Transmission Development in Arizona & the Southwest

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LPPC and SRP

Large Public Power Council

- 23 members in 10 states and Puerto Rico
- 11 members in the Western Interconnect
- Most: generation, transmission, distribution, retail customers
- Some: distribution only or wholesale suppliers
- 75,000 MW of generating capability
- 34,000 miles of transmission

Salt River Project Agricultural Improvement & Power District

- A political subdivision of the state of Arizona
- 930,000 retail electric customers in Phoenix area
- Peak demand approx 6,600 MW
- Nuclear, coal, gas, hydro and renewable resources
- Significant transmission investment

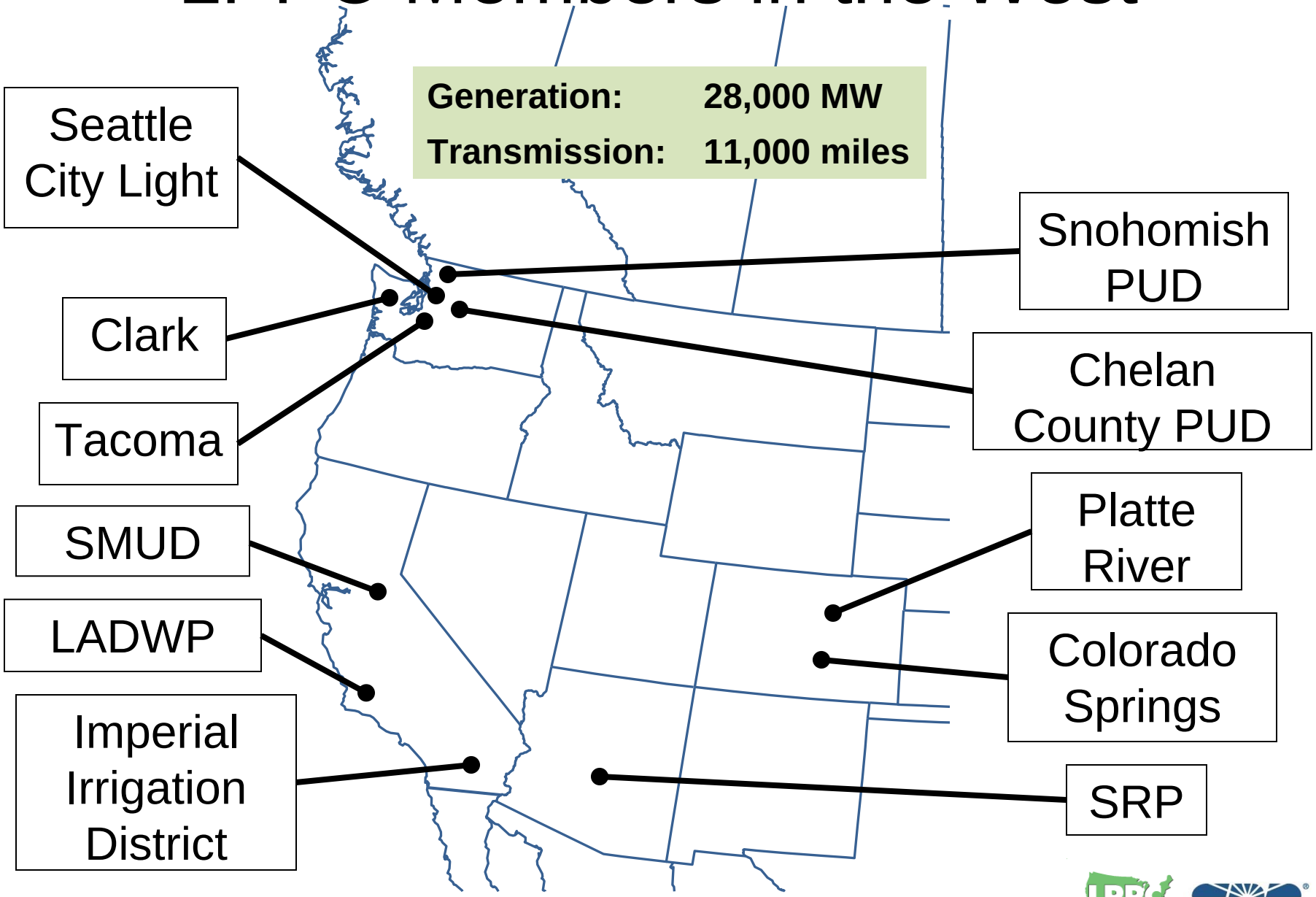
Salt River Valley Water Users Association

