




An Historic Look at UNS Energy

Tucson Electric Power & Unisource Electric

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Resource Planning

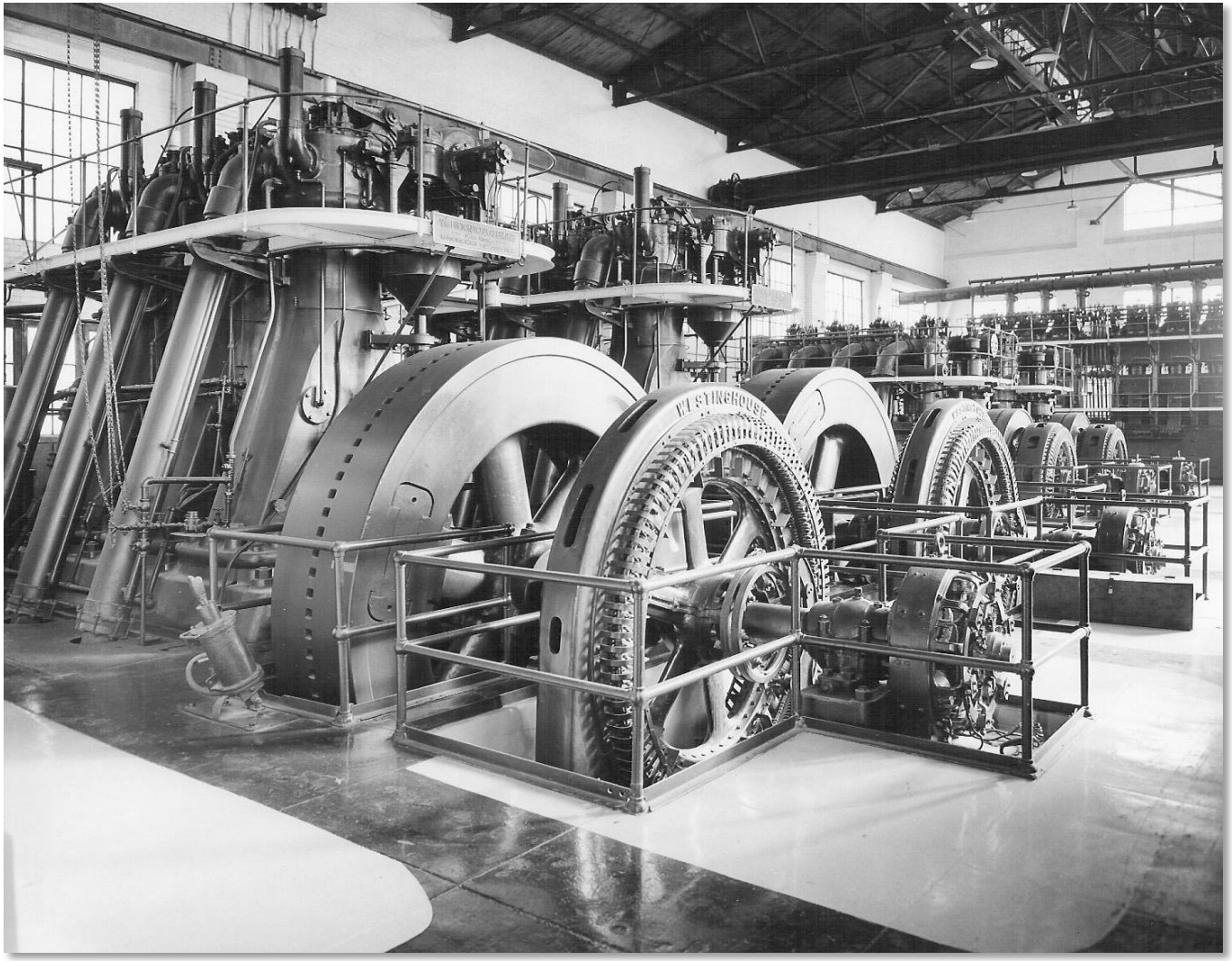
November 2013

First Power Plant downtown at 120 N. Church St.

