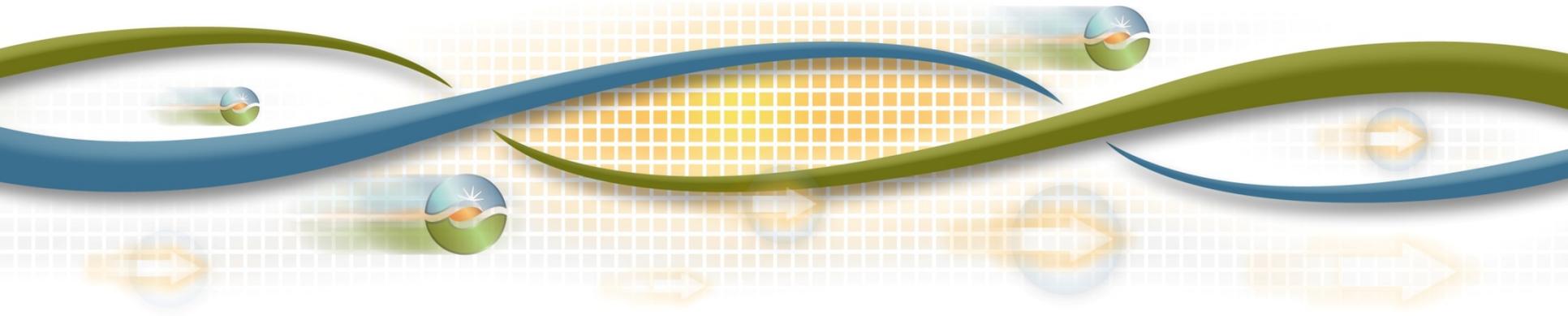




Western Energy Imbalance Market and Regional Initiatives

Presentation to Western Area Power Administration
Don Fuller – Director Strategic Alliances

