



Extended day-ahead market issue paper

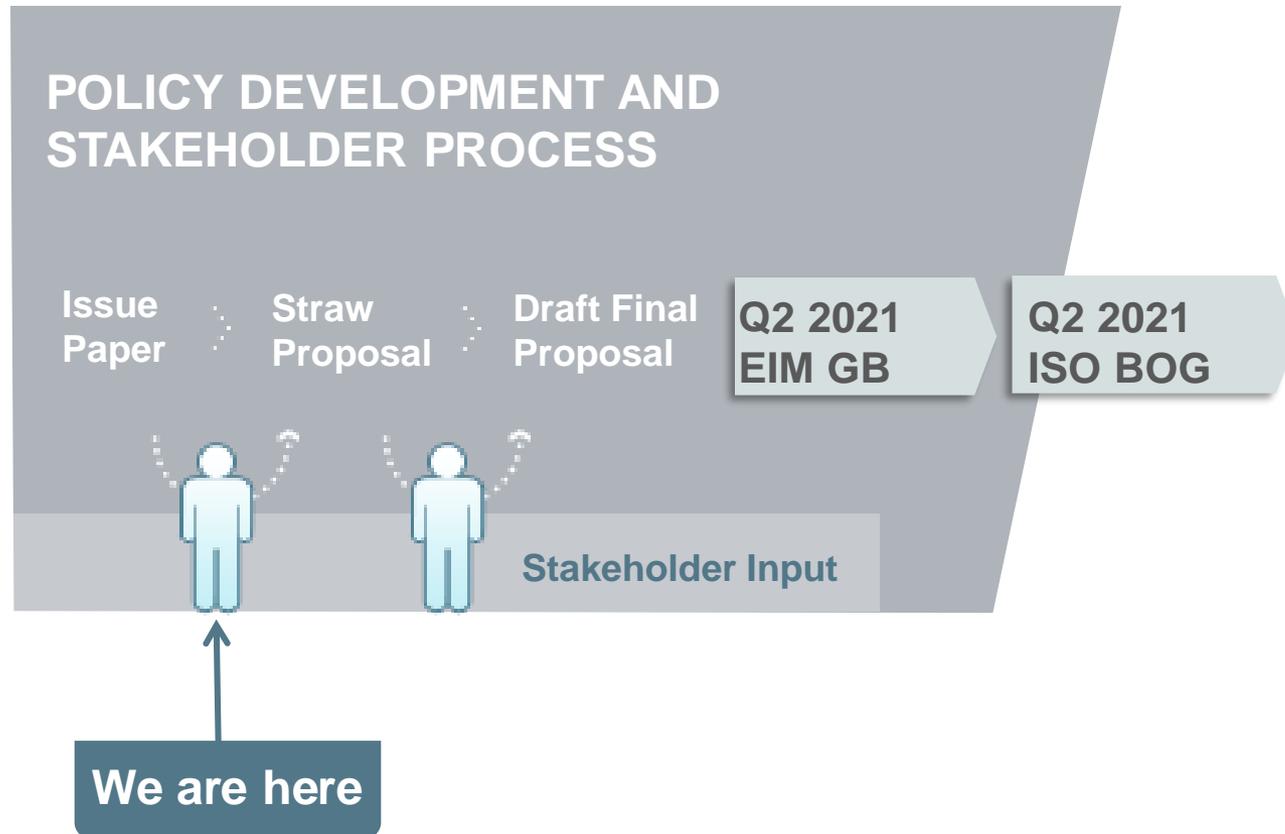
Don Tretheway
Sr. Advisor, Market Design Policy

Conference Call
October 17, 2019

Agenda

Time	Topic	Presenter
1:00– 1:10	Welcome	Kristina Osborne
1:10– 3:50	EDAM Issue Paper	Don Tretheway
3:50– 4:00	Next Steps	Kristina Osborne

