



2019 Three-Year Policy Initiatives Roadmap and Annual Plan

Market and Infrastructure Policy

December 17, 2018

Primary drivers of three-year roadmap

- Operational challenges pointing to day-ahead market enhancements that will help manage net load in real time
- Continued improvements to EIM to meet the needs of an expanding market
- Extending day-ahead market enhancements to EIM balancing areas provides regional benefits
- Increasing risk of retirement leading to increase in RMR driving need to reform the RA program
- Lower barriers to DER and storage market participation

Extending DAM to EIM Entities provides additional regional benefits

- Key benefits:
 - Allows EIM participants to benefit from day-ahead market enhancements
 - Day-ahead unit commitment and scheduling across larger footprint improves market efficiency and more effectively integrates renewables
- 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

Scope of stakeholder initiative to extend day-ahead market to EIM Entities

- Transmission provision for Day-Ahead Market
 - Transmission cost recovery
- Day-ahead resource sufficiency evaluation
 - Provide functionality to enable entities to trade capacity for resource sufficiency tests
- Mechanism to distribute congestion revenues
- Full network model enhancements
- Day-ahead GHG attribution for states with carbon cost policies
- Governance to account for larger market scope

Emerging trends altering the California resource procurement and resource adequacy landscape

- Existing focus on summer peak demand is failing to secure the right resources and capabilities as the grid transforms
- Load migration is causing utilities to alter long-term contracting practices and minimize stranded procurement risk
- State policies promoting procurement of renewable and distributed energy resources is changing the fleet's attributes
- Certain gas resources needed for reliability are in need of significant maintenance and capital investment
- Lower energy market prices lead to revenue inadequacy and potential uneconomic retirements

Collaborate with the CPUC to align resource adequacy with the transforming needs of the grid

CAISO's Priorities for CPUC RA Track 2 (2020 RA)

- Establish multi-year resource adequacy framework with a central buyer for system, local and flexible capacity
- RA procurement by local area and sub-area
- Update “transitional” effective load carrying capability values for wind and solar resources
- Modify RA showing timeline to enable orderly retirement decisions

CAISO's Priorities for CPUC RA Track 3 (2021 RA)

- Adopt a 1-in-5 year demand forecast during months with highest peak demand uncertainty
- Adopt effective load carrying capability methodology that accurately reflects reliability contribution of resources
- Address resource availability needs in local capacity areas

Resource Adequacy enhancements to evolve program to align with operational needs

- RA Enhancements Phase 1 (Fall 2019 implementation)
 - Support CPUC RA Proceeding Track 2
 - Multi-year needs assessments/load forecasting
 - RA validation tools, portfolio analysis, production simulation
 - Revise RA timeline
- RA Enhancements Phase 2 (Fall 2020 implementation)
 - FRACMOO 2
 - Capacity valuation rules
 - Multi-year CPM and RMR
 - Local availability assessments
 - RA validation tools, portfolio analysis, production simulation
 - Slow response resources as local RA
 - Review of MIC
 - MOO review

ESDER initiative will continue to refine DER and storage participation models and lower integration barriers