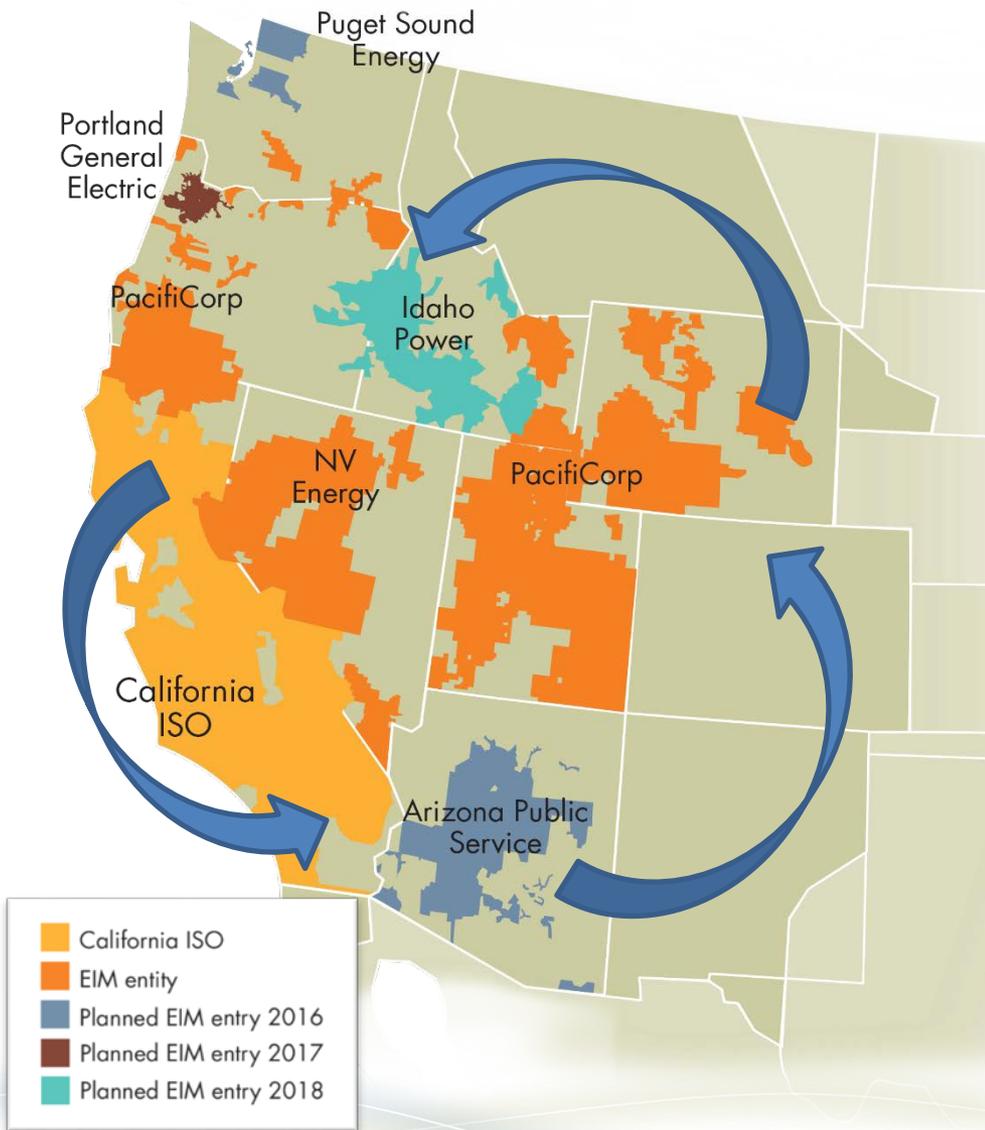
June 30, 2016



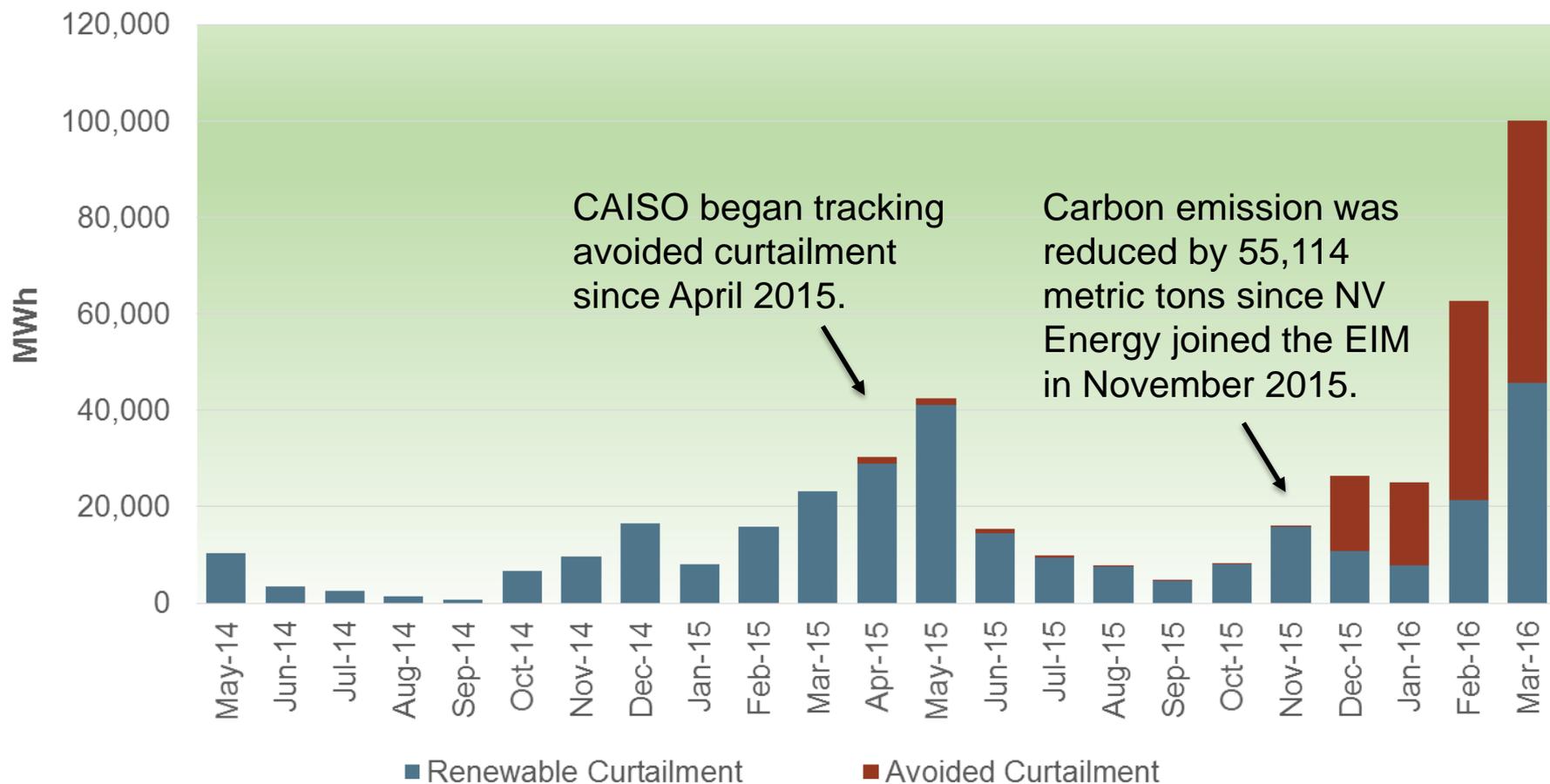
Energy imbalance market (EIM) is an easily-scalable extension of the real-time market to broader region

