

# SRP EIM EVALUATION

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APPA Legal and Regulatory Conference  
October 2017

# WHO IS SRP?

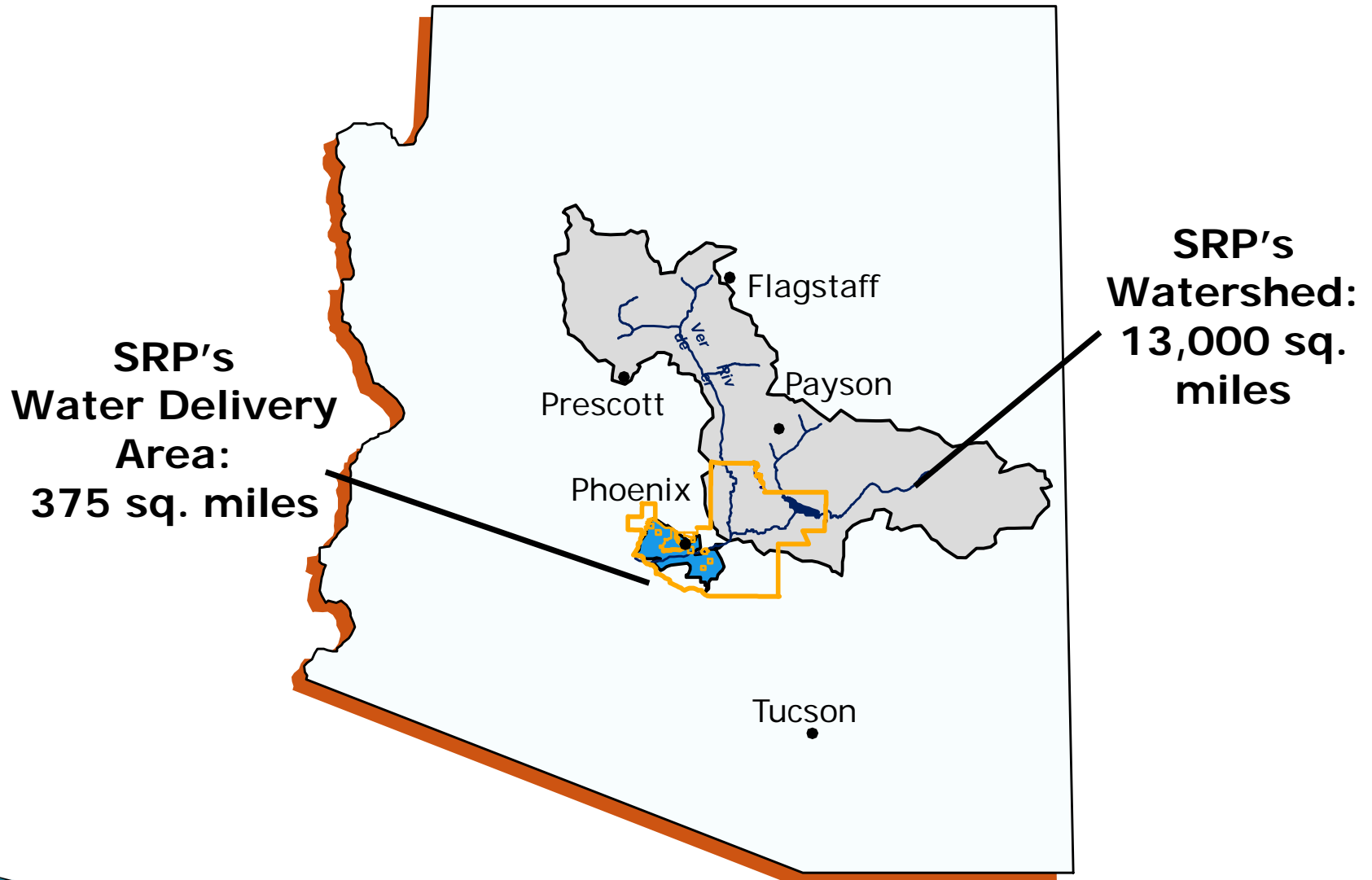
## Salt River Valley Water Users Association “The Association”

- A private corporation
- Formed 1903
- Operated and maintained as a reclamation project under agreement with the US Department of Interior
- Delivers about 800,000 acre feet of water annually to central Arizona
- Meets irrigation and municipal supply needs.