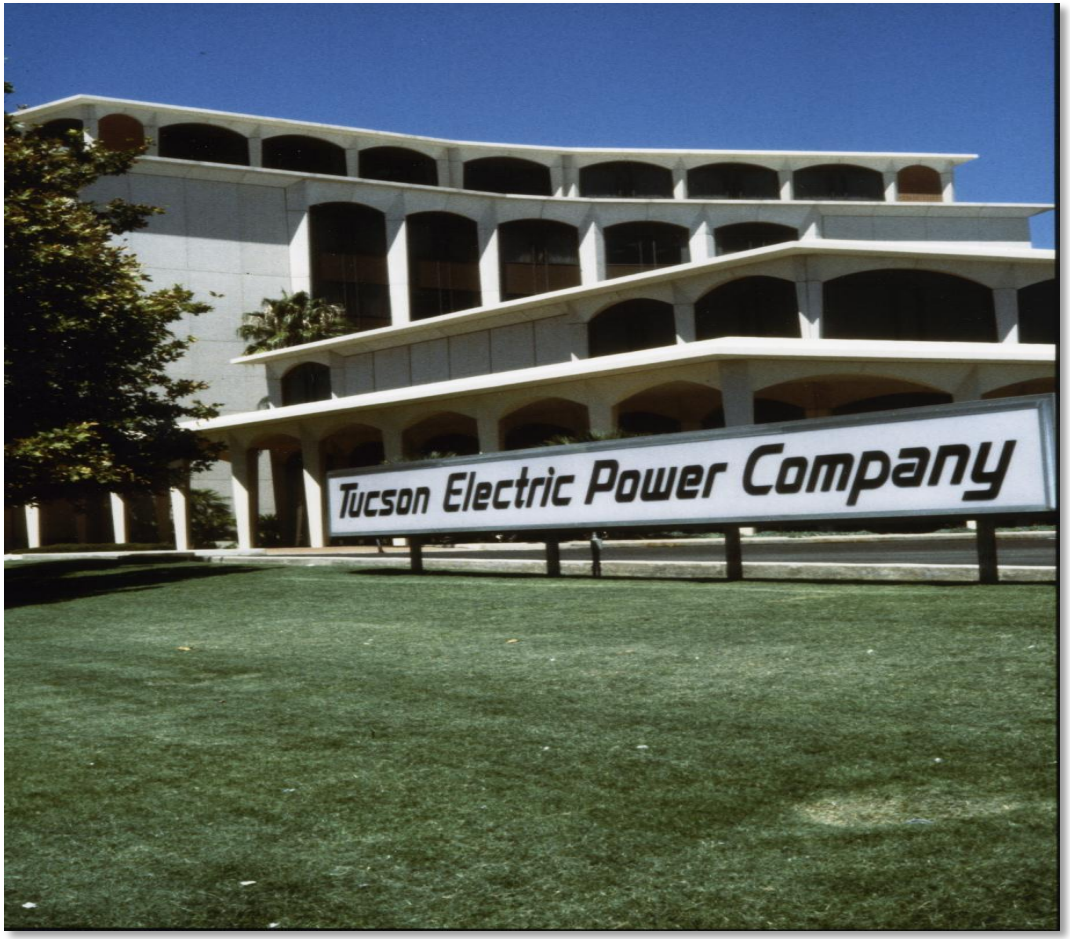
W. Congress at Church (1916)

