

# EIM Stakeholder Meeting

July 24, 2018  
Rates Hearing Room



# Agenda

9:00-9:10

- Welcome, Safety Moment, Introductions

9:10 – 9:30

- Strategic Plan and Grid Modernization Overview

9:30 – 9:45

- EIM Overview

9:45 – 11:00

- EIM Initial Cost Benefit Analysis
- Issues we are Reviewing
- Draft EIM Timeline

11:00 – 11:10

- Next Steps

11:10 – 12:00

- Question and Answer Session

# Objectives of Today's Meeting

- How EIM fits into the Grid Modernization effort
- Initial look at costs and benefits of joining the EIM
- Issues BPA is reviewing regarding potentially joining the EIM
- Hear from customers and stakeholders

# Strategic Plan and Grid Modernization Overview

Presenter:

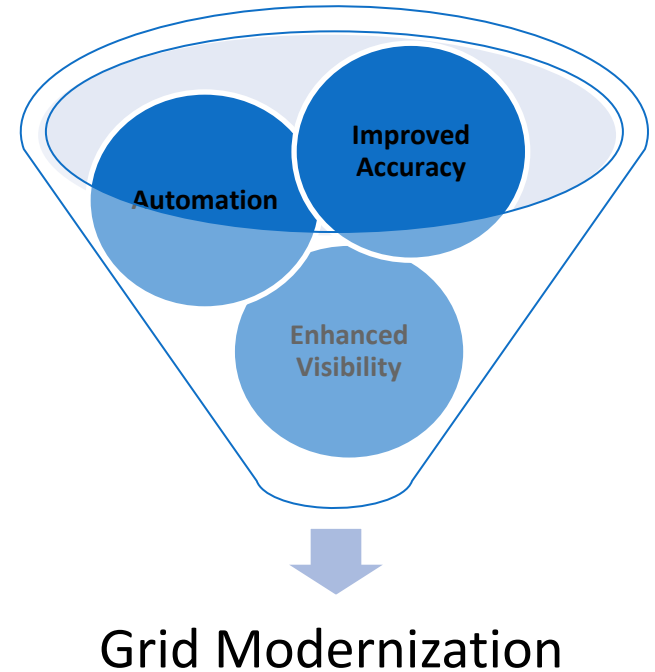
Steve Kerns, Business Transformation Office