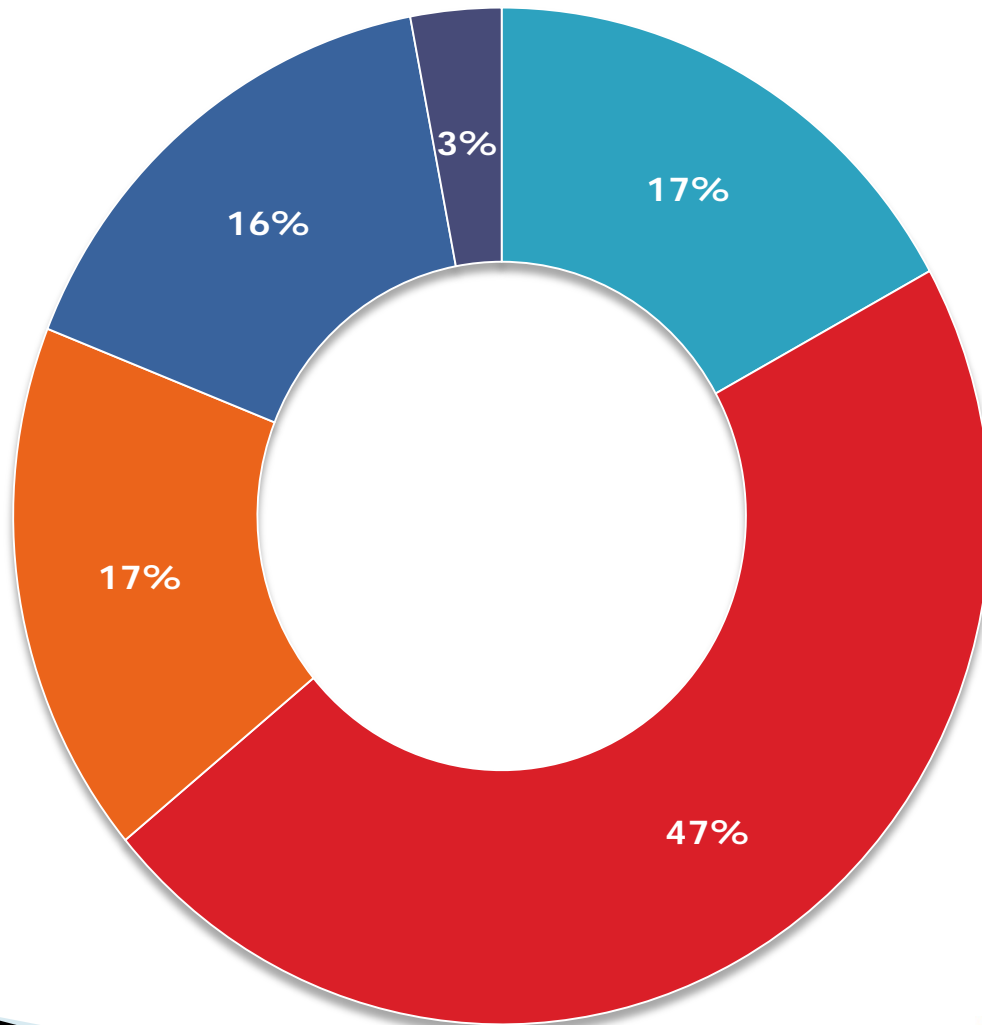
## Salt River Project Agricultural Improvement & Power District “The District”

- A political subdivision of the State of Arizona  
AZ Constitution, Article 13 § 7
- Formed in 1937
- Over 1 million retail electric customers in Phoenix area
- Total power system peak about 7800MW
- Nuclear, coal, gas, hydro and renewable resources
- Significant transmission investment