- A private corporation
- Delivers 1 million acre feet of water annually to central Arizona

The Western Interconnection

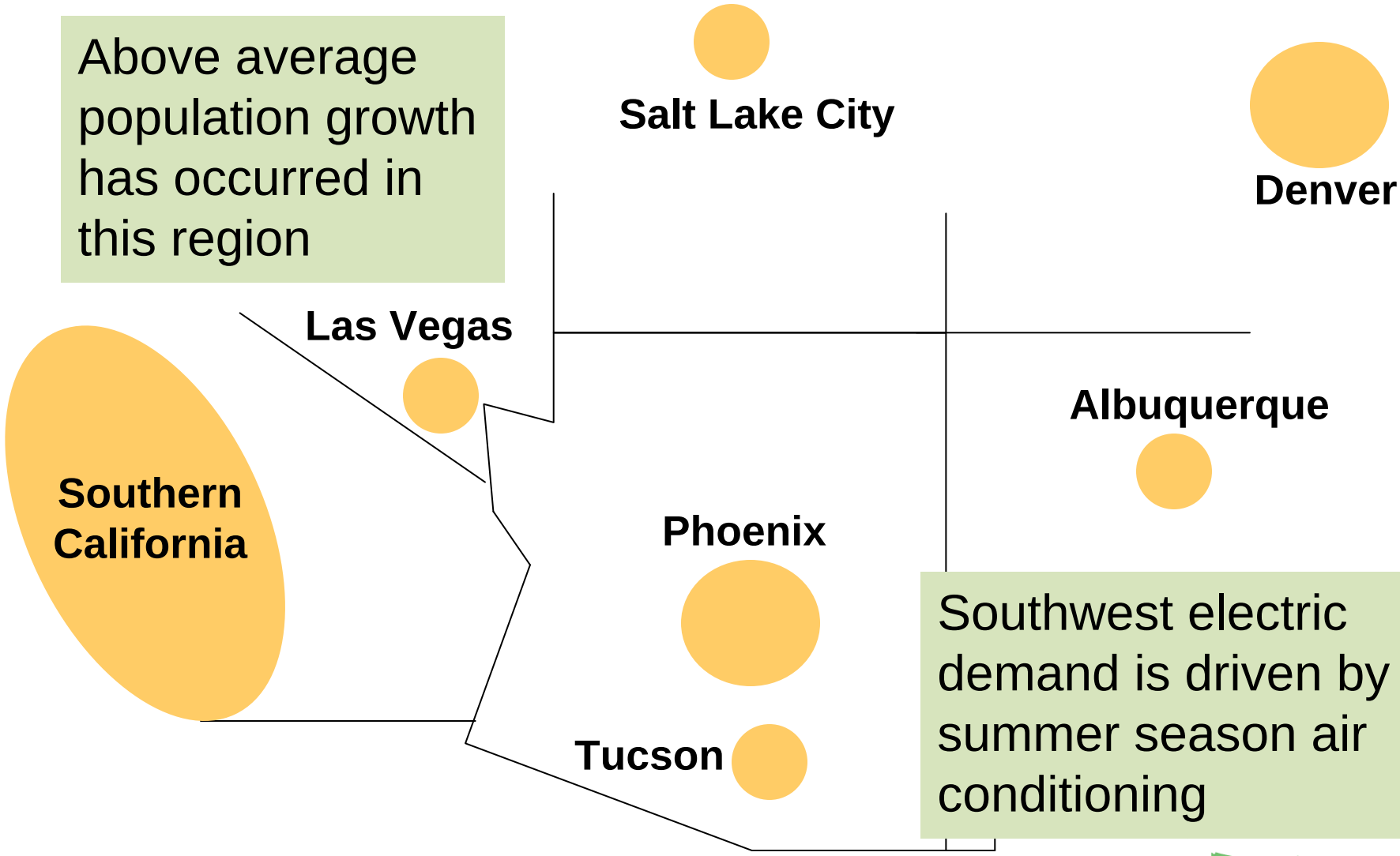
- A massive land area of nearly 1.8 million square miles
- Encompasses 14 western states, portions of Canada and Mexico
- WSCC originally formed by 40 electric utilities in 1967
- Today's WECC created in 2002
- Approx 1800 generators
- 163,000 MW load