	Q1 2016 (\$M)	TOTAL (\$M)
ISO	6.35M	20.26M
PacifiCorp	10.85M	41.80M
NV Energy	1.70M	2.54M
Total	18.90M	64.60M

- Reduced renewable energy curtailment
- Displaced greenhouse gas emitting resources
- Reduced flexible ramping requirements across footprint



Wind/Solar curtailment and avoided curtailment due to EIM.



EIM Transitional Committee governance proposal approved and implementation underway

Through a public stakeholder process, committee developed a long-term structure for EIM governance.

Proposal elements:

- 5 independent (non-stakeholder) members
- Delegated authority over EIM-related market rules
- Candidates selected by stakeholder nominating committee, approved by ISO Board
- Body of state regulators – to advise EIM Governing Body and ISO Board on matters of interest
- Regional Issues Forum – public vehicle for discussion of EIM-related issues, including impacts to neighboring balancing authority areas, next meeting scheduled for August 4 in Boise, ID

EIM Governing Body

Proposed slate

- Carl Linvill, Principal, The Regulatory Assistance Project
- Doug Howe, Consultant, Vanry & Associates
- John Prescott, (Retired) President and Chief Executive Officer, Pacific Northwest Generating Cooperative
- Kristine Schmidt, President, Swan Consulting Services
- Valerie Fong, (Retired) Director of Utilities, City of Palo Alto

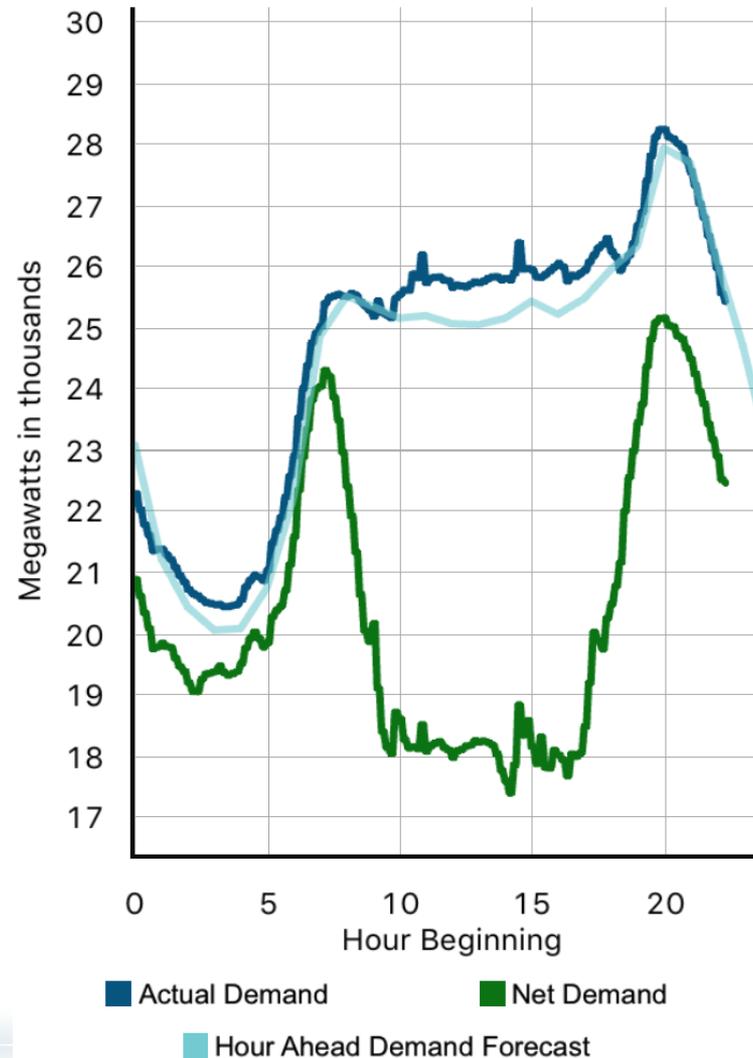
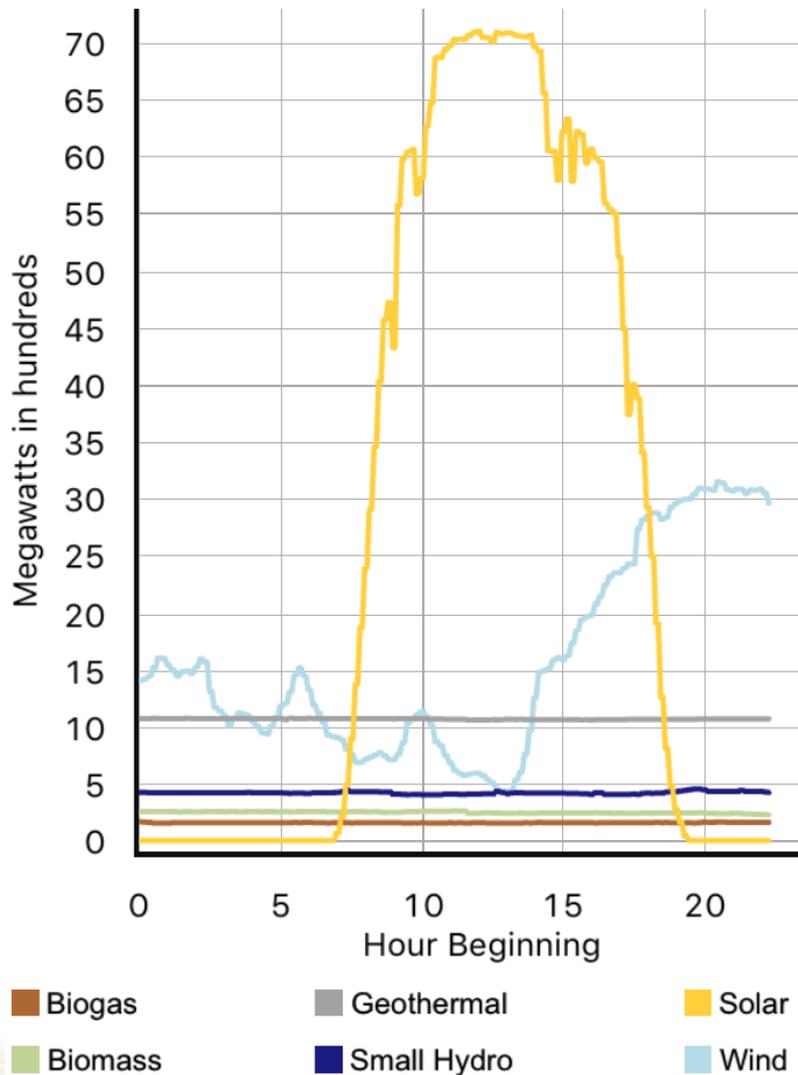
Body of State Regulators