1904 Power Plant moves to 220 W. Sixth Street

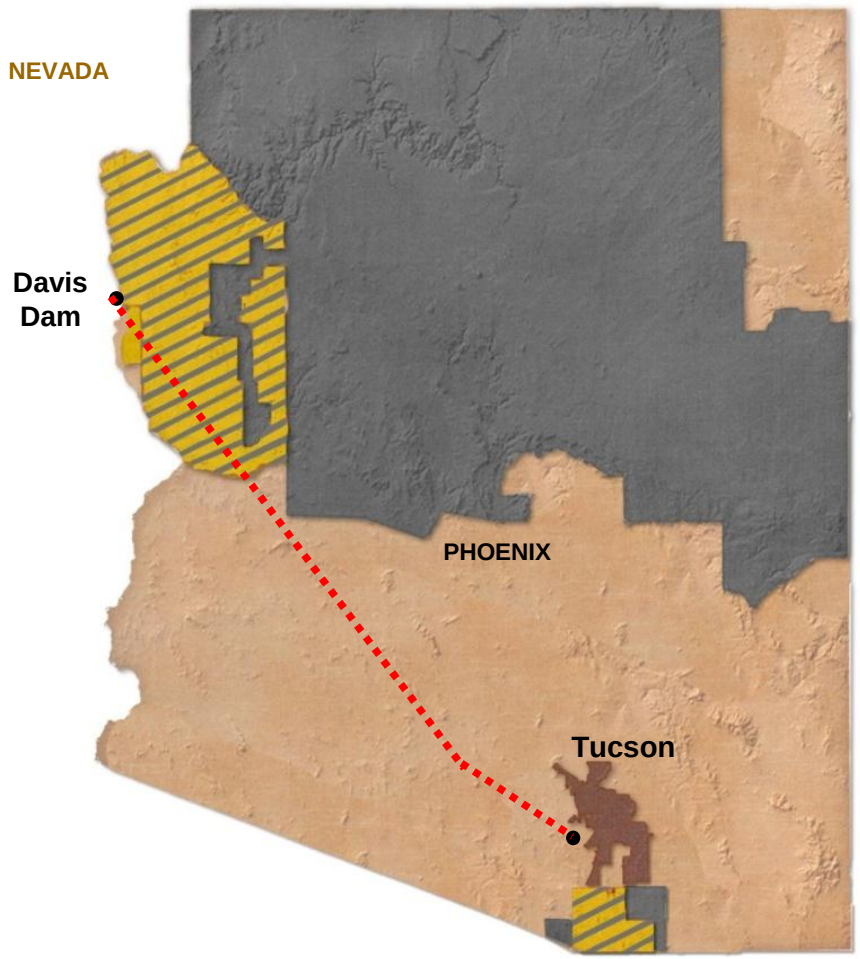
220 W. Sixth Street Generators



Changes in the 60's



Until 1942 TEP was an electrical island, disconnected from other utilities



1950 Demoss Petrie 100 MW

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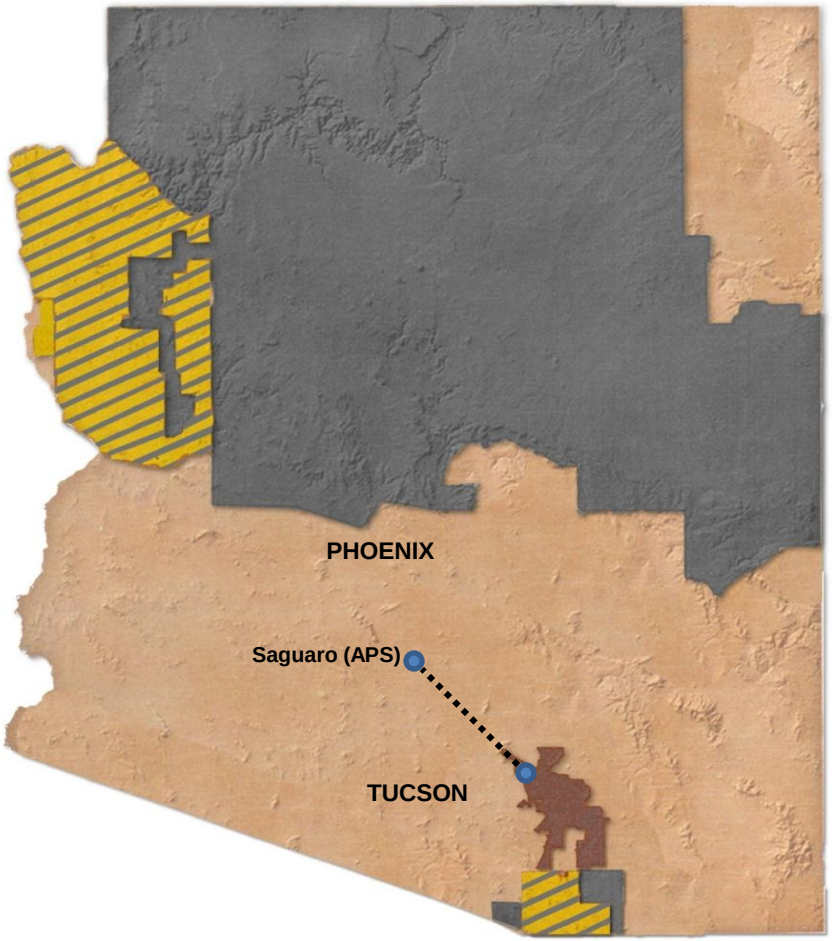
Irvington Generating Station - 1958

- **Eventually, there would be four gas units producing 422 MW. Later named H. Wilson Sundt Generating Station**
- **Tucson's population in 1958 was 230,000**
- **Conversion of Unit 4 to Gas was mandated by Power Plant and Industrial Fuel Use Act of 1978 (PPIFUA)**

1964 Interconnection to Arizona Public Service at Saguaro



Being connected to other utilities allows sales of excess power and it provides outside support in emergencies.