LPPC Members in the West



Load Centers in the Southwest

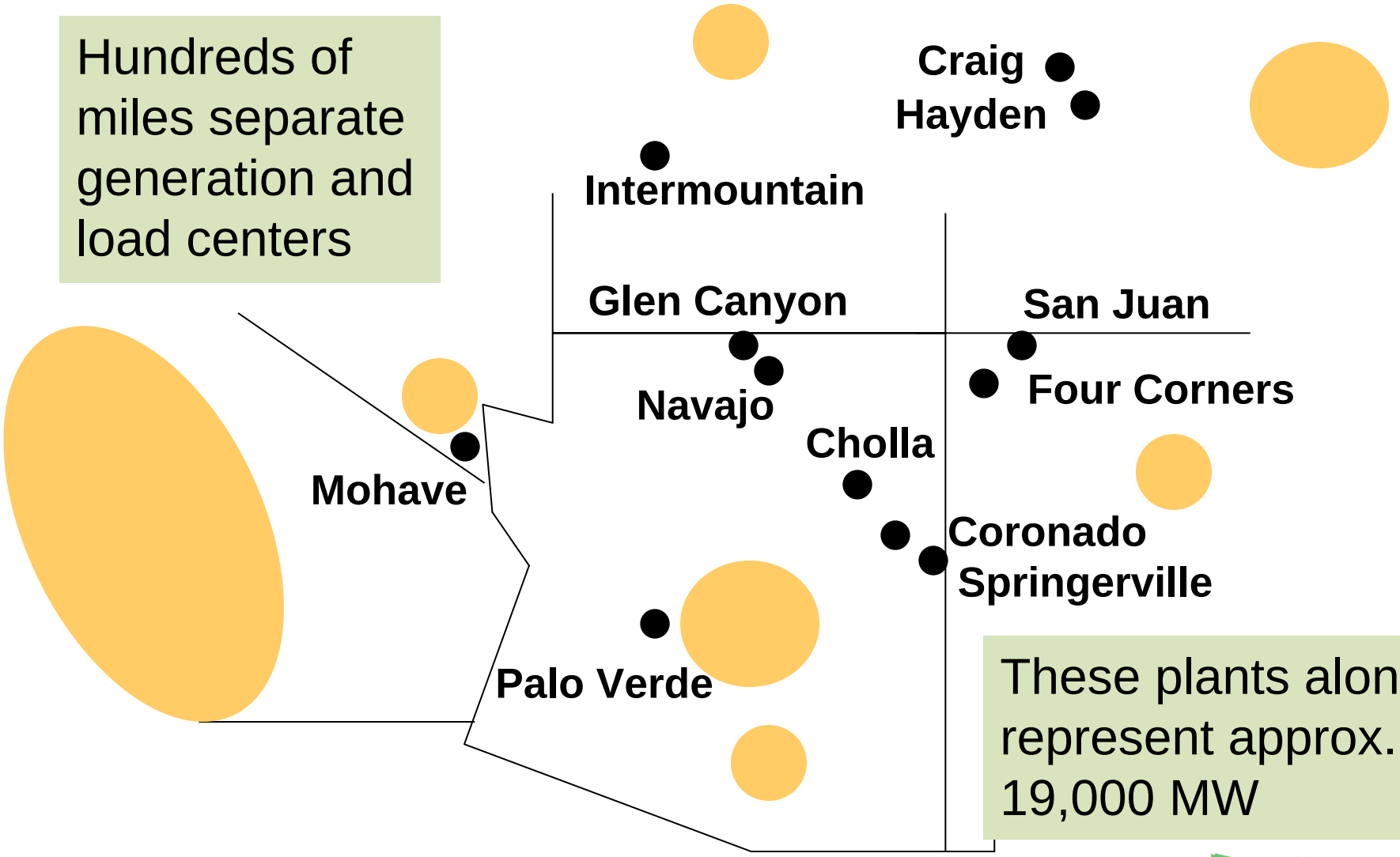
Above average population growth has occurred in this region