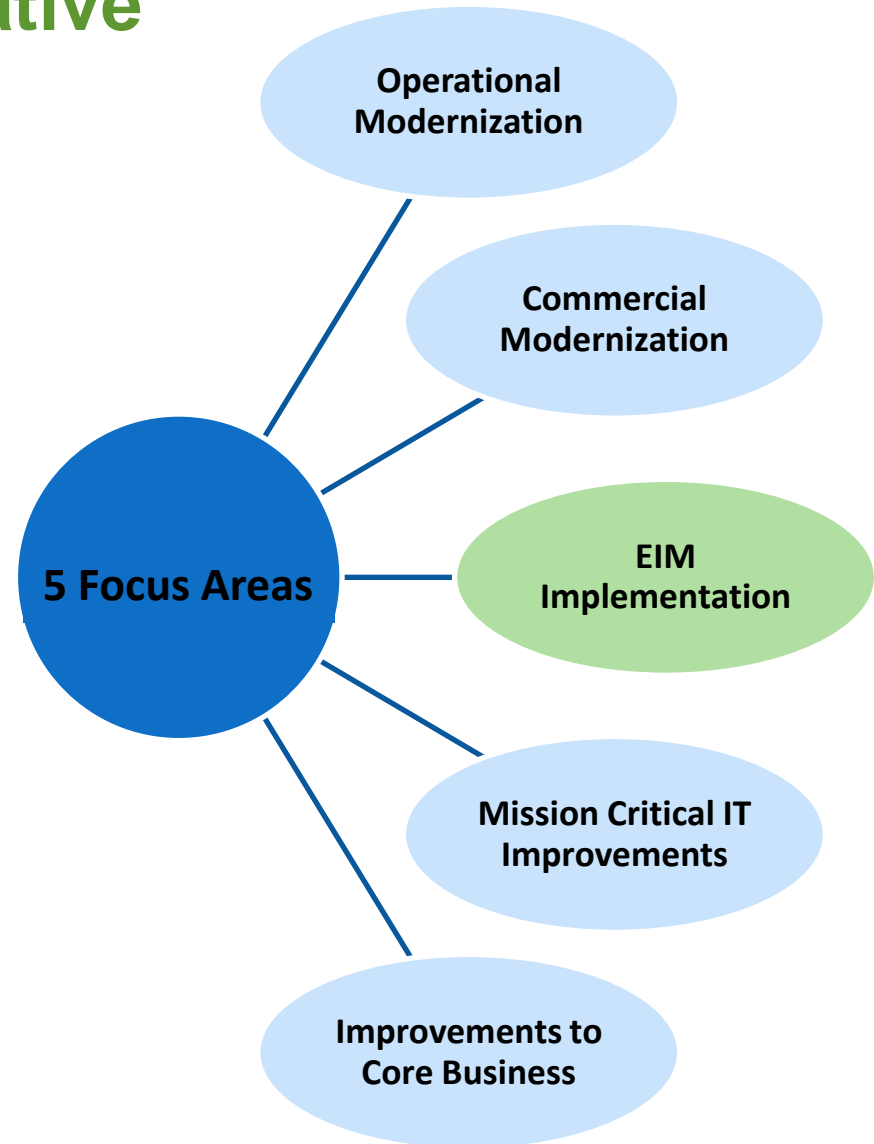
# Grid Modernization Initiative

- Reliance on legacy systems and nonstandard commercial practices have led us to be overly conservative in our power and transmission operations, planning and marketing and are costly to maintain.
- Strategic and prioritized investments:
  - support a more reliable, flexible and efficient system,
  - help reduce future costs and
  - create new market opportunities.



# Grid Modernization Initiative

- June 20<sup>th</sup>'s IPR Grid Modernization Workshop provided an overview of the completed, in-flight, and future projects.
- Grid Modernization projects bring value to BPA and its customers independent of the EIM.
- If BPA chooses not to participate in the EIM, then the EIM Implementation projects will not be pursued.



# EIM Overview

Presenter:

Todd Kochheiser, Transmission System Operations





# EIM Summary

## What an EIM **IS**:

- An intra-hour **real-time** energy market to serve load and imbalance across participating Balancing Authorities (EIM Entities) and the CAISO (a.k.a. the EIM Area)
- A tool for centralized 5-minute dispatch of resources that have been **voluntarily** offered to the market (at a price)
- **Economically dispatches** offered resources
- **Security-constrained**, meaning transmission and reliability constraints are not exceeded, improving grid reliability, reducing energy supply cost and enhancing integration of renewable resources

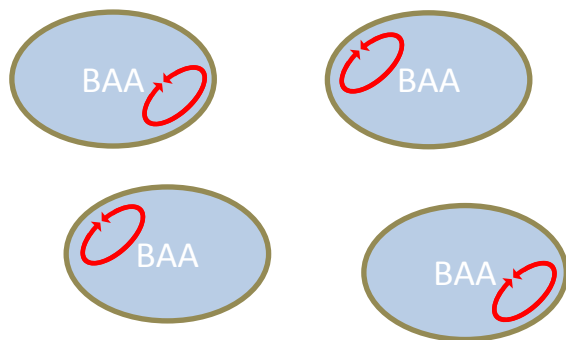
## What an EIM is **NOT**:

- An RTO (with planning, day-ahead markets, BA consolidation)
- A centralized unit commitment tool
- A capacity market
- A replacement for the current contractual bi-lateral business structure

# EIM Summary

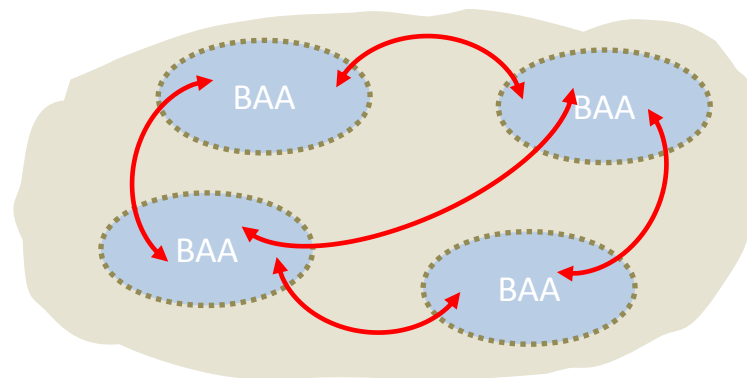
## Without EIM:

Each BA must balance loads and resources within its borders.