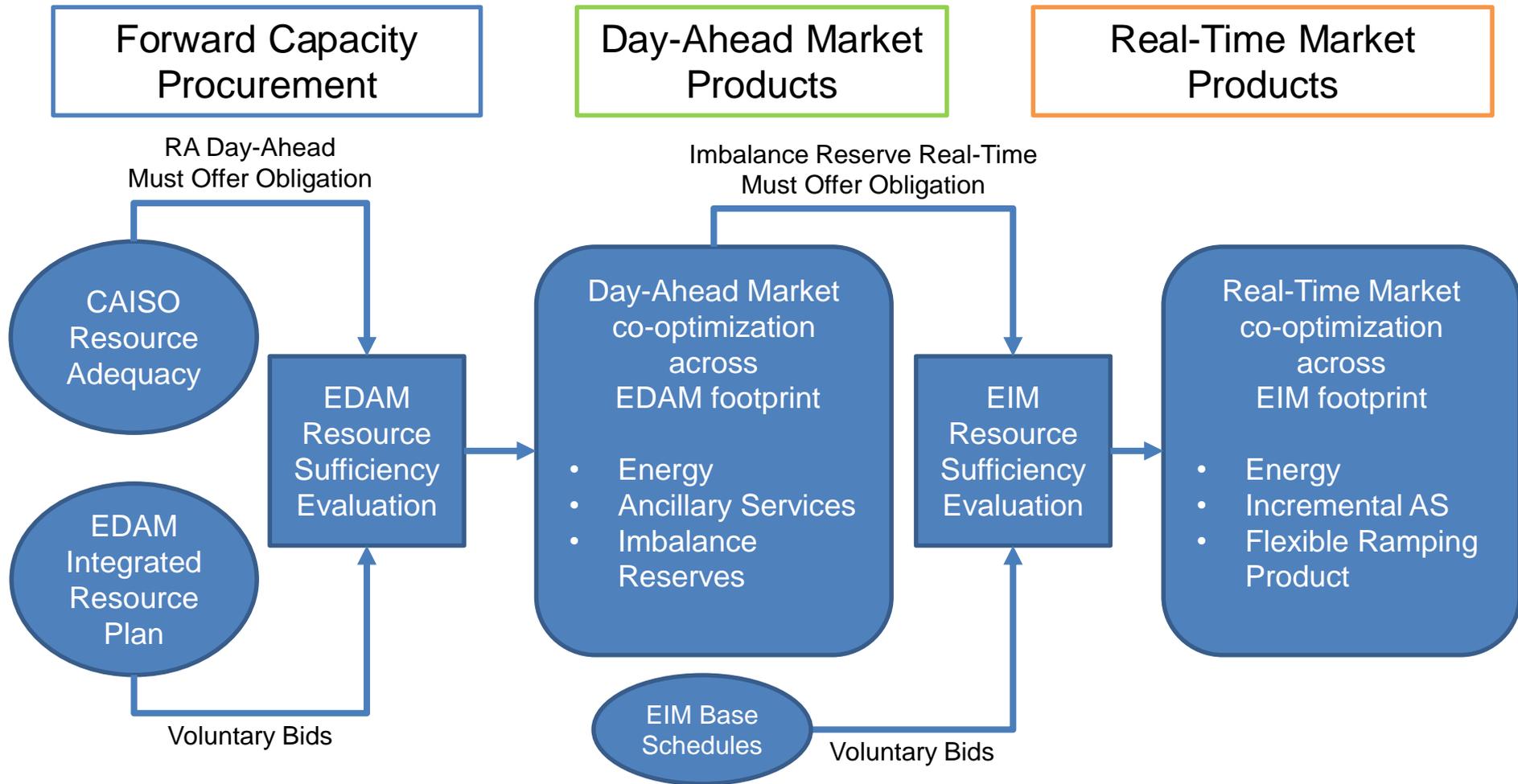
ISO Policy Initiative Stakeholder Process



