



# 2021 Three-Year Policy Initiatives Roadmap and Annual Plan

Market and Infrastructure Policy

November 23, 2020

# Annual roadmap process is a comprehensive planning process for evolving the ISO markets

- Roadmap developed through a stakeholder process to prioritize the policy initiatives the ISO will undertake over the next three years
- The development of the annual roadmap includes updating the Policy Initiatives Catalog
  - Comprehensive directory of current, planned, and potential policy initiatives that require a stakeholder process
  - Stakeholders can propose potential policy initiatives
  - Updated twice a year but catalog submissions are accepted year-round

# PRIMARY DRIVERS

# Primary drivers of proposed three-year roadmap

- **Resource sufficiency** - comprehensively reform resource adequacy requirements to align with the changing nature of resources and load and tightening western supply conditions
  - Net peak load, reserve margin, load and supply uncertainty, accurate resource crediting to meet reliability needs
- **Increased resource and load variability** - enhance the day-ahead market and extend to EIM entities to leverage regional diversity to provide benefits across the West
- **New technologies** - enhance market products, modeling, and deliverability to integrate new technologies that replace operational attributes previously provided by the thermal fleet

# Policy development focused on addressing issues identified in the preliminary Root Cause Analysis

- Resource adequacy reforms (current initiative)
  - Plan and provide sufficient physical resources to reliably meet load, reliability requirements and uncertainty all hours of the year
- Scheduling priorities
  - Mechanisms to ensure demand (load and exports) is properly prioritized (new workshop)
  - Day-ahead market enhancements (current initiative)
- Improved market incentives during tight supply conditions
  - Ensure CAISO can compete for imports during tight supply conditions (planned initiative)
  - Provide greater incentives for accurate load scheduling in the day-ahead market (planned initiative)
  - Provide incentives for virtual resources to better align with operational needs during tight supply conditions (planned initiative)

# COMPREHENSIVE REDESIGN OF RESOURCE ADEQUACY

# The RA program must be reformed to ensure operational needs are met in all hours by a reliable RA resource portfolio

- RA framework must reflect the evolving needs of the grid and accurately evaluate and value resources that can meet all operational needs - peak, net peak, energy, operating reserves, and imbalance reserves
- RA counting rules should promote procurement of the most dependable, reliable, and effective resources and must consider resource use and availability limitations and historic forced outage rates
- A portfolio assessment must be performed to ensure the shown RA fleet is adequate to serve load under various load and net load conditions during all hours of the year
- RA resource planned outages should not impede the CAISO's ability to operate the RA fleet reliably
- CAISO and CPUC must collaborate to ensure effective procurement of capacity to reliably operate the grid

# Proposed reforms will drive greater dependability and operability of the RA fleet

- **Portfolio assessment** - ensure the shown RA fleet satisfies all operational needs in all hours- both capacity and energy
- **UCAP** - RA resources' capacity values properly reflect their availability and that resource owners maintain resources to ensure a high availability
- **Planned outage process** - ensure sufficient capacity is procured in advance to cover expected planned outages; no last minute capacity substitution
- **RA import reform** - RA import rules eliminate the possibility of double counting and speculative supply; lock in supply and transmission in advance
- **Must offer obligation** - minimize exemptions and ensure resources are offered into the market to meet their RA obligations
- **Flexible RA** - ensure sufficient resources are secured with the right attributes to meet ramping and uncertainty needs given supply and demand variability
- **Operationalizing storage** - ensure a minimum level of stored energy is available during the net load evening peak to meet operational needs

# Reforms to resource adequacy program needed to align procurement with operational needs

- Phase 1 - Implementation 2021 (RA Yr. 2022)
  - RA Import provisions
  - Planned outage process enhancements
  - Local studies w/ availability-limited resources CPM clarifications
  - Operationalizing Storage – minimum charge requirement
- Phase 2 - Implementation 2022 (RA Yr. 2023)
  - Unforced capacity (UCAP) counting
  - Portfolio analysis to ensure system sufficiency
  - Day-ahead market enhancements alignment
    - Must offer obligations and Bid Insertion Modifications
    - Flexible Resource Adequacy