## With EIM:

The market dispatches resources across BAAs to balance demand



## EIM Benefits

- Reduce costs by serving imbalance and load from most economic resources
- Enhances reliability by improving system visibility and responsiveness to planned and unplanned events
- Results in more efficient dispatch of resources within/between BAAs
- Leverages geographical diversity of loads and resources in the market footprint
- Congestion Management

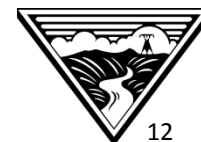
# On-line Resources

- [Western EIM Website](#)
- [Western EIM online training](#)
  - [Introduction to EIM \(CBT\)](#)
  - [How EIM Works \(CBT\)](#)
  - [Base Scheduling \(CBT\)](#)
  - [Metering \(CBT\)](#)
  - [Settlements \(CBT\)](#)
- [EIM Resource Sufficiency](#)
- [EIM Business Practice Manual](#)

# EIM Initial Cost Benefit Analysis, Issues we are Reviewing, Draft EIM Timeline

Presenters:

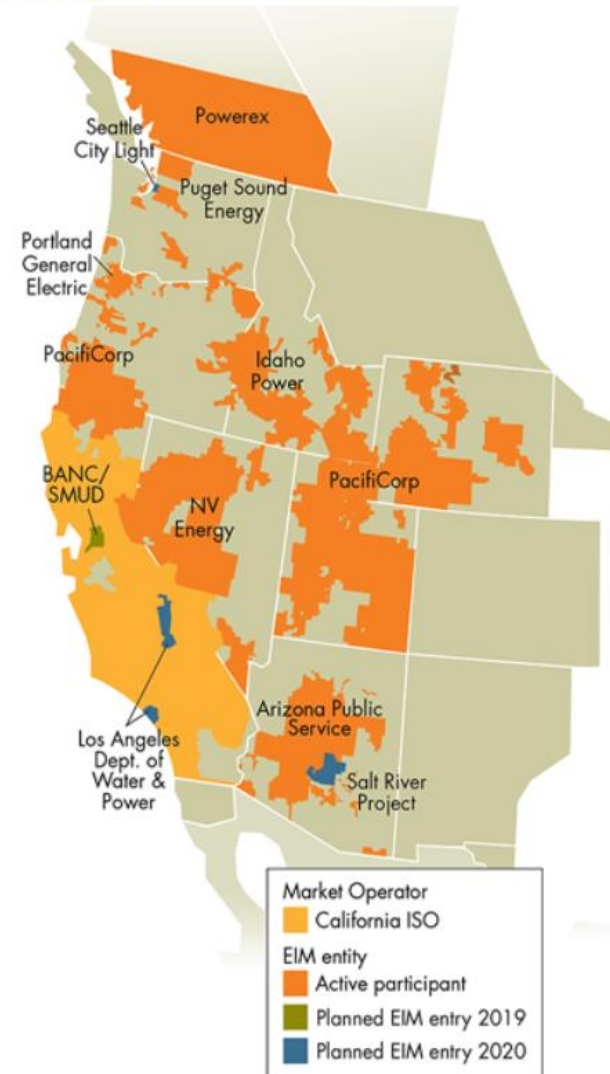
Steve Kerns, Business Transformation Office  
Eric Federovitch, Power Market Analysis and Pricing  
Russ Mantifel, Transmission Marketing and Sales



# Opportunities from Market Engagement

- Variable energy resources are increasing in the West creating opportunities to capture valuable flexibility and capacity services that clean hydropower resources can provide.
- Customer transmission use and system operations are undergoing significant changes in response to market developments and new tools are needed to respond optimally.
- Bonneville has discussed lessons learned from Northwest utilities who are evaluating market changes, modernizing their systems to take advantage of opportunities, and that have or are planning on joining the Western EIM.
- Need to find ways to fully realize the value of sub-hourly dispatch, flexible, and carbon-free hydro attributes.
- The pace of evolving markets continue, recent efforts such as day ahead market enhancements highlight the need for active monitoring.
- Bonneville has begun to study and determine *how and under what conditions Bonneville could join the Western EIM.*