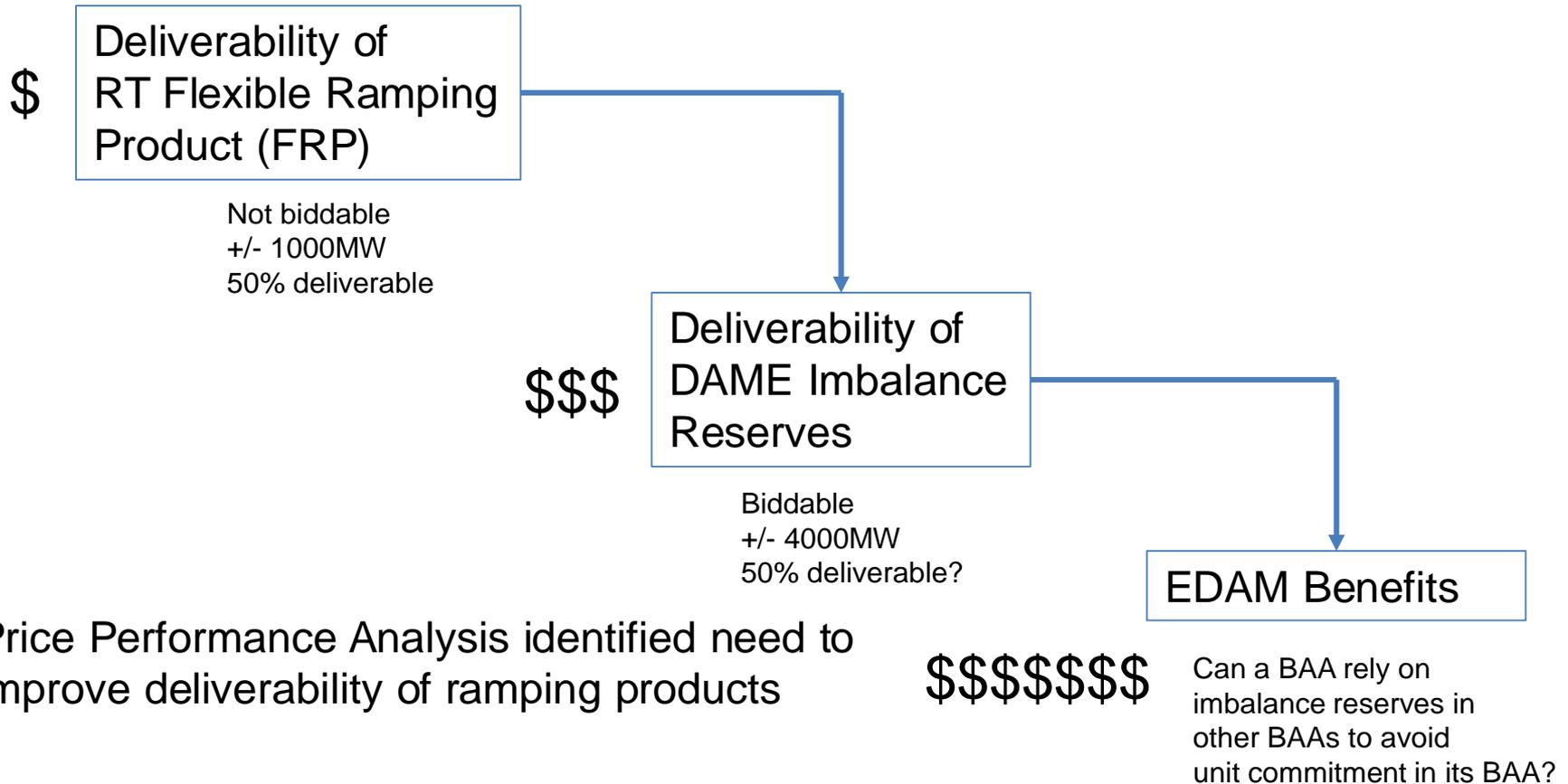
Extending the day-ahead market to EIM entities provides regional benefits

- Key principles:
 - Each balancing authority retains reliability responsibilities
 - States maintain control over integrated resource planning
 - Resource adequacy procurement decisions remain with local regulatory authority
 - Transmission planning and investment decisions remain with each balancing authority and local regulatory authority
 - Voluntary market, like EIM
- Key benefits:
 - Allows EIM participants to further reduce costs and gain market efficiencies
 - Day-ahead unit commitment and scheduling across a larger footprint provides diversity benefits and helps with renewable integration