# SRP WATERSHED & SERVICE TERRITORY

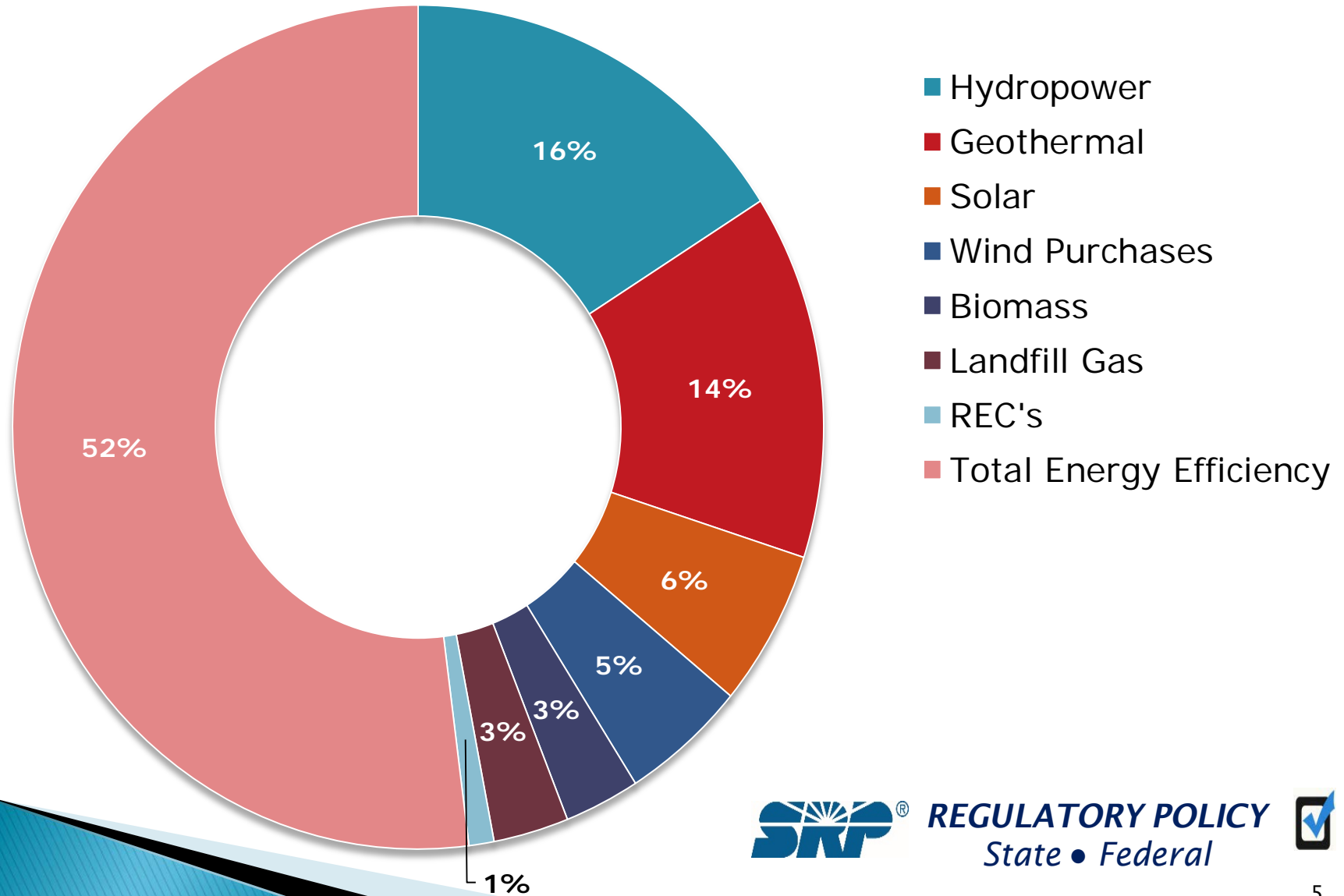


# SRP ENERGY MIX 2017



- Gas
- Coal
- Nuclear
- Sustainable
- Other

# SRP SUSTAINABLE PORTFOLIO



REGULATORY POLICY  
State • Federal



# WHY EIM?

- ▶ Energy imbalance is the difference between the real-time demand and supply for electricity.
- ▶ Currently, most BAs achieve balance between supply and demand with their own resources.
- ▶ The Energy Imbalance Market (EIM) pools electricity generation within the region and then dispatches the least-cost resources to BAs.