State	Commissioner
Arizona	Doug Little
California	Michael Picker
Idaho	Kristine Raper
Nevada	Paul Thomsen
Oregon	John Savage
Utah	Thad LeVar
Washington	Ann Rendahl
Wyoming	Bill Russell

- Provide voting member to Nominating Committee
- Hold periodic meetings to provide information to members about EIM
- Provide forum for discussion
- Develop process where it may express common position in ISO processes or to EIM Governing Body
- Post items on a webpage
- Body is not committee of the ISO

Changes can already be seen in CAISO's net demand

(Source: "ISO Today" iPhone App, 3/24/2016)



Full participation provides significant benefits beyond those of EIM

EIM Benefits

- 5-minute optimized dispatch provides lower real-time operating costs
- Enables renewable integration and reduces renewable curtailment

Full Participation Benefits

- Lower costs through optimization of day-ahead system set-up
- Surplus renewable generation shared across larger area
- Regional planning supports transmission investments
- Unlocks benefits of load and resource diversity
- Greater system visibility = improved reliability
- Lowers compliance costs

An initial assessment indicated significant benefits for both PacifiCorp and ISO customers over 20 years.

Total Savings:	Low	High
PacifiCorp	\$1.6	\$2.3
ISO	\$1.8	\$6.8

Present value of savings (in 2015\$ Billions)