# EVOLVE ISO MARKETS

# The day-ahead market enhancements initiative addresses challenges of the transforming grid

- Efficiently schedule supply to meet net load and to address uncertainty that may materialize between day-ahead and real-time
  - Improve market efficiency and price signals by co-optimizing imbalance reserves with energy and ancillary services
  - Enhanced RUC process to prioritize demand (load and exports)
- Minimize the need for out-of-market actions and RUC load biasing to meet ramping and uncertainty

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

- EDAM will improve market efficiency and more effectively integrate renewable resources by
  - Optimizing day-ahead unit commitment
  - Producing hourly schedules
  - Improving transmission utilization across a larger footprint

## Stage EDAM policy development to develop policy on major topics prior to considering other issues

- Bundle 1 – Resource sufficiency evaluation, transmission provision, transfer/congestion revenue
- Bundle 2 – Accounting for GHG costs, ancillary services, FNM Phase 2, EDAM administrative fee
- Bundle 3 – Price formation, convergence bidding, external resource participation, market power mitigation including system market power, other issues

## Upcoming dispatch enhancements initiative will improve renewable resource management

- Manage ramp rates to better control system balance
  - Solar and storage resources
- Enhance market incentives for resources to provide accurate curtailment response
- Explore solutions to mitigate decremental market power
- Change settlement rules for decremental exceptional dispatch

# New scarcity pricing initiative planned in response to Summer 2020 tight supply conditions

- Improve market's scarcity pricing provisions for efficient market pricing during tight supply conditions
- Explore mechanisms to ensure real-time prices incentivize accurate day-ahead scheduling and bidding that aligns with operational needs during tight supply conditions
- Examine relationship of scarcity pricing to System Market Power Mitigation and FERC Order 831 designs

# Frequency Response initiative will examine mechanisms for CAISO to continue to meet NERC/WECC frequency response requirements

- Develop additional mechanisms to continue to meet frequency response requirements
  - Potential options: continuation of transferred frequency response, inclusion in a frequency response sharing group, market frequency response product
- Consider regulation product enhancements
  - Enhancements to the pay-for-performance payments
  - Enhancements to the ISO's minimum performance criteria and regulation certification process

# INTEGRATING DISTRIBUTED ENERGY AND STORAGE RESOURCES

# FERC Order 2222 Compliance

- Complete comprehensive gap analysis on FERC Order 2222 requirements against current distributed energy resource provider (DERP) provisions (2021 Q1)
- Compliance filing (July 19, 2021)
- Deploy all changes identified in compliance filing (TBD)
  - May include but not limited to:
    - Reducing minimum distributed energy resource aggregation (DERA) size requirement of 500 kW to 100 kW
    - Adjusting aggregation and metering requirements to accommodate baseline measured demand response in a DERA
    - Resolving settlement impact on broader definition of mixed aggregations (energy injections, energy withdrawals, and demand reductions)

# ESDER implementation, evaluation, and clean up

- Focus on implementing ESDER 3b and ESDER 4 functionality in 2021 and 2022
  - Evaluate the usefulness and effectiveness of new distributed energy resource functionality and identify gaps that remain
  - Will consider new enhancements based on evaluation of current functionality
- Focus on operationalizing distributed energy resources
  - Enhancements to distributed energy resource systems and tools
  - Greater visibility
  - Enhanced forecasting
  - Operationalizing storage

# Development of an alternative qualifying capacity methodology for DR using ELCC

- Update ESDER4 effective load carrying capability (ELCC) study prepared by E3
  - Study explores how to apply an ELCC methodology to demand response given its variable output nature and energy limitations for resource adequacy capacity valuation
- Updated study results submitted into Track 3B of the RA proceeding and shared with CPUC demand response measurement and evaluation committee
  - Explore alternative QC methodology using ELCC or similar methodology to assess DR's contribution to reliability in 2021 for RA year 2022