Southwest electric demand is driven by summer season air conditioning

Generation Development in the Southwest

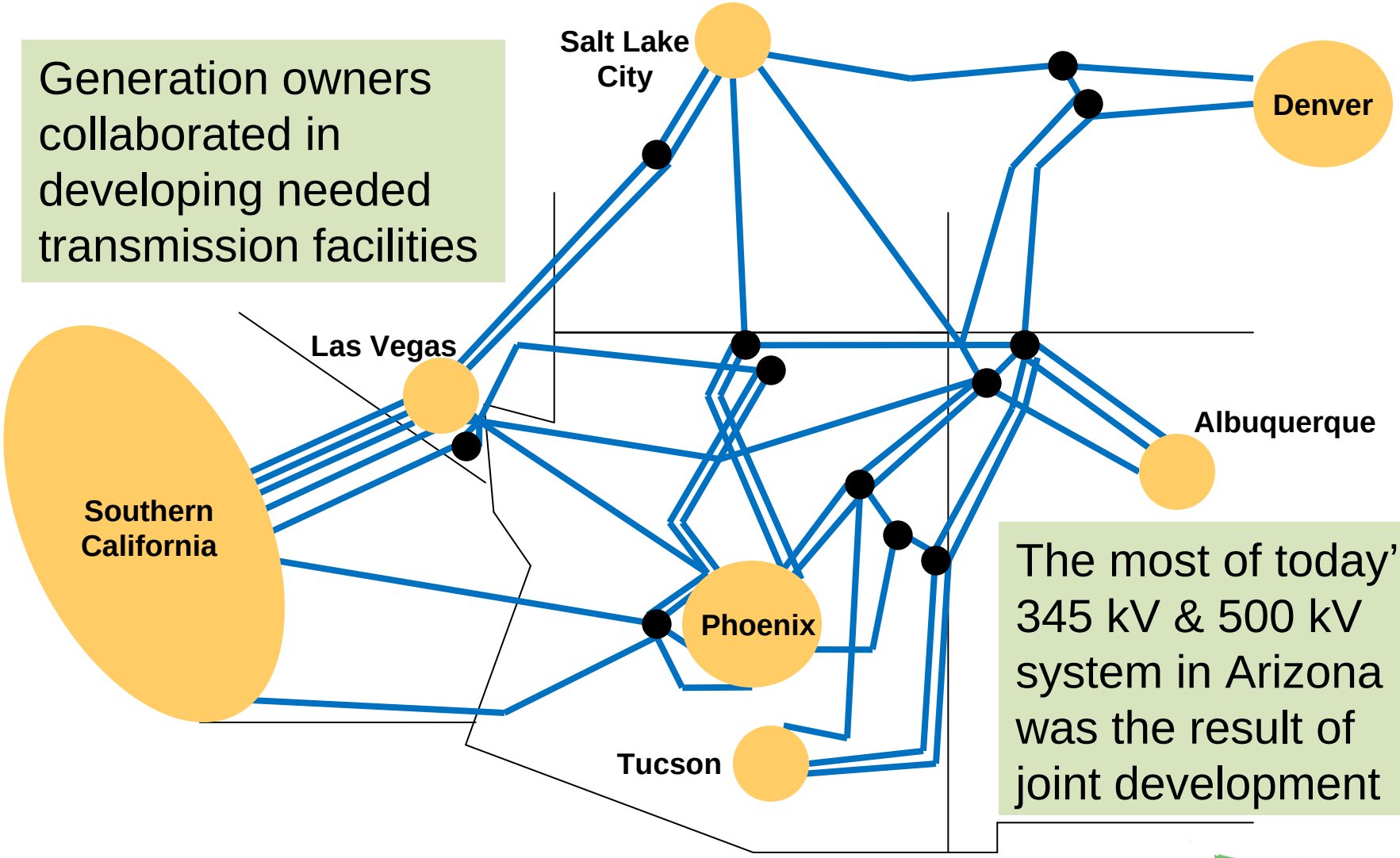
Hundreds of miles separate generation and load centers



These plants alone represent approx. 19,000 MW

Transmission Development in the Southwest

Generation owners collaborated in developing needed transmission facilities



The most of today's 345 kV & 500 kV system in Arizona was the result of joint development