# CAISO EIM OVERVIEW

- ▶ 5 minute energy market
- ▶ Available to non-CAISO members
- ▶ More efficient use of transmission
- ▶ Captures benefit of geographically diverse loads and resources
- ▶ Provides new option in addition to existing energy markets

# ALTERNATIVES CONSIDERED

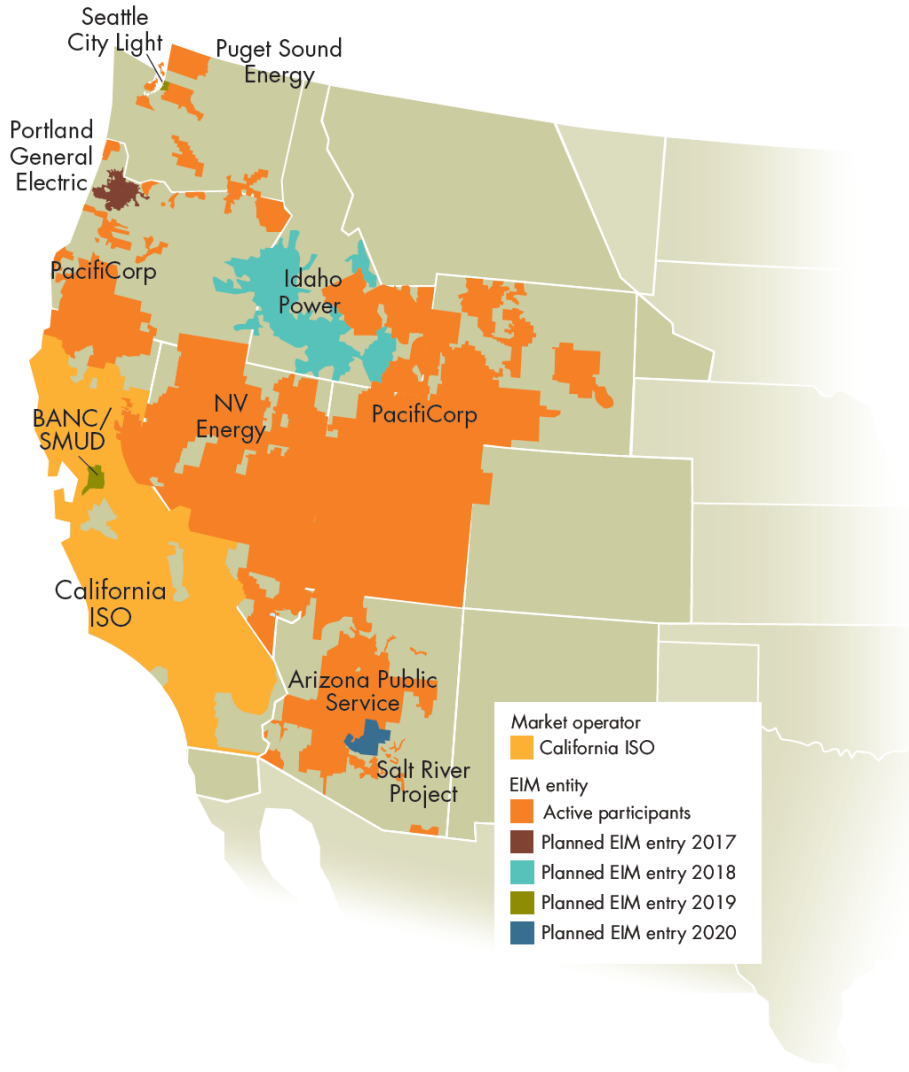
- ▶ CAISO Intertie Bidding
- ▶ Southwest EIM Alternatives Group
- ▶ Public Power Market Concepts
- ▶ Joint Actions with Arizona Public Service