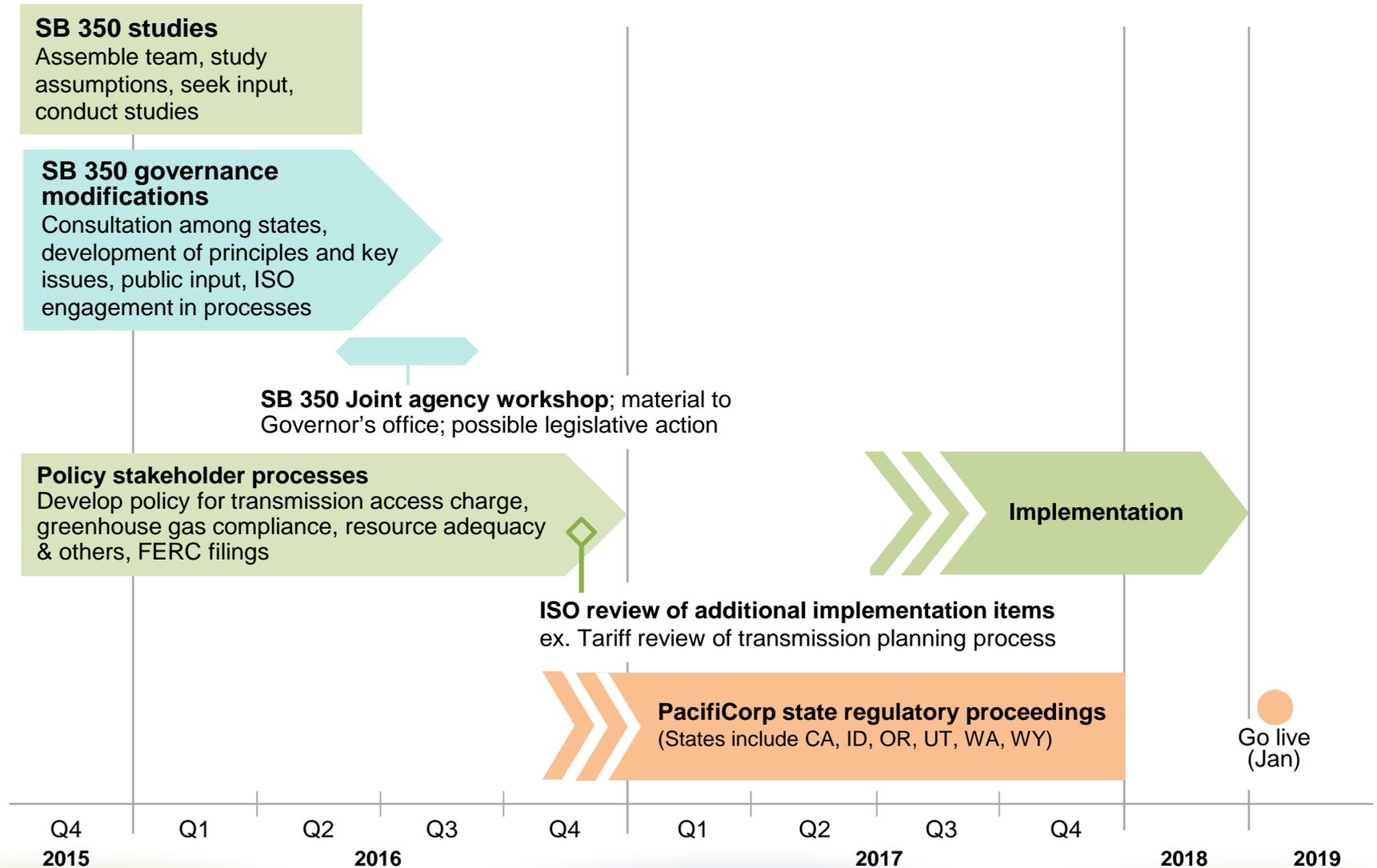
Savings are incremental to benefits from EIM participation.

Study quantified benefits in four areas:

1. More efficient dispatch and commitment
2. Lower peak capacity savings
3. More efficient over-supply management
4. Renewable procurement savings

Timeline for regional integration activities

Note: Designed to allow PacifiCorp to obtain state regulatory approvals before the end of 2017



Regional Governance Principles and Process

- Eight overarching principles for governing a regional ISO, including:
 - Preserving state authority over matters currently regulated by states
 - Developing new method for selecting board members, following transitional period
 - Establishing a body of state regulators from each state in the regional footprint
 - A committee of stakeholders and regulators would be appointed (similar to EIM transitional committee) to develop details consistent with the principles
- Process
 - Workshops held June 16 and June 20, comments due July 7
 - Presentation at July workshop hosted by CEC/CPUC/CARB
 - New governance structure based on these principles requires state legislative action, as contemplated by SB350.

A regional ISO can transform the electricity sector to a low-carbon energy delivery system.

- Cost effective way to help comply with federal and state energy and environmental policies
- Regional governance structure preserves individual state's policy and procurement authority
- Enhances reliability of the larger system
- Larger geographic footprint aids renewable integration:
 - Aggregates renewable energy's variability
 - Reduces the need for flexibility reserves
 - Saves money for ratepayers