



**WESTERN**  
**EIMM**



**2022**

**IMPLEMENTATION KICKOFF**

**Oct. 28, 2020**

# INTRODUCTION

Nita Zimmerman, *Chief Business  
Transformation Officer*

Allie Mace, *Director of Grid Modernization*



# AGENDA

- EIM Implementation Roadmap
- EIM-specific grid modernization projects
- Grid modernization portfolio impact
- Future topics
- Open question and answer session

# Five Phases to EIM Decision



- Exploration** July 2018–June 2019
- Implementation agreement** June–Sept. 2019
- Policy decisions** Oct. 2019–Oct. 2020
- BP-22 & TC-22** Dec. 2020–July 2021
- Close-out** Aug.–Sept. 2021

# EIM PARTICIPATION PRINCIPLES

1. Bonneville's participation is consistent with its statutory, regulatory and contractual obligations.
2. Bonneville will maintain reliable delivery of power and transmission to its customers.
3. Bonneville's participation is discretionary and Bonneville retains its ability to effectively exit the market in the event participation is no longer consistent with these principles.
4. Bonneville's participation is consistent with a sound business rationale.
5. Bonneville's participation is consistent with the objectives of Bonneville's Strategic Plan.
6. Bonneville's evaluation of EIM participation includes transparent consideration of the commercial and operational impacts on its products and services.

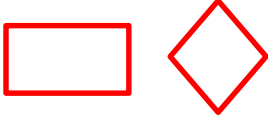

# EIM IMPLEMENTATION ROADMAP

Sarah Burczak, *Stakeholder Engagement Lead*

Roger Bentz, *EIM Program Manager*



# MILESTONES KEY

	<p><b>Critical path activity or milestone</b></p>	<p>These activities have a marginal room for error and delay and have the highest risk of impacting the go-live date.</p>
	<p><b>Other grid modernization project milestones</b></p>	<p>These milestones represent a cross-project coordination point that is critical to the EIM program.</p>

# ACRONYMS

## ACRONYMS IN THE ROADMAP

CBC	Customer Billing Center Replacement
DITL	Day in The Life (CAISO)
EA	EIM Entity Agreement
EESC	EIM Entity Scheduling Coordinator
GRDT	Generator Resource Data Template
IRDT	Intertie Resource Data Template
Market Sim	Market Simulation
PR	Participating Resource
SQMD	Settlement Quality Meter Data
VER	Variable Energy Resources

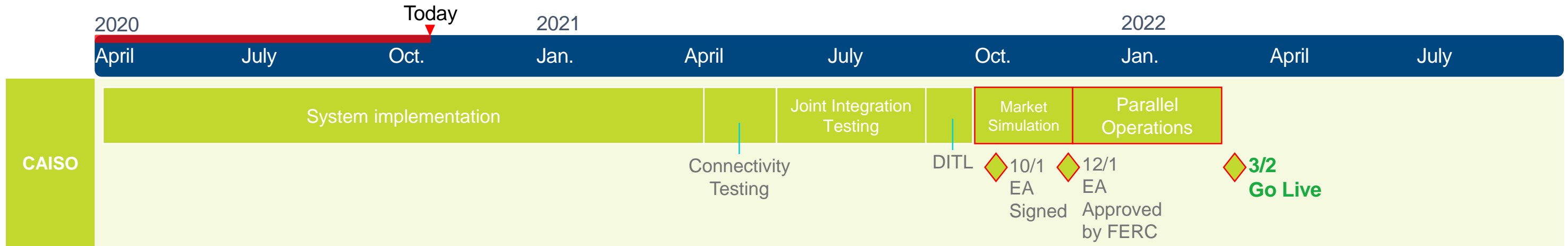
Additional resource: [CAISO's Glossary](#)