Jointly Developed Generation Projects in the Southwest

Facility	Commercial Operation Dates	Summer Season Capability (MW)
Palo Verde	1986-1988	3,875
Navajo	1974-1976	2,250
Four Corners	1963-1970	2,040
San Juan	1973-1982	1,800
Intermountain	1986-1987	1,800
Mohave	1971	1,580
Craig	1979-1984	1,284
Springerville	2006-2010	800
Hayden	1965-1976	446
Total		17,175

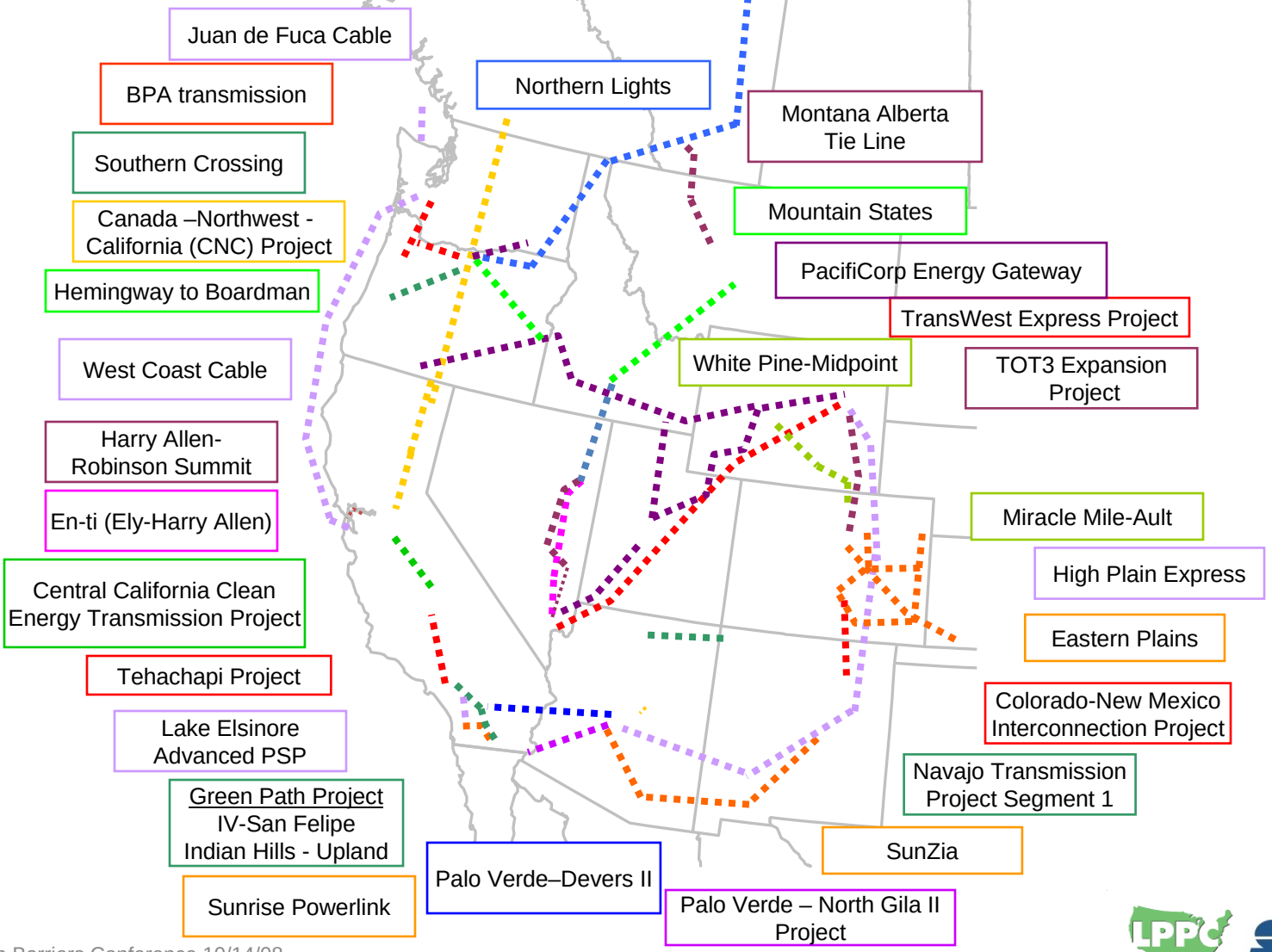
Two Joint Development Examples

Facility		Palo Verde		Navajo	
Size		3875 MW		2250 MW	
Participants	IOU	APS	29.10%	USBR	24.3%
		SRP	17.49%	SRP	21.7%
		EPE	15.80%	LADWP	21.2%
	Public	SCE	15.80%	APS	14.0%
		PNM	10.20%	NPC	11.3%
	Federal	SCPPA	5.91%	TEP	7.5%
		LADWP	5.70%		
Generation	Operating Agent	APS		SRP	
	Agreement Structure	Tenants in Common		Tenants in Common	
Transmission	Operating Agent	SRP		APS	
	Agreement Structure	Tenants in Common		Tenants in Common	