# EIM GOVERNANCE

- ▶ EIM participants not members of CAISO
- ▶ EIM governance is distinct and quite limited compared to CAISO governance
- ▶ SRP participation will be an extension of current wholesale activity with CAISO
- ▶ SRP will determine the level of EIM participation on a daily basis, and will have the option to exit the market at any time

# CURRENT EIM PARTICIPATION



2014	PacifiCorp
2015	NV Energy
2016	APS, Puget
2017	Portland
2018	Idaho Power
2019	Seattle, SMUD, BANC
2020	SRP

\*Expected to be over 50% of WECC loads by the end of 2018

\* Powerex Corp. will also join in 2018

# FERC Jurisdiction Concerns

- ▶ Market Based Rate Authority
  - March 23, 2017 General Counsel Opinion Letter – Concluded Seattle City Light Not subject to Section 205 FPA
- ▶ Changes to Market Structure
  - Limited market
  - Ability to determine participating resources
  - Ability to withdraw

# SRP EIM EVALUATION

- ▶ Hired E3 Consulting to conduct a study of potential benefits of joining the EIM.
- ▶ Conducted an internal analysis of the costs of joining
  - ▶ Costs include:
    - ▶ Onetime startup costs (new metering and controls) and ongoing costs (personnel)
- ▶ Considered other alternatives, governance structure, other externalities.

# BENEFITS ANALYSIS SUMMARY

Study Approach	<ul style="list-style-type: none"><li>• Regional production cost analysis</li><li>• One representative future year</li><li>• TEPPC 2024 Data Base</li><li>• Three stage dispatch: Day Ahead, Hour Ahead, 5 Minute</li></ul>
Sensitivity Condition Analyses	<ul style="list-style-type: none"><li>• Seven additional analyses</li><li>• Gross benefits range: \$6.0 – \$11.4 million / year</li><li>• None of the sensitivity analyses revealed a dramatic change in results</li></ul>

# DISTINCTIVE FEATURES OF THE SRP ANALYSIS

- ▶ Study year 2024
- ▶ 5 minute increments
- ▶ California's 50% by 2030 RPS
- ▶ More EIM participants
- ▶ Heat rate curves
- ▶ Summer season generation derates
- ▶ Enhanced transmission system representation

# SRP ECONOMIC SUMMARY (\$ MILLIONS)

Initial Implementation Cost	21.2
Annual Gross Benefit	8.3
Annual Cost	3.7
Annual Net Benefit	4.6

	SRP	APS	PAC	NVE	PSE	PGE
Estimated Annual Net Benefit	4.6	4.9	35.1	10.8	14.1	2.2

- As reported in comparable studies
- No relationship to current CAISO reporting of actual benefits

# SENSITIVITY ANALYSES

SRP Gross  
Savings

SRP Savings  
Impact

	SRP Gross Savings	SRP Savings Impact
Base Condition	\$8.3 Million	
Increased EIM Wheeling Rate	\$7.8 Million	↓
Additional Coal Retirements	\$6.9 Million	↓
Greater SRP Hydro Flexibility	\$6.0 Million	↓
Lower Calif CO <sub>2</sub> Impacts	\$11.0 Million	↑
High Gas	\$9.7 Million	↑
Low Gas	\$8.8 Million	↑
Increased Number of EIM Participants	\$11.4 Million	↑



# QUALITATIVE BENEFITS

- ▶ Experience with security constrained economic dispatch (flow based scheduling)
- ▶ Enhanced operating efficiencies
- ▶ Greater liquidity than other real time markets

# SRP EIM IMPLEMENTATION TIMELINE

- ▶ April, 2020 EIM Go-Live
- ▶ Signed Implementation Agreement with the CAISO on April 25, 2017
- ▶ First phase:
  - Replace and upgrade internal systems to be more compatible with ISO (eg: Energy Management System)
- ▶ Second Phase:
  - Implementation activities including energy scheduling system and EIM software