Conceptual overview of forward capacity, DAME & EDAM relationship with CAISO market runs



Undeliverable capacity products lead to current and future market inefficiencies and operational challenges



DAME and EDAM schedules aligned with prioritizing FRP enhancements

- FRP enhancements
 - Policy development: November – February
 - EIM GB and BOG decision: March 2020
 - Implementation Fall 2020
- Day-ahead market enhancements
 - Straw proposal based upon Financial + Forecast option late January 2020
 - Implementation Fall 2021
- Extended day-ahead market
 - Commence series of workshops early February 2020
 - Onboarding Spring 2022

Extended Day-Ahead Market

ISSUE PAPER

Stakeholder comments on issue paper assist in the development of straw proposal

- Identify set of issues that need to be addressed
- Provide feedback on proposed scope
- Provide potential design options to address identified issues

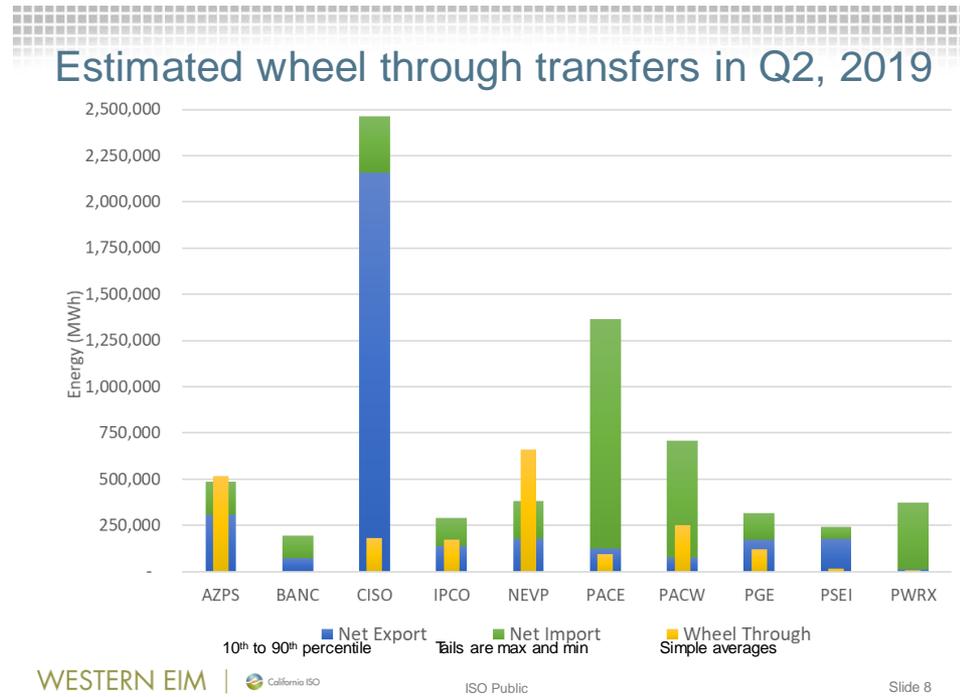
Transmission provision and compensation to support transfers between balancing authority areas (1 of 2)

- EIM transmission made available without transmission rate by
 - Interchange rights holder
 - Purchased rights voluntarily made available
 - Available transmission capacity
 - Residual capacity with EIM transfers having lowest priority
- In day-ahead timeframe, cannot assume transmission will be residual
 - Need mechanism to allow EDAM transfers to use transmission with a level of priority into real-time
 - If transmission unavailable, EIM participating resources will be re-dispatched which increases the real-time congestion offset

Transmission provision and compensation to support transfers between balancing authority areas (2 of 2)

- Potential approaches that do not include transmission rate in market optimization
 - Transmission needed to use external resources to fulfill bilateral contracts and pass the resource sufficiency evaluation
 - Transmission needed for a balancing authority area to capture the downward/upward diversity benefit
 - Transmission that a customer makes available in return for congestion rents on the EIM transfer system resource (ETSR)
- Potential approaches that could include a transmission rate
 - Transmission that a customer makes available in return for a fee
 - Transmission that a transmission service provider makes available at a tariff approved rate

CAISO committed to look at net wheeling compensation in this initiative at 8/28 EIM GB meeting



- APS and NVE had wheels exceed BAA's sum of imports/exports
- Explore approaches to address
 - Use an EDAM option that includes a transmission rate?