1969 Four Corners Units 4 & 5 – 110MW

Participation:	Southern California Edison:	48 %
	Arizona Public Service:	15 %
	Public Service Co. of New Mexico:	13 %
	Salt River Project:	10 %
	Tucson Electric Power:	7 %

1972 Palo Verde – 521 MW

By 1975, management saw that slower than expected load growth and higher than forecast costs did not merit the risk of such a large project. In 1975 TEP's interest in Palo Verde was sold.

Arizona Coal Resources

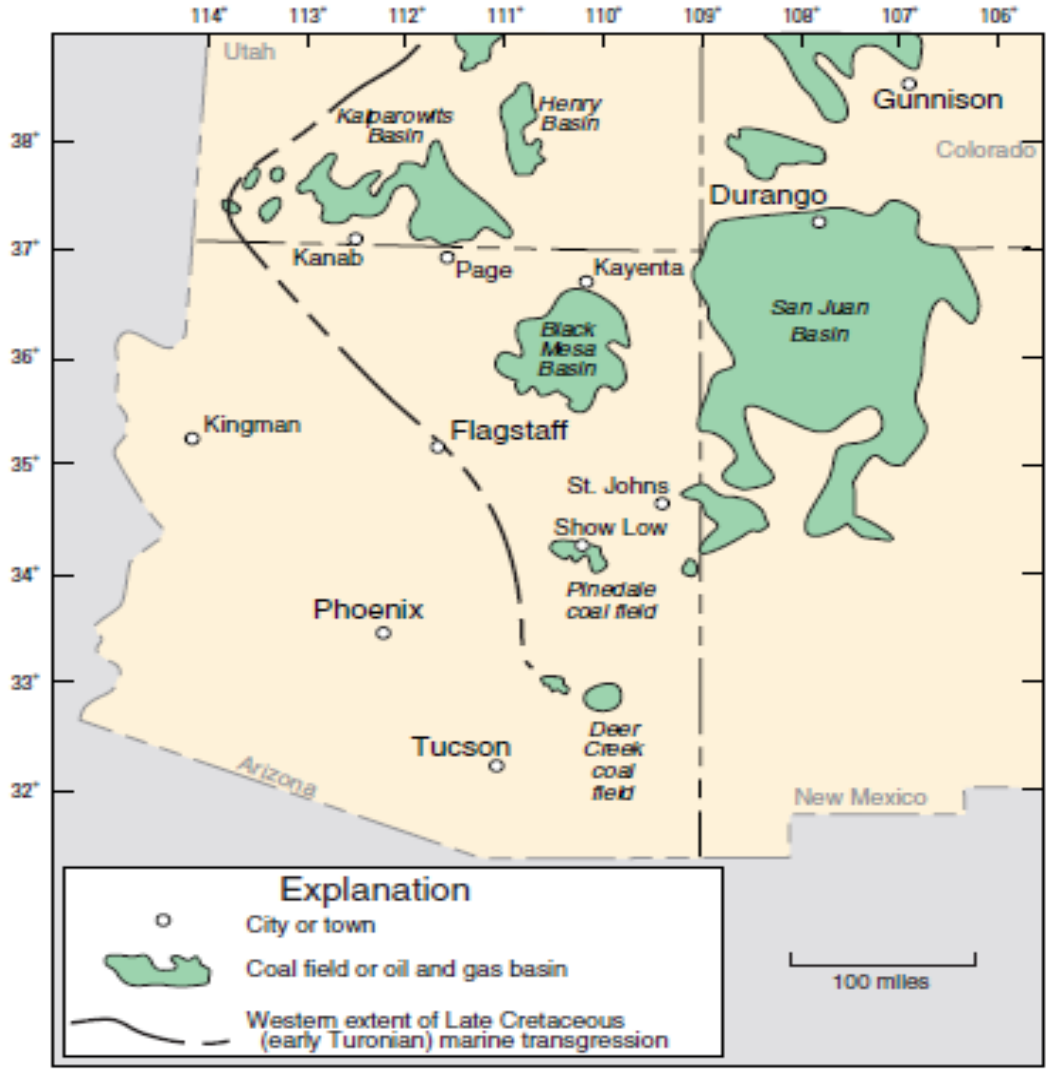
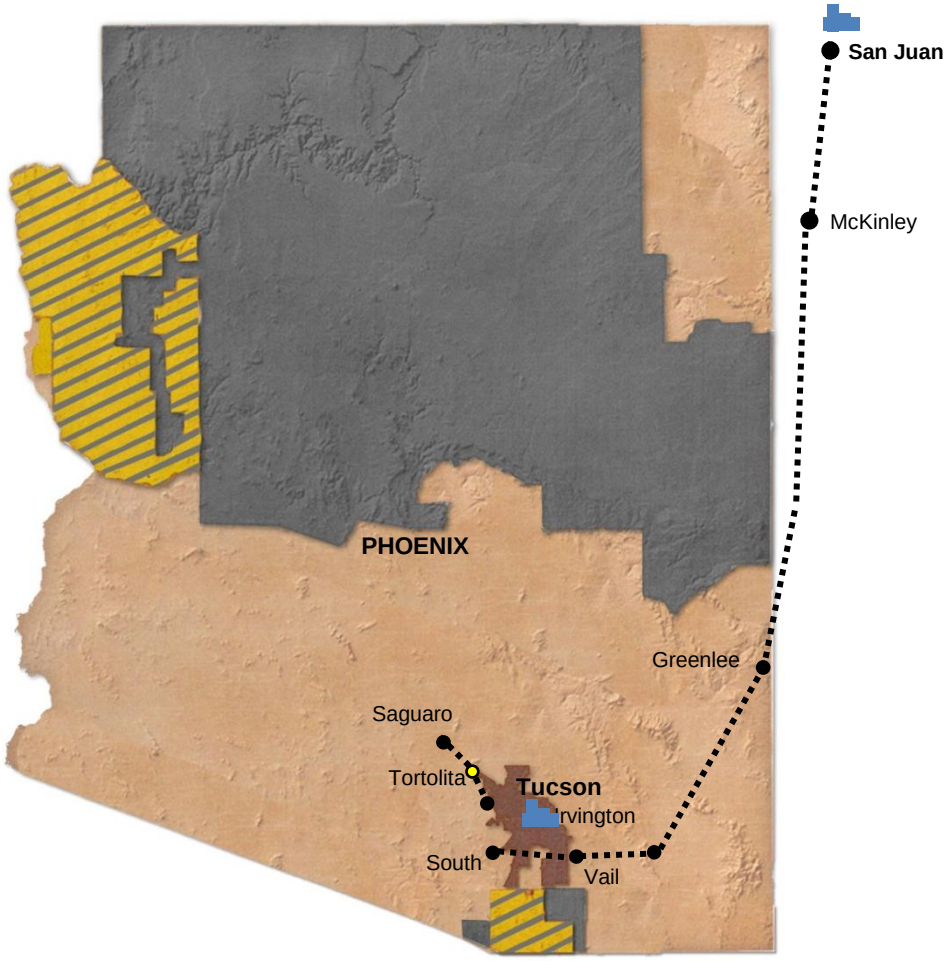


