

Briefing on 2020 Policy Initiatives Roadmap and Annual Plan

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2020 Policy Initiatives Roadmap process

- *Policy Initiatives Catalog process* updates descriptions, categorization and status of all identified policy initiatives
- *Final Policy Initiatives Catalog* published on September 5
- 2020 Policy Initiatives Roadmap process
 - Draft three-year roadmap and annual plan posted September 30
 - Final roadmap and annual plan posted November 25
 - Roadmap briefing to ISO Board of Governors on December 19
 - Roadmap briefing to EIM Governing Body on January 22, 2020
 - Post final roadmap following EIM Governing Body meeting



2020 Policy Roadmap reflects new process guidelines

- Currently, the EIM Governing Body and Board of Governors decision dates are tied to completion of policy development
 - Tariff and business requirement development occur after board approval of a policy
 - Implementation details often identify further policy refinement
- Beginning 2020, the ISO's new process:
 - Complete policy, tariff, and business requirements development prior to EIM Governing Body and Board of Governors approval
 - Allows for greater coordination and alignment during each stage of the process



Primary drivers of proposed three-year roadmap

- Manage operational risk resulting from a transforming grid
- Enhance the market in response to changing grid conditions and clean energy goals in California and the West
- Continue enhancements to EIM, including integration into the day-ahead market, to provide benefits across the West
- Reform ISO's resource adequacy rules necessitated by increasing retirements and tightening dispatchable capacity
- Integrate new technologies to replace operational attributes previously provided by the thermal fleet



New 2021 initiative enhancing market dispatch capability will improve operability of the fleet by:

- Manage ramp rates to better control system balance
- Enhance market incentives for resources to provide accurate curtailment response

- i.e., lower the bid floor

- Explore solutions to mitigate decremental market power
- Change settlement rules for decremental exceptional dispatch
- Increase real-time intertie liquidity
 - i.e., exempt real-time exports from transmission access and measured demand uplift charges



Enhancements to resource adequacy program needed to align procurement with operational needs.

- Implementation 2020
 - Maximum import capability enhancements (new initiative)
 - Slow demand response
- Implementation 2021
 - Resource adequacy import provisions
 - Planned outage process enhancements
 - Local studies with availability-limited resources capacity procurement mechanism clarifications
 - Must offer obligations and bid insertion rules
 - Flexible resource adequacy
- Implementation 2022
 - Capacity counting rules and forced outage assessments
 - Portfolio analysis to ensure system sufficiency alifornia ISO

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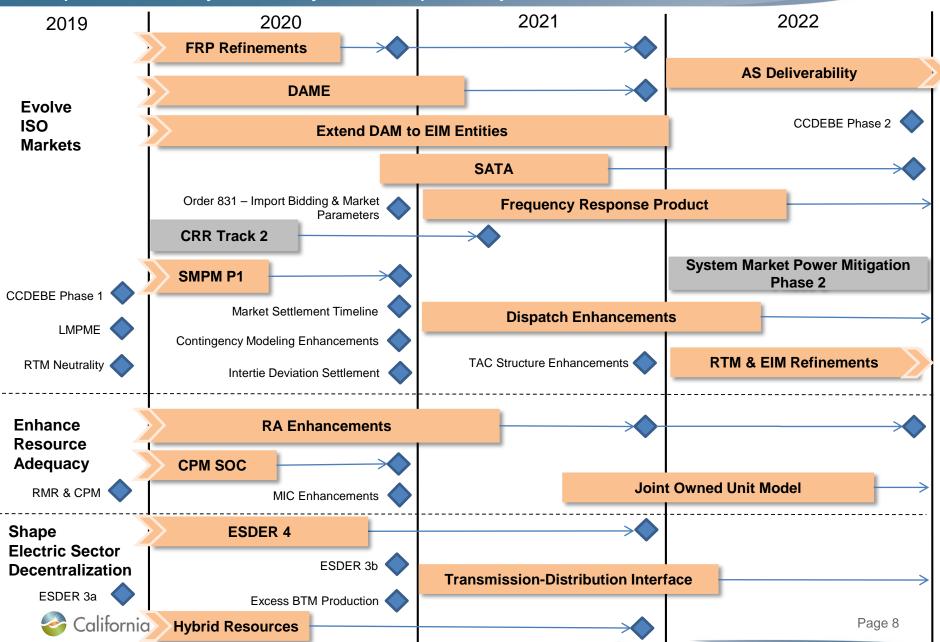
Energy storage and distributed energy resources initiative continues to refine distributed energy resources and storage participation models and lower integration barriers.