The day-ahead market collects congestion rents that need to be distributed

- CAISO uses congestion revenue rights (CRRs)
 - Allocate to load serving entities (internal and external) who nominate source/sink pairs
 - Auction for residual transmission capacity
- EIM calculates the real-time congestion offset by balancing authority area
 - Similar approach for EDAM is expected
 - Discuss if single approach to distribute rents is needed or if done per balancing authority area

Resource sufficiency evaluation prevents leaning on others' capacity, flexibility or transmission (1 of 3)

- EDAM does not replace forward planning and procurement
- Each BAA determines how it will pass the day-ahead resource sufficiency evaluation
 - CAISO uses its resource adequacy program and coordinates with the CPUC
 - Other balancing authority areas use integrated resource planning in conjunction with their local and state regulatory authority
- EDAM is voluntary. Does not have a must-offer obligation

Resource sufficiency evaluation prevents leaning on others' capacity, flexibility or transmission (2 of 3)

- EIM tests for sufficient participating resources to meet balance, capacity, and ramping
- Need to develop a construct of similar tests recognizing there are no base schedules
- In EIM, transfers are limited when a balancing authority area fails test
 - Should the same penalty exist in day-ahead?
 - Are there other penalties or remedies, for example buy from another balancing authority area?

Resource sufficiency evaluation prevents leaning on others' capacity, flexibility or transmission (3 of 3)

- How can the trading of imbalance reserves and capacity be supported under EDAM?
- Bilateral forward trades need tracking mechanism so that the supply is not double counted
 - Counts towards the right balancing authority area's resource sufficiency evaluation
 - Is tracking done by resource, by BAA, or both?
- Can trading be used as a spot market when a balancing authority area fails the resource sufficiency evaluation?

Ancillary services and energy are currently co-optimized in the day-ahead market

- How to complement existing reserve sharing groups?
 - For spinning and non-spinning reserves
- Can EDAM enable the trading of ancillary services?
 - Need to address how reserves are deployed
- Determining regulating reserves remains each BA's responsibility
 - CAISO regulation up and regulation down clear based upon capacity and mileage bids
 - Mileage requires 4 second data for settlement of resources awarded regulation

Modeling of non-EDAM imports and exports needs to be aligned between CAISO and EIM entities

- Currently, CAISO models imports/exports as injections/withdrawals at intertie scheduling points
- EIM entities' imports/exports are modeled at the source/sink balancing authority area
- Aligning CAISO with the EIM entity modeling requires
 - Potential use of “scheduling hubs”
 - E-tagging & settlement rules to ensure accurate source/sink data
 - Re-mapping of existing congestion revenue rights

External resource participation rules need to be developed

- Currently, EIM entities' imports/exports do not participate in the EIM
- Under EDAM, EIM entities may bilaterally contract with balancing authority areas not participating in the EDAM
- Explore the rules needed for economic participation of external resources

Changes are needed to account for greenhouse gas costs (1 of 3)

- Resources inside of California BAAs include greenhouse gas (GHG) compliance costs in energy bid
 - Should be generic to cover additional state's GHG programs
- Resources outside of California BAAs bid a separate price for energy and GHG attribution
- Assuming no base schedules, the EIM approach to address secondary dispatch may not be sustainable
 - 100% of non-emitting resource eligible for attribution
- Changes in the GHG attribution approach must be workable in both EDAM and EIM

Changes are needed to account for greenhouse gas costs (2 of 3)

- Is resource specific attribution and compliance obligation appropriate?
- Imports to CAISO, not through EIM transfers, can be resource specific, default emission rate, and asset controlling supplier rate. Can this approach be valid for both EDAM and EIM?
- Can we identify which external resources are contracted to support load in California BAAs?