Figure 3. Map of Four Corners area showing maximum western extent of Late Cretaceous marine transgression (dashed line; modified from Cobban and Hook, 1984) and location and extent of coal fields (Arizona portion modified from Peirce and Wilt, 1970). Outlines of coal fields are approximately drawn.

Transmission Resources



Future Expansion Requires More EHV Transmission

The 345 KV San Juan to Vail line is completed in 1973 at a cost of $89 million or about $250 million in today's dollars.

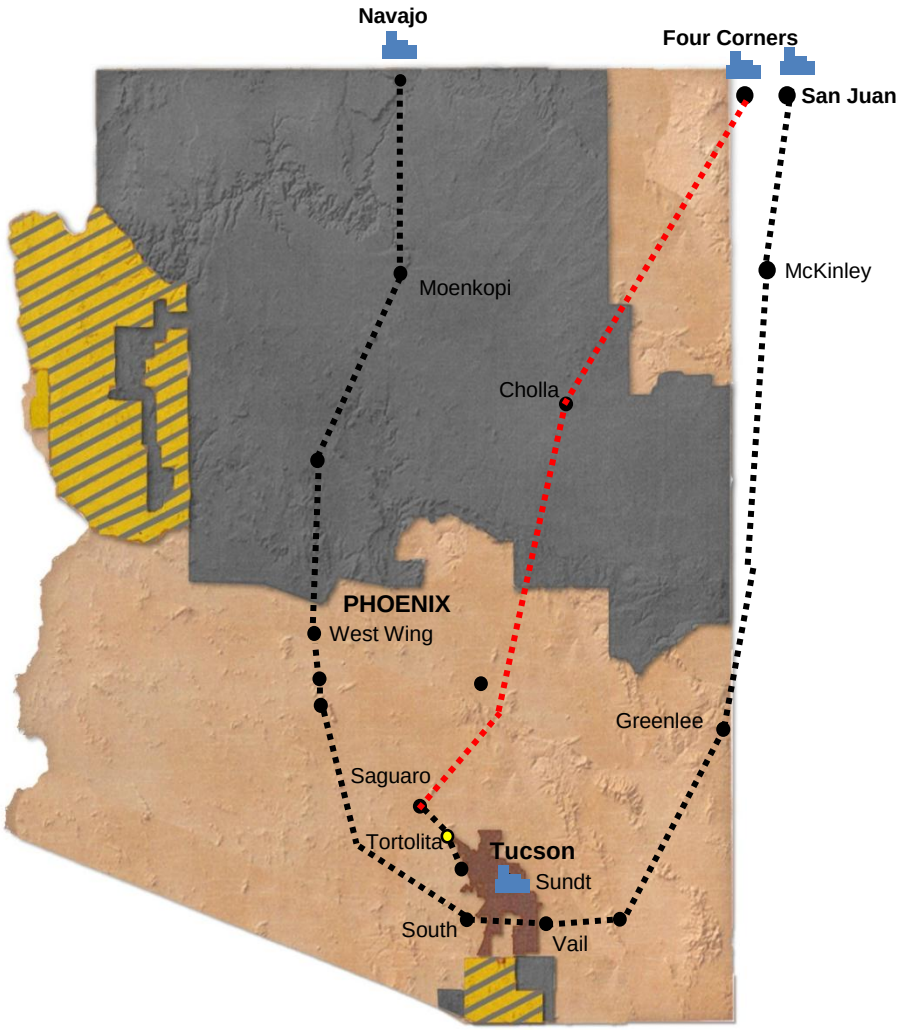
1973 - San Juan Units 1 & 2 - 340 MW

Participation:	Public Service Company of NM	50%
	Tucson Electric Power	50%

1974 - Navajo Generating Station - 112 MW

Participation:	United States Bureau of Reclamation	24.3%
	Salt River Project:	21.7 %
	Los Angeles Dept. of Water & Power:	21.2 %
	Arizona Public Service:	14 %
	Nevada Energy	11.3%
	Tucson Electric Power:	7.5 %