Other Joint Transmission Projects in the Western Grid

- For over 50 years, jointly owned transmission projects have played a vital role in the ability of many utilities in the western grid to serve rapidly growing customer loads
- Examples:
  - Southwest Power Link -500 kV transmission lines from Phoenix to San Diego. APS,IID and SDGE jointly own the line and all arrangements are addressed in bilateral contracts between the parties
  - California-Oregon Transmission Project - 500 kV transmission line that serves as one of the three California-Oregon interties and is jointly owned by TANC, WAPA and PG&E
  - Pacific DC Intertie-3100 MW high voltage direct current transmission system from Oregon to Los Angeles jointly owned by BPA, SCE, LADWP, Pasadena, Burbank and Glendale

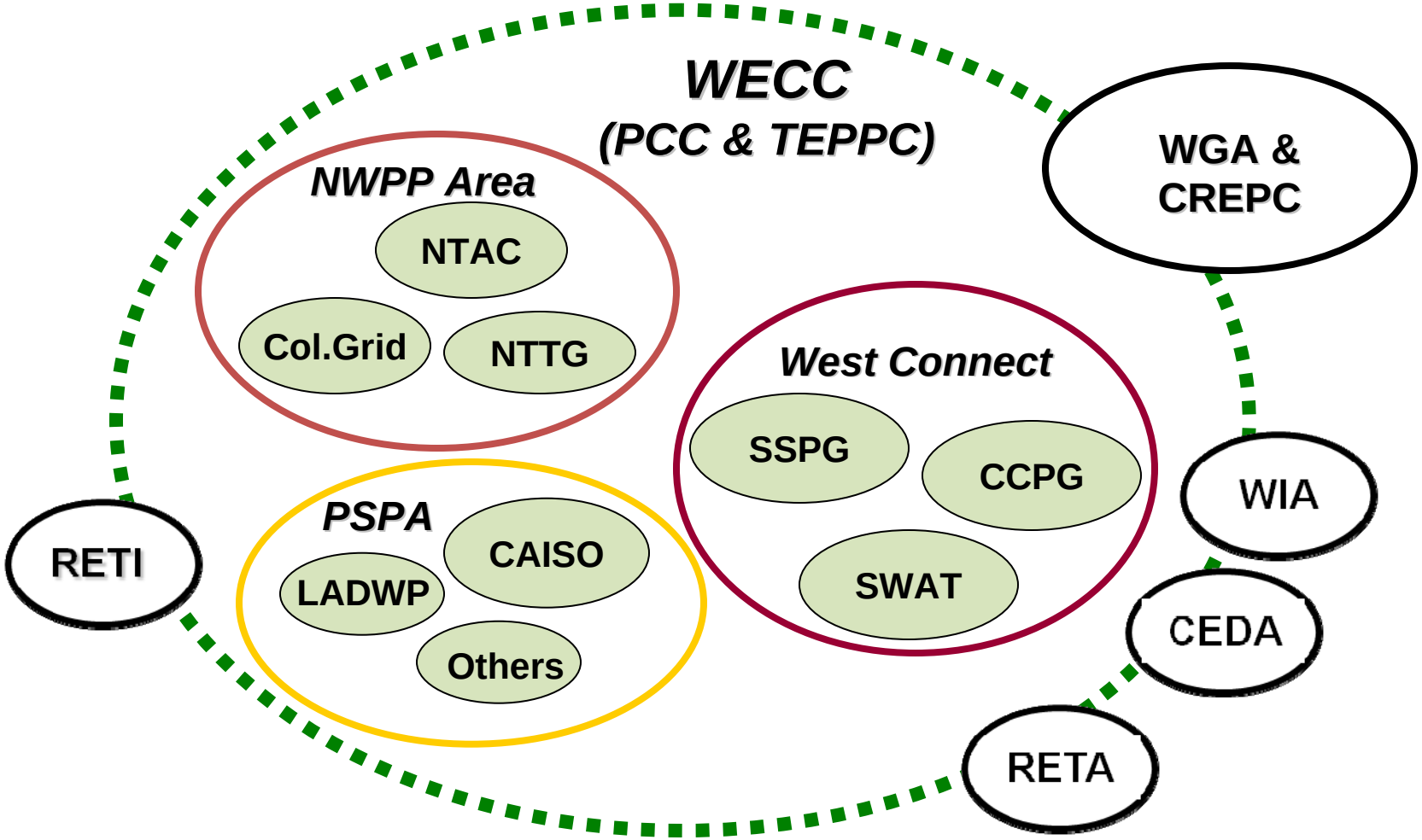
New Transmission Projects Under Consideration