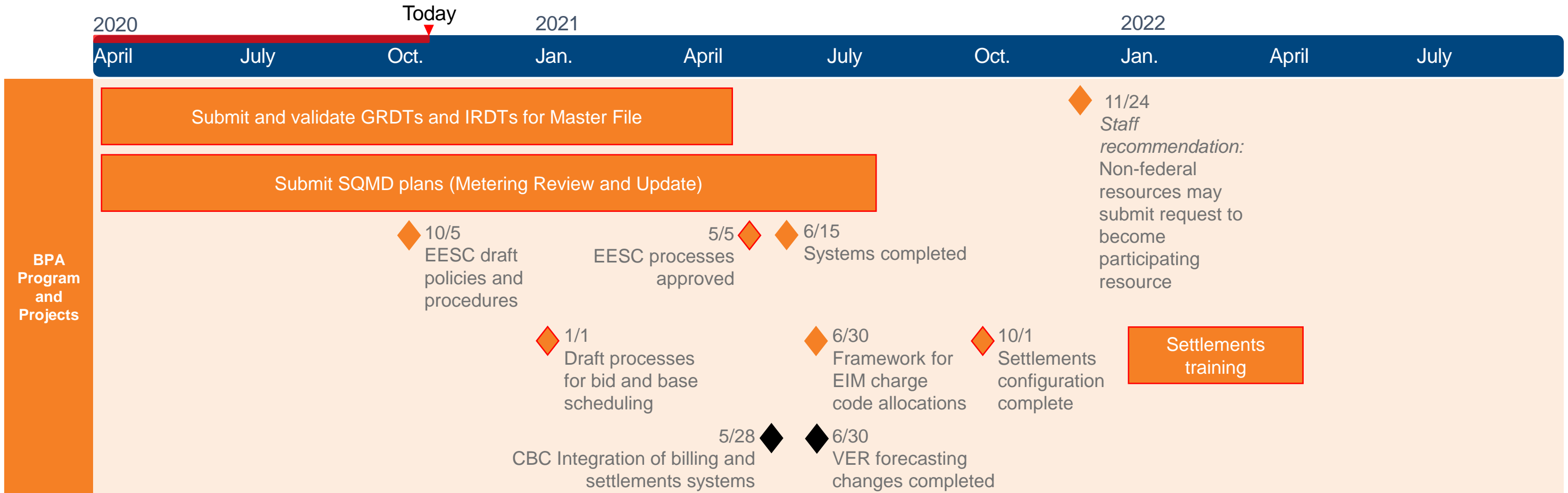
# BPA PUBLIC PROCESSES



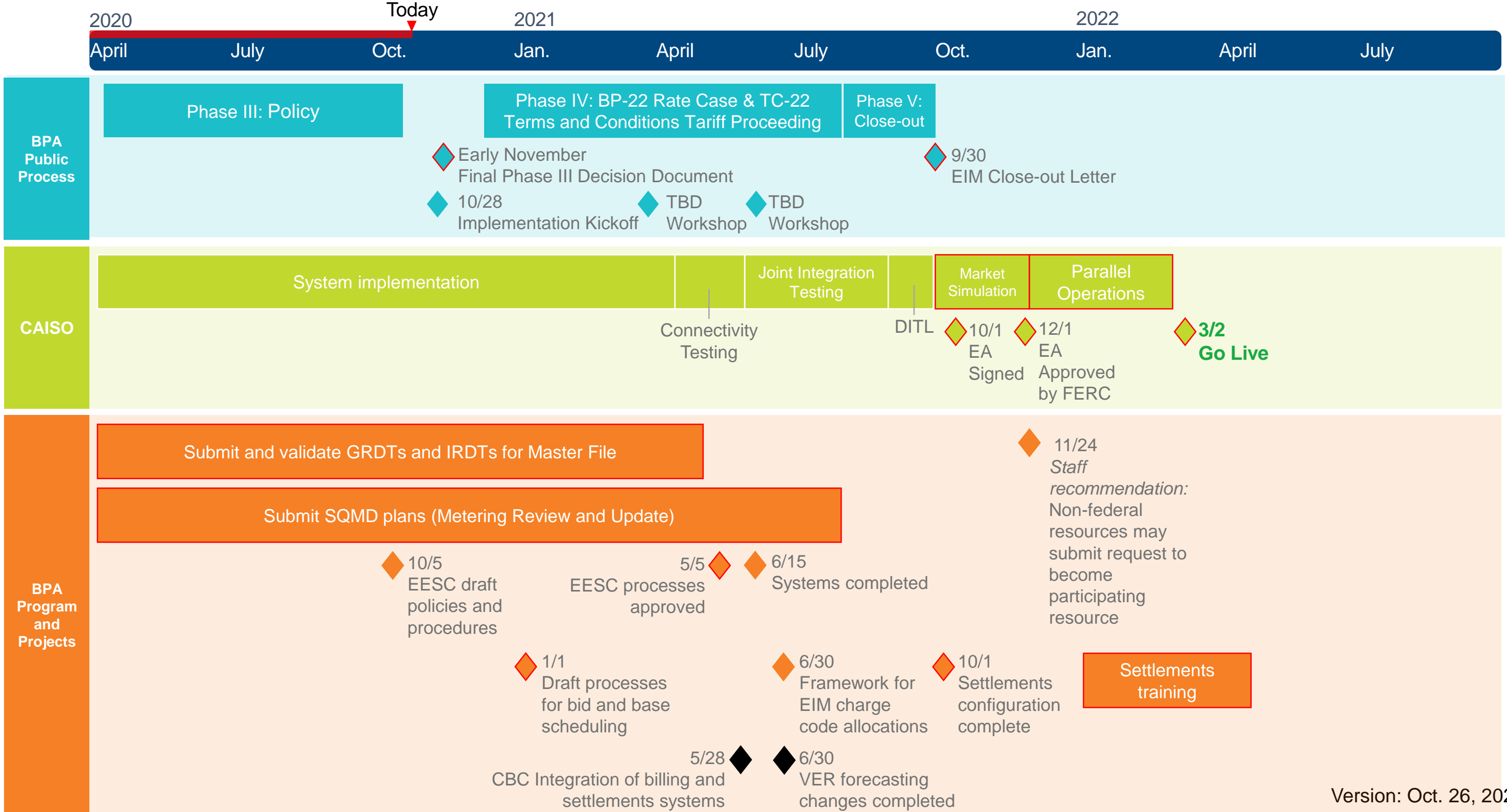
# CAISO



# BPA PROGRAM AND PROCESSES



# BPA EIM INTEGRATED PROGRAM ROADMAP



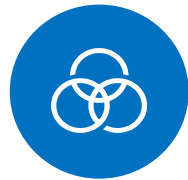
# EIM BID AND BASE SCHEDULING

Roger Bentz, *EIM Program Manager*



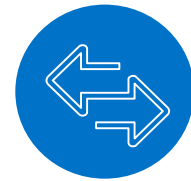
# PROJECT DESCRIPTION

**GRID** Modernization



## Maintain & Submit Base Schedules

Establishes the capability to maintain and submit base schedules for resources (both participating and non-participating), interchange and EIM transfers.



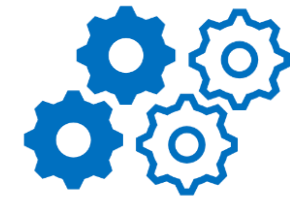
## Bid Participating Resources

Delivers the organizational and system capabilities required to allow BPA to bid participating resources into the EIM.



## Implements Transmission Donations

Develops the ability to implement transmission donations.