Changes are needed to account for greenhouse gas costs (3 of 3)

- If a resource is contracted to serve load in a GHG region, does it need to bid energy and GHG cost separately?
- As other states in the West look at GHG programs, need to evaluate changing the tracking paradigm from balancing authority area to state boundary

Convergence bidding seeks to improve price convergence between day-ahead and real-time

- Virtual supply is paid the day-ahead price and is charged the 15-minute market price
- Virtual demand pays the day-ahead price and is paid the 15-minute market price
- Need to determine if convergence bidding is universal or enabled by individual balancing authority areas

Price formation will be discussed in both DAME and EDAM

- Day-ahead market enhancements
 - The role of virtual supply and demand in meeting reliability capacity requirements
 - Relaxation parameters for new imbalance reserve products
- Extended day-ahead market
 - Fast-start pricing
 - Scarcity pricing

An EDAM administrative fee will need to be developed similar to the EIM administrative fee

- CAISO grid management charge comprised of
 - Market services charge
 - Separate costs between real-time market and day-ahead market
 - System operations charge
 - Separate costs between real-time dispatch and balancing authority services
 - Congestion revenue rights services
 - Miscellaneous usage fees
- As with EIM, identify the services used and include in the EDAM administrative fee

A parallel initiative will address governance under EDAM

- EIM governance review committee (GRC) has been created
- GRC is responsible for leading a public process to develop proposed refinements to current EIM governance, this includes EDAM
- Stakeholder comments on governance should be made in the GRC initiative, not EDAM

Extended Day-Ahead Market

NEXT STEPS

Proposed EIM Governing Body Classification

- EDAM is about expanding the existing EIM to include day-ahead market participation
 - However existing charter limits primary authority to real-time market changes
- Management will request that the CAISO Board of Governors approve a one-time departure from existing decision classification for EDAM
 - Proposal gives the EIM Governing Body **joint authority** role for approval of this initiative
- Please provide comments on the proposed decisional structure for EDAM initiative

Proposed Initiative Schedule (1 of 2)

Item	Date
Post Issue Paper	October 10, 2019
Stakeholder Conference Call	October 17, 2019
Existing Day-Ahead Market Overview for Stakeholders	October 29, 2019
Existing Day-Ahead Market Overview for Stakeholders	November 12, 2019
Stakeholder Comments on Issue Paper Due	November 22, 2019
Flexible Ramping Product Enhancements Initiative	November 2019 – February 2020
Day-Ahead Market Enhancements Initiative Straw Proposal Posted	Late January 2020
Stakeholder Technical Workshop #1 Transmission and CRRs	Early February 2020
Stakeholder Comments Due on Workshop #1	Middle February 2020
Stakeholder Technical Workshop #2 Resource Sufficiency Evaluation	Late February 2020
Stakeholder Comments Due on Workshop #2	Middle March 2020
Stakeholder Technical Workshop #3 Greenhouse Gas	Late March 2020
Stakeholder Comments Due on Workshop #3	Middle April 2020

Proposed Initiative Schedule (2 of 2)

Item	Date
Post Straw Proposal	Early June 2020
Stakeholder Meeting	Middle June 2020
Stakeholder Comments on Straw Proposal Due	Late June 2020
Post Revised Straw Proposal	Early August 2020
Stakeholder Conference Call	Middle August 2020
Stakeholder Comments on Revised Straw Proposal Due	Late August 2020
Post Draft Final Proposal	Early October 2020
Stakeholder Conference Call	Middle October 2020
Stakeholder Comments on Draft Final Proposal Due	Late October 2020
Start Tariff Stakeholder Process	Early December 2020
Start Development of Business Requirements Specification	Early December 2020
Post Final Proposal	Late February 2021
Stakeholder Conference Call	Early March 2021
Stakeholder Comments on Final Proposal Due	Middle March 2021
EIM Governing Body Meeting Approval	Q2 2021
Board of Governors Meeting Approval	Q2 2021

Please provide written comments by November 22, 2019

- Written comments should address
 - Identify set of issues that need to be addressed
 - Provide feedback on proposed scope
 - Provide potential design options to address identified issues
- Submit comments using the [template](#) available on the initiative webpage to initiativecomments@caiso.com.