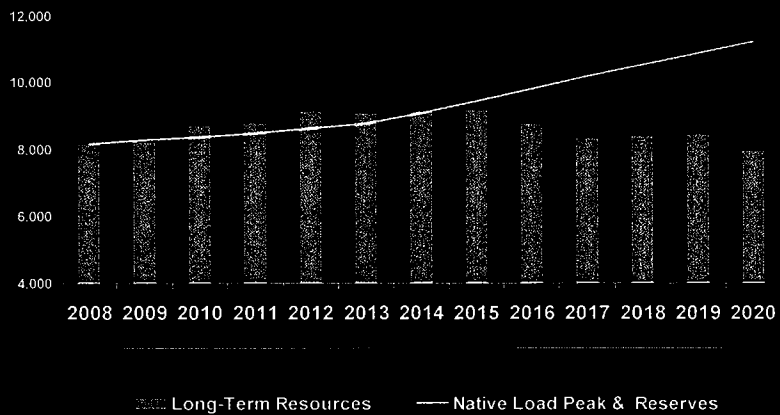
- Infrastructure investment
- Capital Access
- Financial Health
- Technology
- Economic Turmoil
- Aging Workforce
- Regulatory Uncertainty
- Climate Change
- Upward pressure on pricing



## Credit Ratings Distribution Investor-Owned Electric Utilities

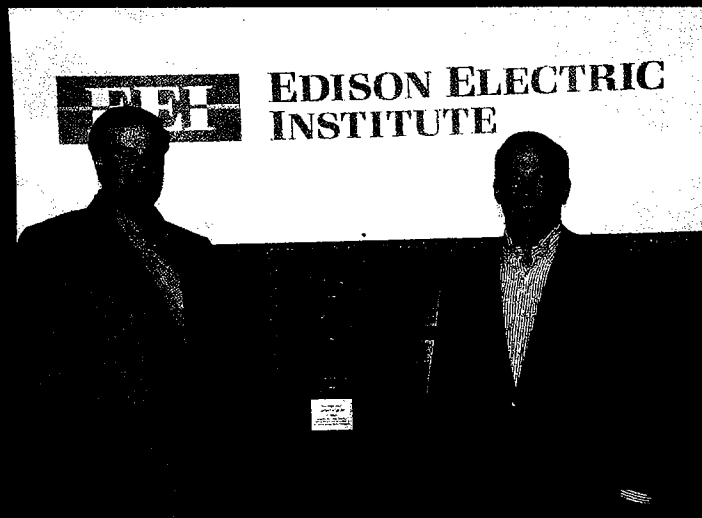


## Meeting Challenges of Peak Load Growth





## EEI Award

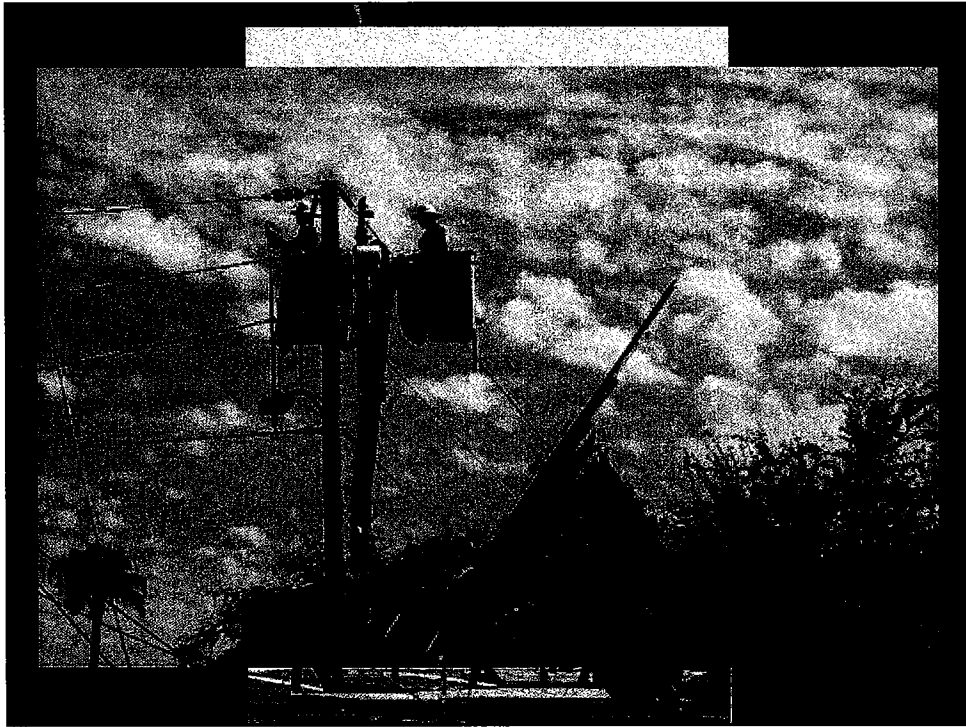


## Lindsey Towers



## Mobile Generator





**Questions.....**