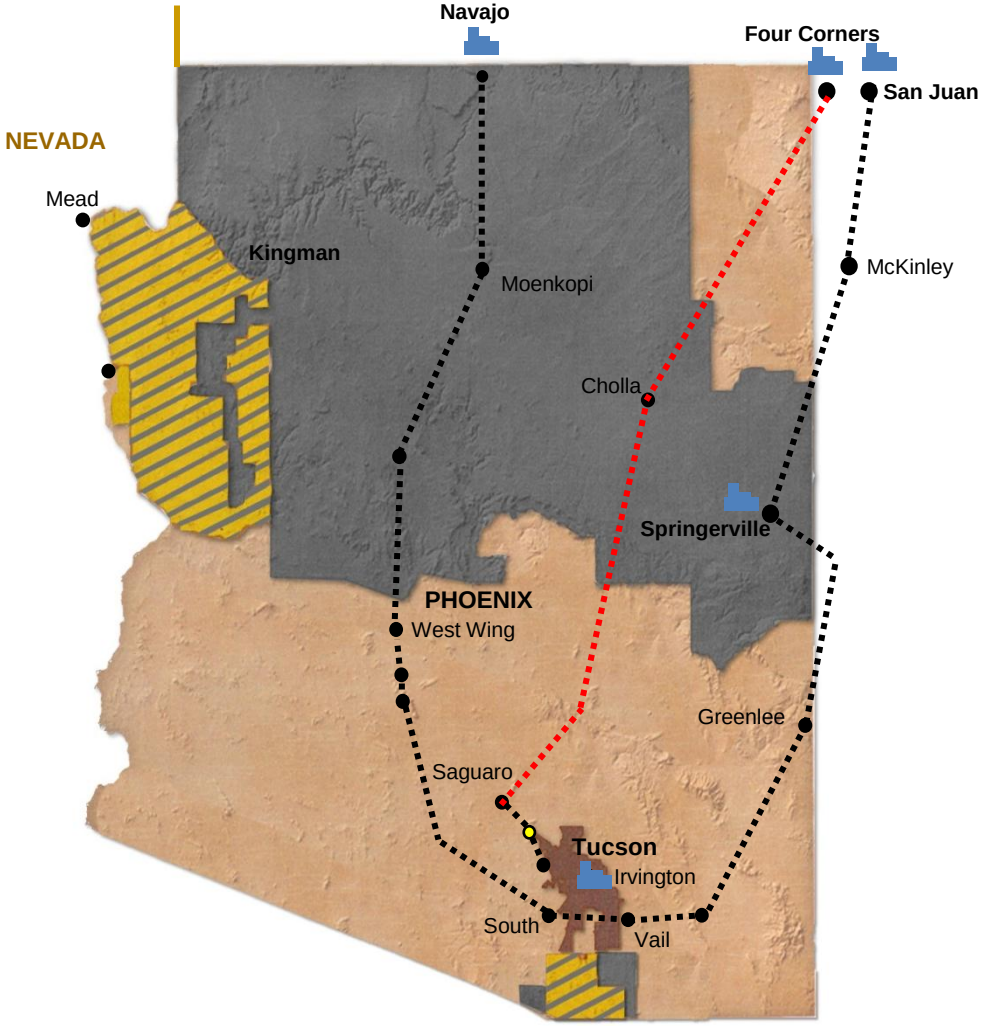
Navajo Southern Transmission 500 KV Addition



Springerville Generating Station 1985 – 780MW

Participation:	Tucson Electric Power	Unit 1	1985	389 MW	14% owed 86% Leased
		Unit 2	1990	389 MW	100% owned
	Tri- State G & T	Unit 3	2006	418 Mw	100% owned
	Salt River Project:	Unit 4	2010	400 MW	100% owned