## Synchronizes Processes Internally

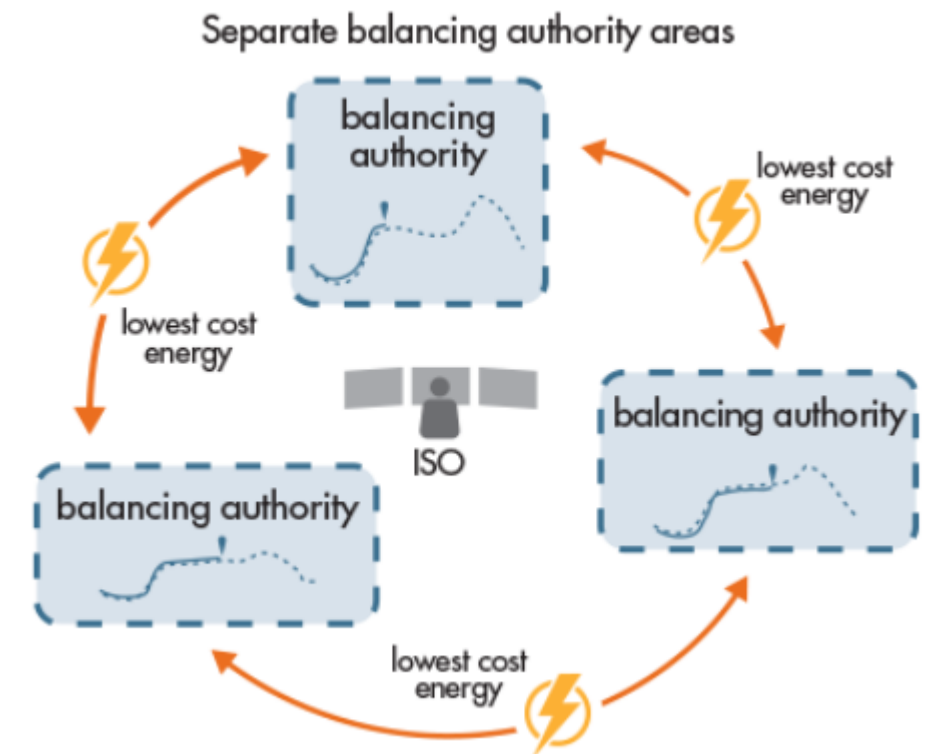
Synchronizes processes with other grid modernization projects including:

- Price and Dispatch Analysis.
- Load and Renewable Forecasting.
- Federal Data and Generation Dispatch Modernization.
- EIM Real-Time Operations.

# WHY DO WE NEED IT?

GRID Modernization

- **Submit balancing authority area schedules and bids to EIM** to enable participating federal resources to be awarded for dispatches to meet EIM-area imbalances.
- **Meet power balance constraints** by ensuring BPA has sufficient generation to cover its load and obligations.
- **Meet EIM flexible resource and ramping requirements.**
- **Enable market transfers** by making EIM BAA-to-BAA interchange path capacity available to the market engine.



Source: CAISO's Regional Collaboration site

# WHAT ARE THE BENEFITS?

**GRID** Modernization 

Provide accurate data to the market to help ensure it runs efficiently.

Maximize the value of BPA's resources by participating in the EIM.

Leverage automation to improve internal process efficiency.



# WHAT IS CHANGING FOR CUSTOMERS?

<b>Basis for imbalance</b>	Schedules at T-57 establish the basis for imbalance (based on current proposal).
<b>Customer e-tags</b>	Customers e-tags are used as the basis for providing base schedules to the market.
<b>Interchange rights</b>	Transmission rights holders voluntarily donate interchange rights for the market to use for EIM dispatches.
<b>Non-federal owners</b>	Non-federal generation owners have option to pursue bidding capacity into the EIM.
<b>Bid submission</b>	Participating resource owners submit bids into the market by T-75.
<b>Market awards</b>	Participating resources receive market awards as per CAISO's EIM timelines.

# KEY MILESTONES

**GRID** Modernization

**Sept. 2020  
(Completed):**  
Contract for EIM  
software vendor  
executed

**Jan. 2021:** Draft  
business process  
development  
complete

**June 2021:** EIM  
software installed &  
configured

**June 2021:** Software  
integrated with other  
systems

**Feb. 2022:**  
System and  
process training  
complete

**March 2022:**  
System testing  
complete

# EIM REAL TIME OPERATIONS

Brent Kingsford, *Dittmer Dispatch Supervisor*



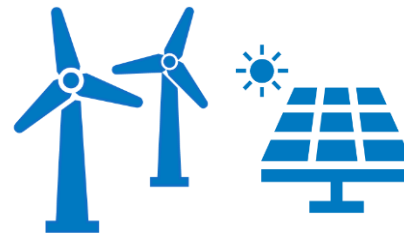
# PROJECT DESCRIPTION

**GRID** Modernization

Enables BPA's power and transmission operations to:



Provide operational limits to the market.



Provide variable energy forecasts to the market as well as plant operators.



- Communicate operational conditions to the EIM.
- Integrate market dispatches through automatic generation control.
- Convey impacts of real-time events to the market.