- Develop methodology to calculate default energy bids for nongenerator resources
- Expand distributed energy resources and storage modeling to optimally capture value and leverage resource design attributes that support grid reliability
 - State of charge parameter for non-generator resources
 - Maximum daily run time parameter for demand response
- Develop market participation rules and inform Local Regulatory Authority consideration of qualifying capacity counting for demand response



Proposed Three-year Policy Roadmap of Major Initiatives

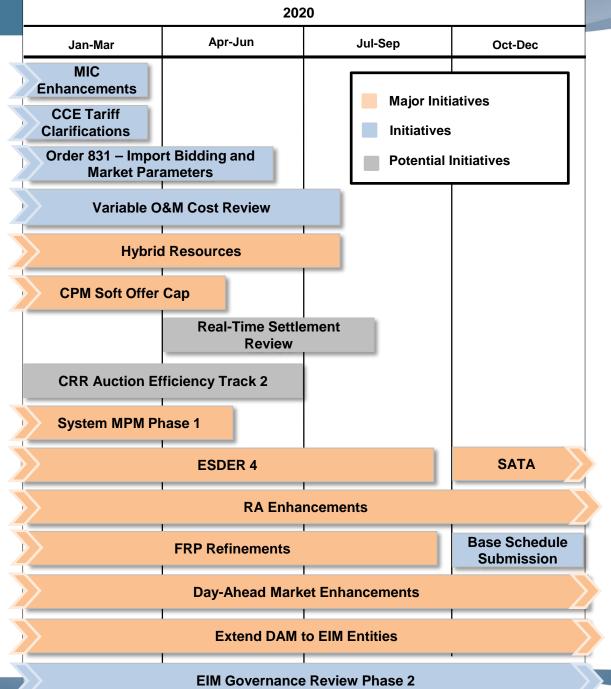
 $\diamond = Implementation$



2020 Draft Annual Plan

*Timeframes are approximate and subject to change

California ISO



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Stakeholders support the 3 year roadmap and annual plan.

- Stakeholders support new process guidelines
- PG&E believes the 2020 Annual Plan is too ambitious and requests prioritization of system market power mitigation, resource adequacy enhancements, and capacity procurement mechanism soft offer cap
- Stakeholders urge for continued policy alignment between day-ahead market enhancements and extended day-ahead market to EIM entities
 - Management recognizes the interdependencies between both initiatives.
 Policy teams are closely working together to ensure the day-ahead market enhancements and extended day-ahead market designs align



Acronyms

AS	Ancillary Services
BTM	Behind the Meter
CCE	Commitment Cost Enhancements
CCDEBE	Commitment Costs and Default Energy Bid Enhancements
CPM	Capacity Procurement Mechanism
CRR	Congestion Revenue Rights
DAM	Day-Ahead Market
DAME	Day-Ahead Market Enhancements
DER	Distributed Energy Resources
DR	Demand Response
EIM	Energy Imbalance Market
ESDER	Energy Storage and Distributed Energy Resources
FRP	Flexible Ramping Product
LMPME	Local Market Power Mitigation Enhancements
MIC	Maximum Import Capability
MPM	Market Power Mitigation
PG&E	Pacific Gas and Electric
PGE	Portland General Electric
RA	Resource Adequacy
RMR	Reliability Must Run
RTM	Real-Time Market
SATA	Storage as a Transmission Asset
SMPM P1	System Market Power Mitigation Phase 1
SOC	Soft Offer Cap
Californ TAC	Transmission Access Charge



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