Joint Transmission Projects under Development in the Western Grid

- PV-North Gila Transmission Project -117-mile transmission line that will be capable of transporting up to 1200 MW of energy with an expected in-service date of 2013. A joint project between IID, APS, SRP and Wellton Mohawk Irrigation and Drainage District
- Green Path North- a transmission project between LADWP, IID, SCPPA and Citizens Energy to increase access to over 2000 MW of geothermal and renewable resources in the Imperial Valley, and to eliminate existing transmission constraints in the southern region of California
- TANC Alpha, Delta, and Zeta Transmission Projects -new transmission projects that involve both 230 kV and 500 kV sections in Northern California. Will provide access to renewable energy supplies in Northeastern California and enhance reliability in the Northern California grid

Western Transmission Planning Today



Transmission Development Challenges: SRP's Experience

- Escalating costs for land, materials, electrical equipment (transformers, breakers, etc.)
- Western Interconnection comprised of substantial Federal and tribal land holdings, more complex siting procedures
- Environmental regulations (e.g., endangered species)
- Keeping ahead of fast-growing customer loads

- However, SRP successfully uses proactive planning and siting processes to demonstrate need for transmission, keep community informed, and keep costs reasonable

Discussion Topics Identified by FERC on 10/3/08

FERC Discussion Topic	SRP Experience
Impact of rights of first refusal on transmission providers	• Rights of first refusal associated with jointly developed projects have functioned as intended
Comparable treatment of new transmission versus upgrades of existing transmission	• Rights are awarded in a comparable manner in both instances • Process works well within the WestConnect area
Application of FERC ancillary services policies to transmission-only entities	• As an integrated generation and transmission entity, SRP provides ancillary services

Discussion Topics Identified by FERC on 10/3/08

FERC Discussion Topic	SRP Experience
Approaches to projects with differing scopes	• An appropriate and fair allocation of costs and rights should occur regardless of project scope • Open solicitation continues to be effective
Aspects of alternative transmission business models: •RTO/ISO process barriers •Development opportunities •Benefits •Peculiar challenges	• SRP welcomes creative approaches to solving transmission development challenges in the West that do not create seams and respect existing operational authority • SRP believes that investment risk should be born by each party to the project

A Joint Transmission Development Model that has Worked

- Facilities are planned using established regional processes
- Each participant holds a share of the project's benefits, costs and risks that is proportionate to its ownership
- The unique characteristics and responsibilities of IOU, public power and federal entities are satisfactorily accommodated
- Operational control determinations are made by the agreement of participants
- Each participant enjoys the right to govern its share of the developed project

Five Decades of Accomplishment

- Joint project development remains common in the Southwestern US
- IOUs and public power entities, plus federal, state and local interests have repeatedly solved joint project challenges
- Thousands of megawatts of generating capability and thousands of miles of EHV transmission capacity have been cooperatively developed, installed and operated
- Collaboration has promoted effective management of capital and stewardship of the environment
- Public power is a vital element within the Western Interconnection