# WHY DO WE NEED IT?

**GRID** Modernization 

- **Enable EIM participation and maintain transmission reliability** by ensuring BPA tools and processes effectively support market participation.
- **Optimize use of imbalance energy** by ensuring that the market appropriately accommodates reliability constraints while dispatching economically-optimized imbalance market.
- **Improve congestion relief efficiency** by leveraging market resources to avoid running into constraints.

# WHAT ARE THE BENEFITS?

**GRID** Modernization 

Capitalize on reliability benefits of security-constrained market dispatches.

Provide improved operational visibility for the balancing authority area.

Leverage automation to drive process efficiency.

Maximize the value of BPA's resources by participating in the EIM.

# WHAT IS CHANGING FOR CUSTOMERS?

## **Variable energy forecasts**

Forecasts will have five-minute granularity.

## **Variable energy forecast services**

Services will reflect EIM scheduling timelines.

## **Energy for balancing the BA**

Market will optimize every five minutes from offered resources.

# KEY MILESTONES

**GRID** Modernization

**May 2020  
(Completed):**  
Inventory of  
required EESC  
processes

**Oct. 2020 (Completed):**  
Publish draft of internal  
EESC process changes  
and procedures that will  
be changing identified

**March 2021:** Internal  
EESC process and  
procedure changes  
approved

**Feb. 2022:**  
System and  
process training  
complete

**March 2022:**  
System testing  
complete



# EIM Settlements Implementation

Rasa Keanini, *Settlements Product Owner*



# PROJECT DESCRIPTION

**GRID** Modernization 

## Validate and submit settlement quality meter data

- Submit data to the CAISO for generation, load and interchange consistent with the approved SQMD plans.

## Review and validate settlements

- Review participating resource settlement statements from the CAISO for federal resources bid into the Market
- Review EIM Entity Scheduling Coordinator settlement statements from the CAISO.

## Calculate sub-allocations

- For any EESC settlement charge codes BPA determines to sub-allocate in the rate and tariff proceedings.

## Support transmission customers

- Billing of sub-allocated EESC charge codes.
- Enable access to relevant settlement statement and invoice causational data for sub-allocated EIM charge codes.

## Manage disputes

- Manage EESC and PRSC invoice disputes with the CAISO.
- Administer and manage transmission customer disputes of sub-allocated EIM charge codes.

# WHY DO WE NEED IT?

**GRID** Modernization



## Cost-effective participation

Support BPA's cost-effective participation in the EIM for BPA and BPA's transmission customers.



## Fairness, accuracy and conformity

Create EIM settlements that represent fair and accurate allocations.



## Quality and visible reporting

Create quality reporting of EIM settlements and visibility of underlying data.



## Optimization of BPA's EIM marketing and operations

Leverage EIM participation results to serve as an input to optimizing BPA's EIM marketing and operations.

# WHAT ARE THE BENEFITS?

**GRID** Modernization 

Improved and automated settlements processes through standardized settlements systems and functions.

Enable holistic market analytics and settlement validations to make better informed market participation decisions.

Enhanced system capabilities that increase flexibility to meet future needs of customers and industry changes.

Maximize the value of BPA's and the region's resources.

# WHAT IS CHANGING FOR CUSTOMERS?

**Direct settlements with market operator**

The EESC and PRSCs will settle directly with the CAISO, the market operator.

**EIM settlements bill**

BPA transmission customers will receive an EIM Settlements bill directly with the sub-allocated EIM charges.

**Non-sub-allocated charge codes**

EIM entity charge codes that are not sub-allocated will be embedded in BPA's transmission rates.