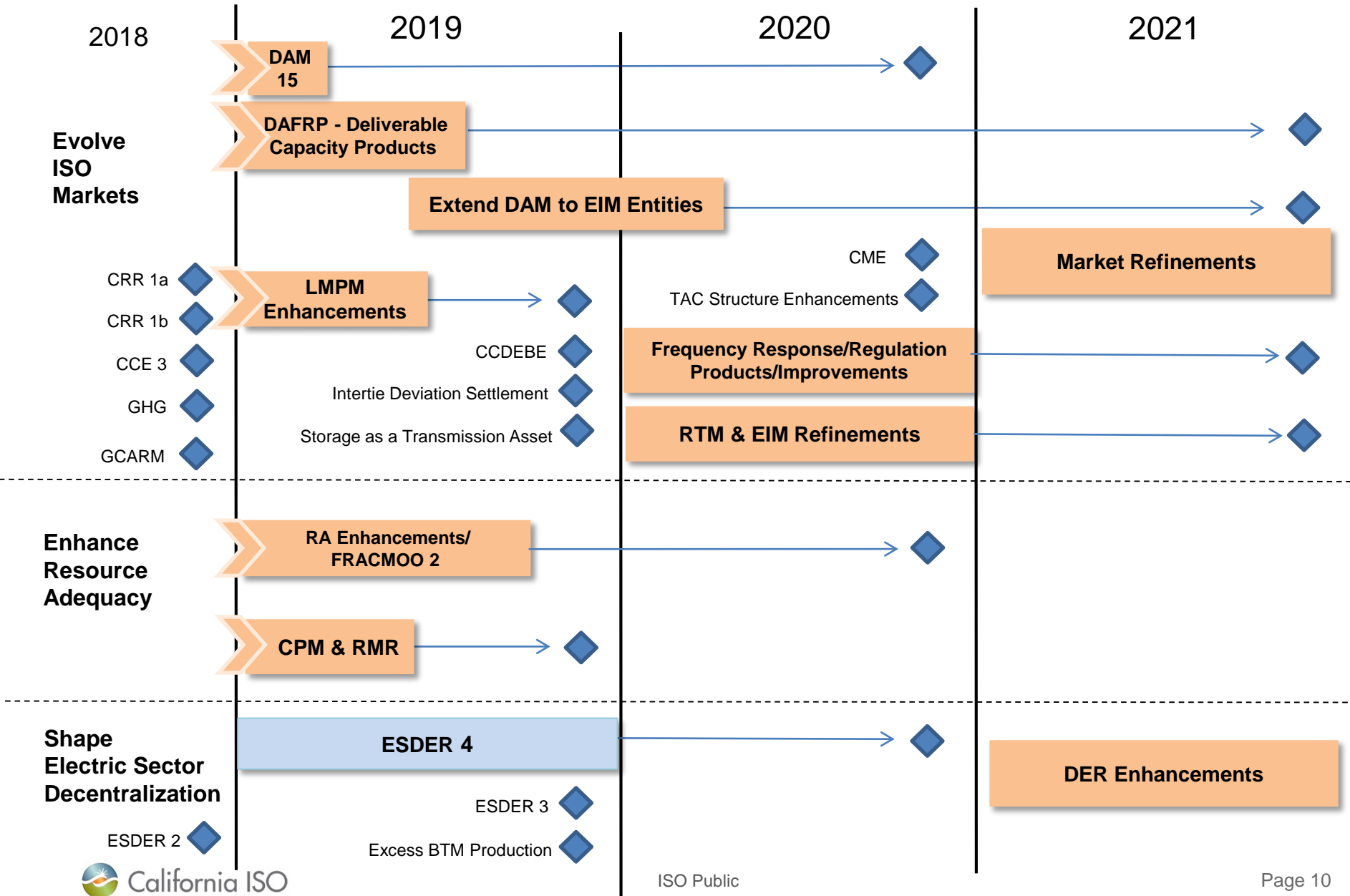
- Expand DER and storage modeling to optimally capture value and leverage resource design attributes that support grid reliability
- FERC Order No. 841 compliance
- Regulatory framework to address:
 - DER and storage resource adequacy qualification rules
 - Qualifying capacity counting of DERs, e.g. weather sensitive DR
- Clearly define multi-use applications to ensure sensible service and value stacking that supports reliability and optimizes resource value

Additional new initiatives on 2019 annual plan address important issues

- Multi-GHG Areas
 - Other states considering carbon reduction policies that will need to be incorporated into EIM
- Market Settlement Timeline Enhancements
 - Settlement timelines need to be updated with current market processes

Three-year Policy Roadmap of Major Initiatives

◆ = Implementation



Potential initiatives based on results from analysis

- **System Market Power Mitigation**
 - DMM raised concerns in 2017 annual report
 - CAISO to perform analysis of market competitiveness within balancing area
 - Share analysis with stakeholders
 - Commence initiative to address any identified issues
- **Congestion Revenue Rights Auction Efficiency Track 2**
 - Analyze effectiveness of Track 1a and 1b measures
 - Share analysis with stakeholders
 - Commence initiative to address any remaining issues

2019 Annual Plan

*Timeframes are approximate and are subject to change