Springerville Transmission

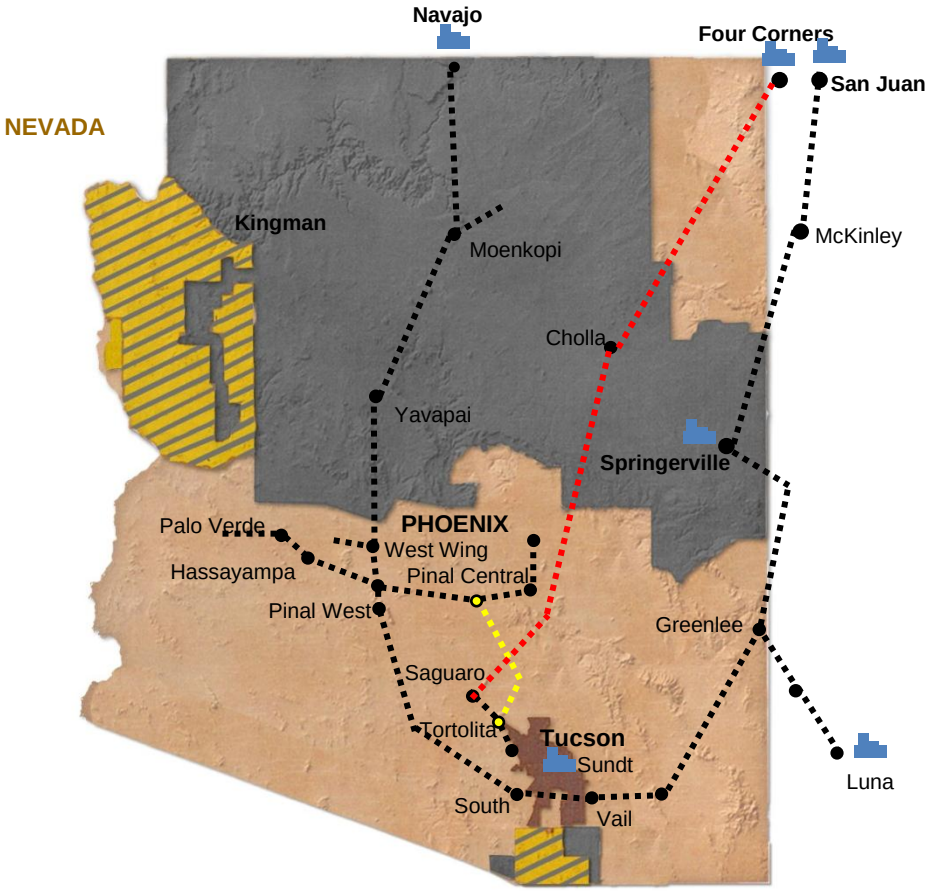


Luna Energy Facility – 2006- 190MW

Participation:	Tucson Electric Power	33.33%
	Public Service Company of New Mexico	33.33%
	Freeport – McMoRan Copper & Gold	33.33%

Where we are now?

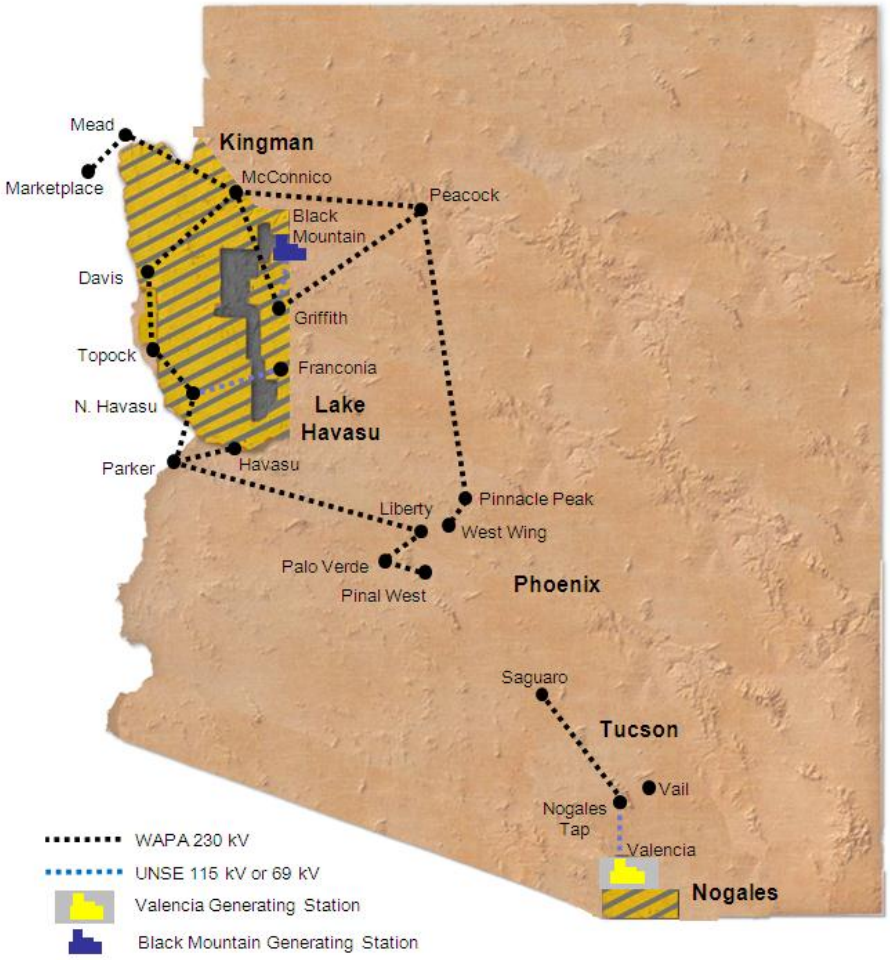
Today, TEP has over 2,300 MWs of owned Capacity from Coal, Natural Gas and Solar. We have contracted to purchase additional capacity from Wind and Solar.



Tucson Population in 2013 is approximately 1 million

Renewables

UNS-Electric Service Territories



UNSE Black Mountain

(Kingman) – 2 LM6000 Combustion Turbines 2008 – 90 MW

UNSE Valencia Generating Station

(Nogales) – Four Combustion Turbines - 1989 – 61 MW

UNSE – Vail to Valencia Upgrade

UNSE – Vail to Valencia Upgrade