**Visibility**

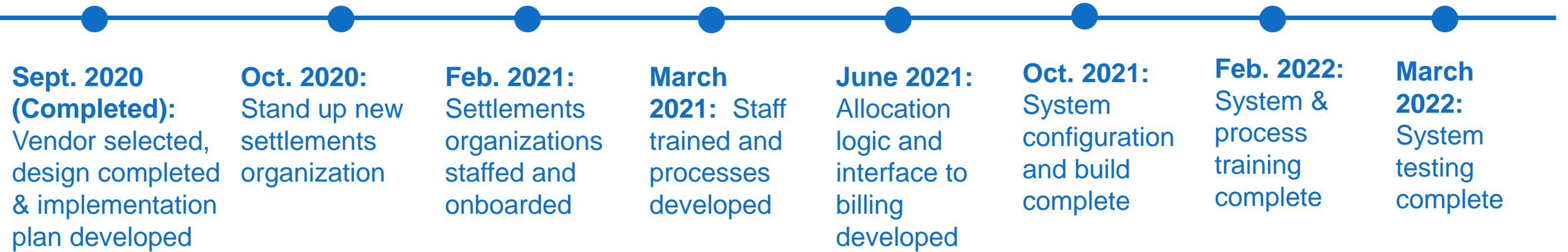
Visibility to backup documentation for EIM charges and credits will be provided to BPA transmission customers who receive sub-allocated EIM charges.

**Dispute management**

The EESC and PRSC will manage disputes directly with the CAISO. Transmission Customers will manage any disputed charges/credits with BPA's EESC settlements team.

# KEY MILESTONES

**GRID** Modernization



# EIM TESTING PROGRAM

Jim Viskov, *Manager Critical Business Systems  
Operations and Development*



# PROJECT DESCRIPTION

**GRID** Modernization 

## **Ensures readiness**

Implements a structured and focused testing program to ensure BPA is prepared for participation in the Western Energy Imbalance Market.

## **Manages end-to-end testing**

Creates and executes a testing plan that includes connectivity testing, integration testing, day-in-the-life testing, market simulation testing and parallel operations testing.

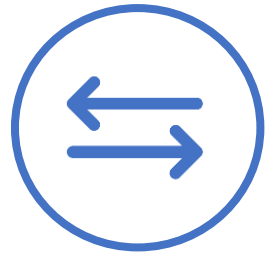
## **Creates a repeatable and permanent testing capability for BPA**

Creates a repeatable testing capability and will provide long-term support of BPA's participation in the EIM.



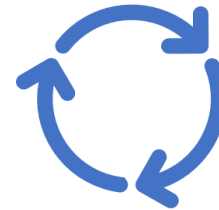
# WHY DO WE NEED IT?

**GRID** Modernization



## Provide operational assurance to enable the market interconnection

Ensure base configuration data properly enables BPA to function in the market and that the interconnected systems and processes effectively work together.



## Instill confidence that BPA can transact and carry out obligations

Instill confidence in market participation while still carrying out BPA's obligations to its customers and the region.



## Meet CAISO's requirements

Meet EIM testing requirements demonstrating that BPA's implementation of EIM systems and processes are operational and consistent with the CAISO's requirements.

# WHAT ARE THE BENEFITS?

**GRID** Modernization 

Ensure the systems and processes supporting BPA's participation in the EIM function accurately, timely and consistently.

Provide testing capability that meets CAISO's requirements, which are a prerequisite to be able to join the EIM.

Provide permanent, repeatable end-to-end and regression testing capabilities.

# PROJECT STRUCTURE

**GRID** Modernization



Begins before the start of CAISO testing phases

## Project sponsor/leadership check-in meetings

- Participants: Business line points of contact, lead sponsors
- Timing: Monthly, moving to bi-weekly as approach the start of testing phases

## Test Case Working Group

- Participants: QA from each team and led by the test coordinator
- Timing: Weekly; prior to the first project starting test case development



As CAISO testing phases start

## Test result coordination meetings

- Participants: Test Coordinator, Integration Coordinator, QA from each team, project managers/scrum masters and business line POCs
- Timing: Regular cadence

## CAISO Track 4 coordination meetings

- Alignment and planning for formal testing phases

# KEY MILESTONES

**GRID** Modernization



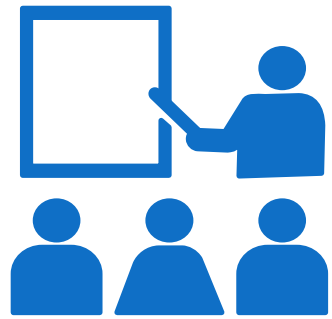
# EIM TRAINING PROGRAM

Jamey Turner, *Program Analyst*



# PROJECT DESCRIPTION

**GRID** Modernization

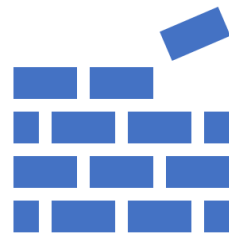


The EIM Training program will:

- Create a **structured and coordinated approach** to training BPA managers and staff involved in EIM activities.
- Provide the **right amount of EIM knowledge** and skill at the right times.
- Include mechanisms to **retain and grow capabilities** over time.