Western EIM active and pending participants



# Opportunities from Market Engagement

- As energy and capacity markets change BPA must look to preserve and enhance the value of the Federal power and transmission systems.
- Other utilities in the Pacific Northwest have joined or intend to join the Western EIM.
- BPA has had early success working with the CAISO on the Coordinated Transmission Agreement in 2017
  - <https://www.bpa.gov/transmission/Customervolvement/CoordinatedTransmissionAgreement/Pages/default.aspx>
- This early success help demonstrate the merit of deeper discussion about BPA's involvement in the EIM.

# Transmission Qualitative Benefits

## Benefits accessible through EIM membership:

- Congestion management functions that are more economically efficient than present curtailment and bilateral redispatch capabilities.
- Optimized day to day operation of the power system.

### Improved Controls:

- Proactive congestion management
- Reactive congestion management
- Proactive voltage control

### Improved State Awareness:

- Increase accuracy and frequency of operational information
- Create new visual displays of real-time or near real-time data, allowing operators to better predict operational issues.
- Access to CAISO EIM dispatchers tools

### Modeling & Coordination:

- Improved network modeling
- Improved outage modelling & coordination
- Improved Power & Transmission coordination

# Transmission Qualitative Benefits

## Benefits accessible through EIM membership:

- A tool used to delay or avoid transmission expansion investment decisions to address congestion issues.

### Categories of capital projects that the EIM could help defer or avoid:

- Network Congestion driven projects that could be remediated with security constrained economic dispatch, *for example:*
  - I-5 Corridor Reinforcement

### Categories of capital projects that are driven by other needs that the EIM would **NOT** be expected to displace:

- Sustain Program projects for safe and reliable operation of existing facilities, *for example:*
  - wood pole replacement or transformers that have reached end of life
- Generation Interconnection, Line & Load Interconnection projects that are driven by requests from customers, *for example:*
  - data center loads
- Load Service Area Reinforcement projects required to mitigate reliability criteria violations, *for example:*
  - Hooper Springs project in SE Idaho



# Estimated Initial EIM Scenario Costs

EIM scenario costs were estimated based on Utilicast analysis and input:

- All costs estimates are assumption-driven and subject to change as more becomes known
- Although costs are grouped by business line, actual cost allocation may vary

Scenario Costs (\$millions)			
		Modernize	EIM
<b>Startup Costs</b>			
	Power	-	(5.0)
	Transmission	-	(14.2)
	Power & Transmission	-	(15.1)
	CAISO Administrative	-	(1.1)
	<b>Total Startup Costs</b>	-	<b>(35.3)</b>
<b>Annual Ongoing Costs</b>			
	Power Costs	-	(3.2)
	Transmission Costs	-	(2.2)
	CAISO Administrative	-	(0.7)
	<b>Total Annual Costs</b>	-	<b>(6.1)</b>

# Estimated Initial EIM Scenario Benefits – Power

Power Services’ benefits from EIM result from more optimal intra-hour dispatch of the FCRPS:

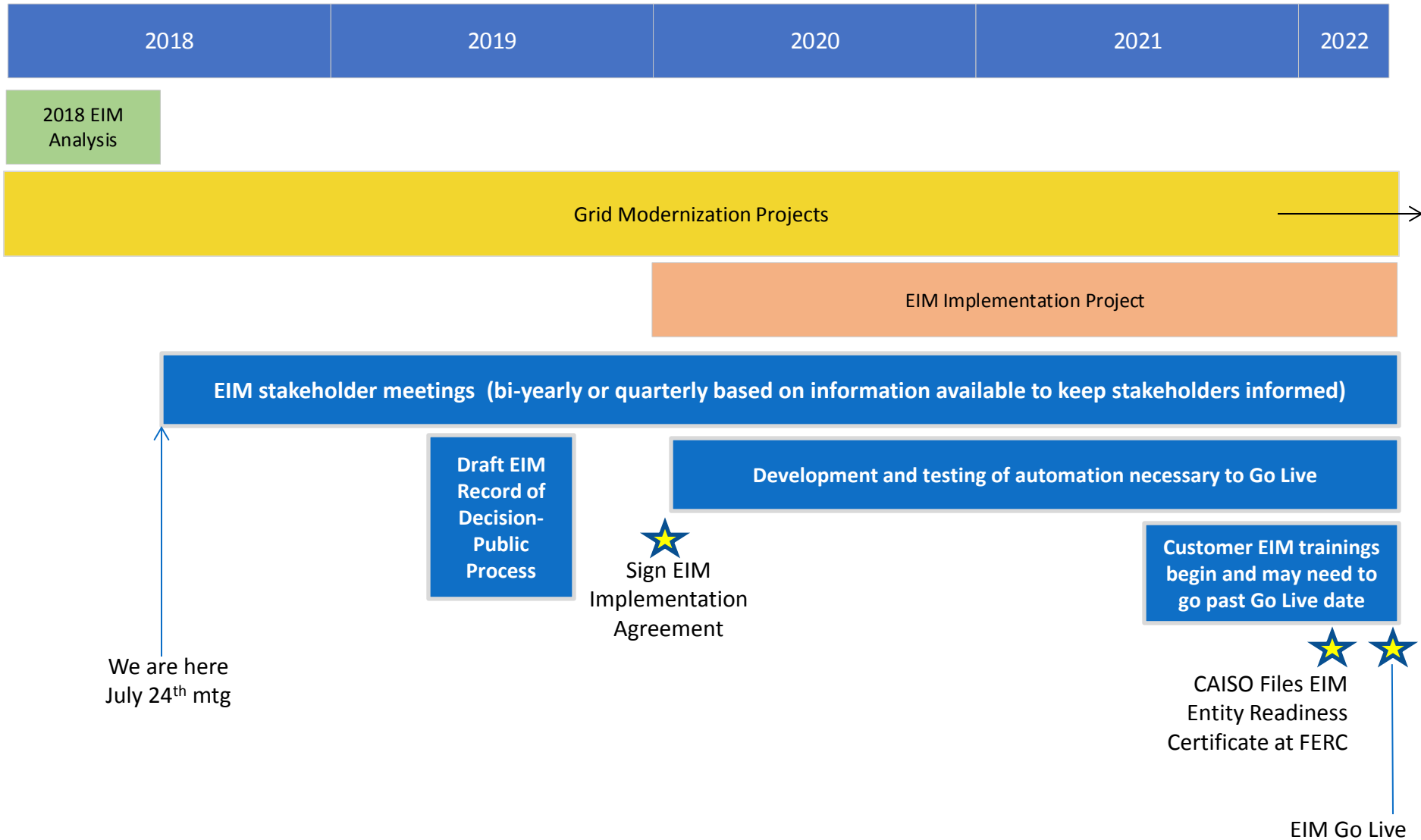
- Benefits are based on monetizing surplus FCRPS flexibility
- Estimated EIM benefits are netted against traditional load factoring, which is the primary way BPA monetizes surplus flexibility today
- BPA analysis is consistent with that of other regional hydro-centric utilities

Power Services' Scenario Benefits (\$millions)			
		Modernize	EIM
<b>Annual Benefits</b>			
	EIM Market	-	20.1
	Load Factoring	3.6	-
	<b>Total Annual Benefits</b>	<b>3.6</b>	<b>20.1</b>
<b>Annual Net Benefits</b>		<b>3.6</b>	<b>14.0</b>

<b>Annual EIM Net Benefits</b>	<b>10.4</b>
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# Issues that BPA is Reviewing

1. Market Power
2. Carbon Obligation in EIM
3. Relationship of EIM to Other Emerging Markets
4. BA Resource Sufficiency
5. EIM Settlements
6. Treatment of Transmission
7. Generation Participation Model (FCRPS, IPP)
8. Governance



We are here  
July 24<sup>th</sup> mtg

# Next Steps

- External BPA.gov webpages are being developed for BPA's EIM efforts under Initiatives on the "Projects & Initiatives" tab.
- Bi-yearly or Quarterly meetings, as needed, based on information we have in order to keep stakeholders and customers informed.
- Next meeting scheduled for Thursday October 11<sup>th</sup>

# Question and Answer Session