# WHY DO WE NEED IT?

**GRID** Modernization



## Build needed skill sets

Increase the likelihood of successful operation in the EIM due to building the necessary skills and knowledge among staff executing impacted roles.



## Increase assurance

Build assurance with BPA managers, executives and customers that staff have the necessary knowledge and skill to perform their EIM roles.



## Coordinate delivery

Ensure a sufficient, coordinated delivery of training such that trainees will gain the necessary knowledge at the optimal time during the phased EIM implementation.

# WHAT ARE THE BENEFITS?

**GRID** Modernization 

Giving staff involved in EIM roles more targeted, technical training will prepare BPA to experience market benefits sooner.

Training and proficiency will bring improved decision making, communications and accountability across BPA .

A ready and prepared workforce allows BPA to achieve the studied reliability and financial benefits, and share them with customers.



# WHAT IS CHANGING FOR CUSTOMERS?

- Customers will need to interpret EIM Settlements statements.
- Potential changes to interfacing with BPA due to EIM business practices and data submittal timelines.

# KEY MILESTONES

**GRID** Modernization

**Aug. 2020  
(Completed):**  
EIM roles  
identified

**Dec. 2020:** Publish  
training design & delivery  
plan and calendar

**Aug. 2021:**  
Workforce ready for  
day-in-the-life testing

**Sept. 2021:**  
Workforce ready for  
market simulation  
testing

**Nov. 2021:** Workforce  
ready for parallel  
operations testing

**Feb. 2022:**  
Workforce ready  
for go live

# GRID MODERNIZATION PORTFOLIO IMPACT

*Allie Mace, Director of Grid Modernization*



# Grid Modernization Roadmap

FY20 Q4  
As of 10/14/2020 – Subject to Change

FY 2018

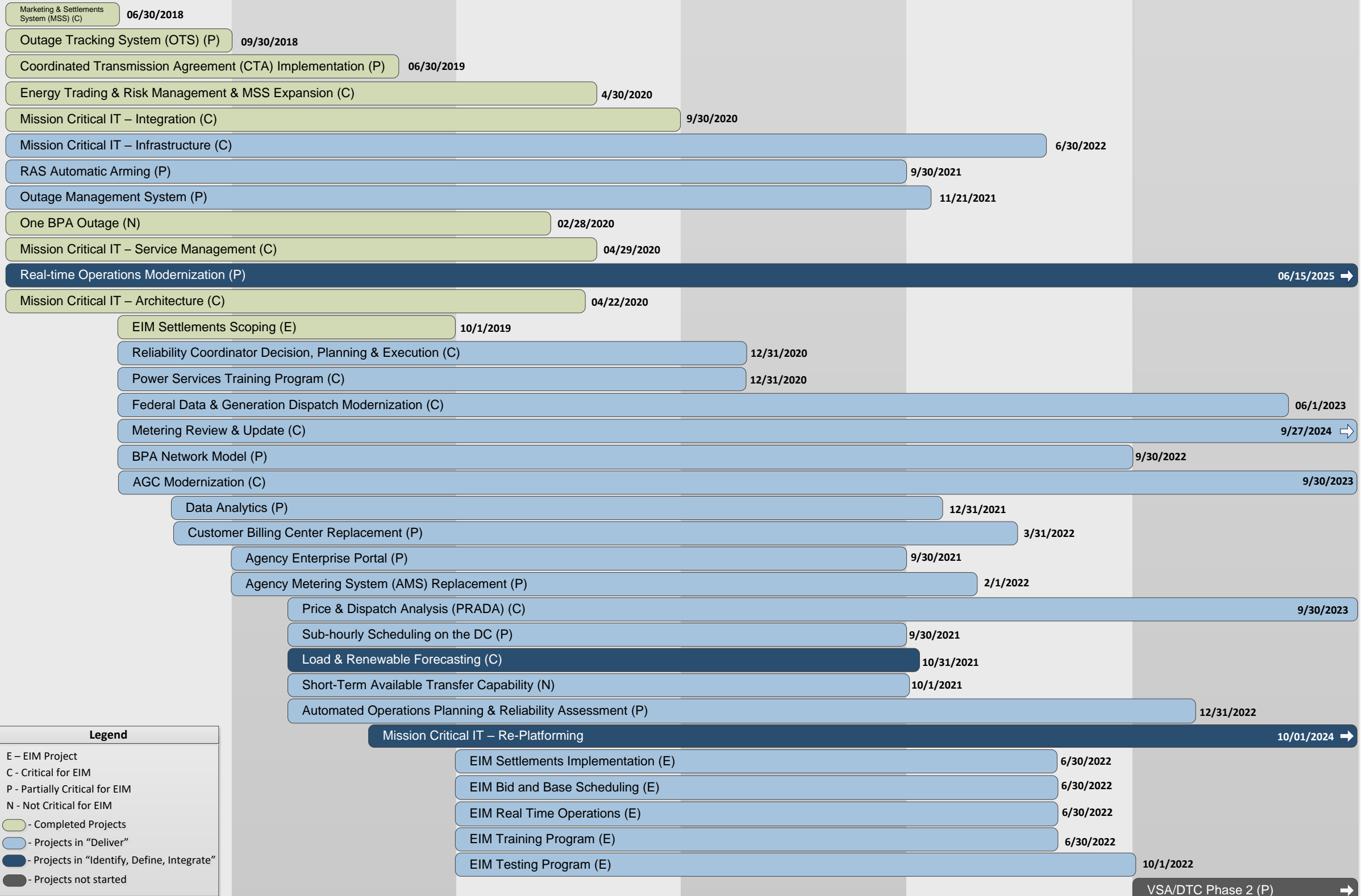
FY 2019

FY 2020

FY 2021

FY 2022

FY 2023



**Legend**

- E – EIM Project
- C - Critical for EIM
- P - Partially Critical for EIM
- N - Not Critical for EIM
- Green - Completed Projects
- Light Blue - Projects in "Deliver"
- Dark Blue - Projects in "Identify, Define, Integrate"
- Grey - Projects not started



# KEY MILESTONES

**GRID** Modernization

**April 2021:** Metering Review and Update create and submit SQMD plans.

**May 2021:** Customer Billing Center Replacement integrates with settlements system

**June 2021:** VER forecasting changes.

**June 2021:** AGC Modernization development of real-time interface to CAISO's BAAOP API.

**June 2021:** Agency Metering System Replacement capability to create meter values per SQMD plans.

**Aug. 2021:** AGC Modernization integration/adoption of automatic dispatch signal completed in development environment.

**Nov. 2021:** Agency Metering System Replacement begins using new meter data management solution.

# IMPACT TO NON-EIM PROJECTS

**GRID** Modernization 

- Have re-prioritized other grid modernization work to focus first on EIM-readiness.
- Delayed project will resume post-go live.

# FUTURE TOPICS

Sarah Burczak, *Stakeholder Engagement Lead*



# TOPICS

## **California sales and GHG accounting**

When BPA issued the EIM Policy Record of Decision, it did not have authority to purchase carbon allowances. Now that BPA has been granted authority to purchase allowances, it needs to decide whether or not to sell into California.

## **Settlements and billing**

More information and training on settlements and billing as projects mature and decisions are made in the rates and tariff proceedings.

## **EIM governance**

While BPA has said existing governance is not a barrier to joining the market, the Governance Review Committee has partnered with CAISO to propose changes to the current governance structure. BPA will continue to track these changes to ensure it does not change its view on governance.



# HOW TO SUBMIT IDEAS AND FEEDBACK

Please send your feedback on future topics or questions you would like to cover in future workshops to [techforum@bpa.gov](mailto:techforum@bpa.gov) by Tuesday Nov. 10.

# QUESTIONS?

For more information,  
visit [www.bpa.gov/goto/eim](http://www.bpa.gov/goto/eim).