## Ensure most effective use, value, and treatment of distributed energy and storage resources

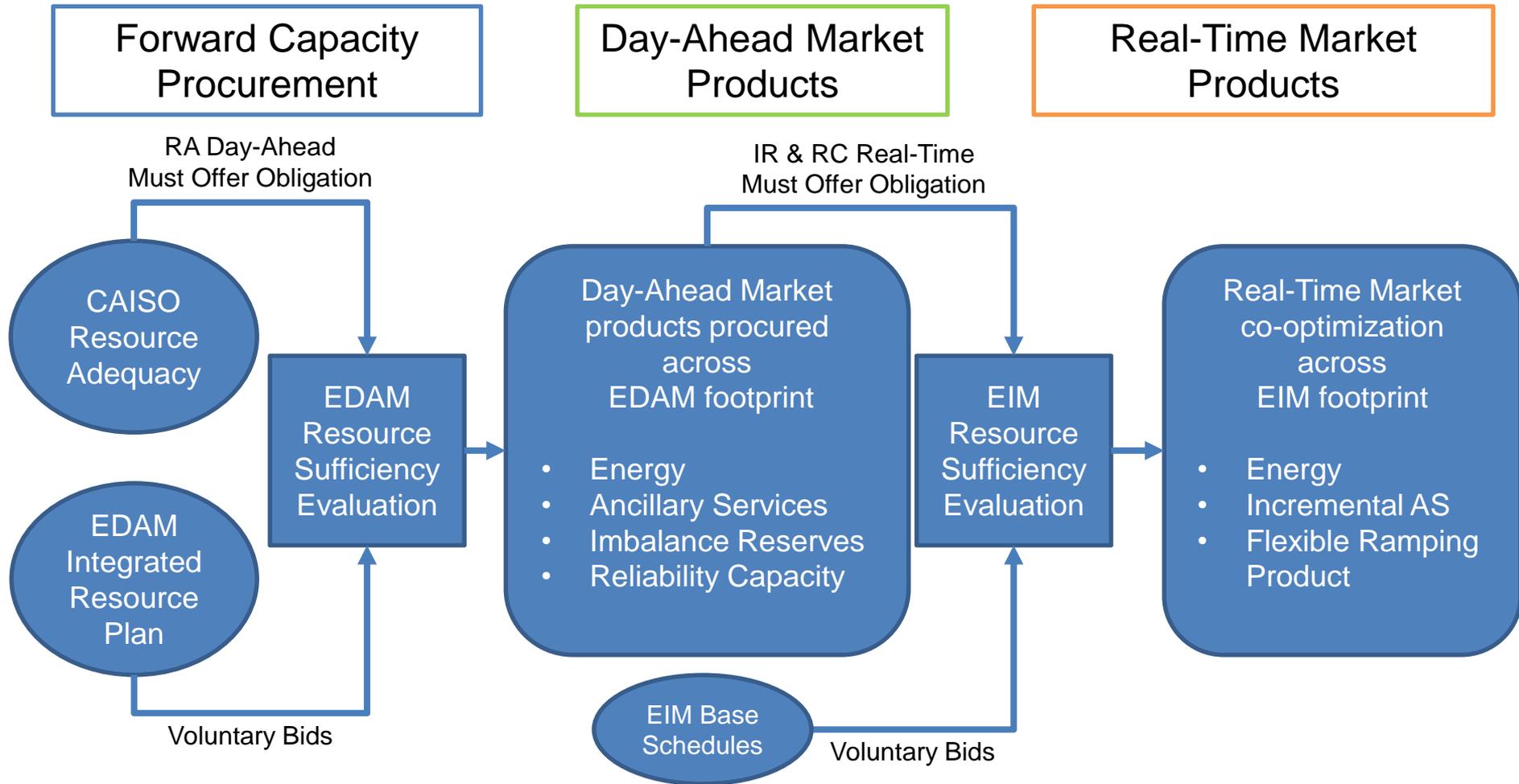
- Allow time for local regulatory authorities to develop policies needed to integrate distributed energy resources into the market
- Within California, coordinate with CPUC and CEC on demand response valuation, load management standards, resource adequacy rules, and load modification rules
- Refine applicable business practice manual and tariff provisions
  - Must offer obligations
  - Resource adequacy rules
  - Default energy bids

## Hybrid resource evolution initiative will develop additional provisions and consider enhancements for hybrid resource market participation

- Market power mitigation
- Resource adequacy must offer obligations
- Additional functionality based on operational experience

# ROADMAP AND ANNUAL PLAN

# Market evolution requires coordinated policy development among forward capacity requirements, day-ahead market enhancements, and extended day-ahead market

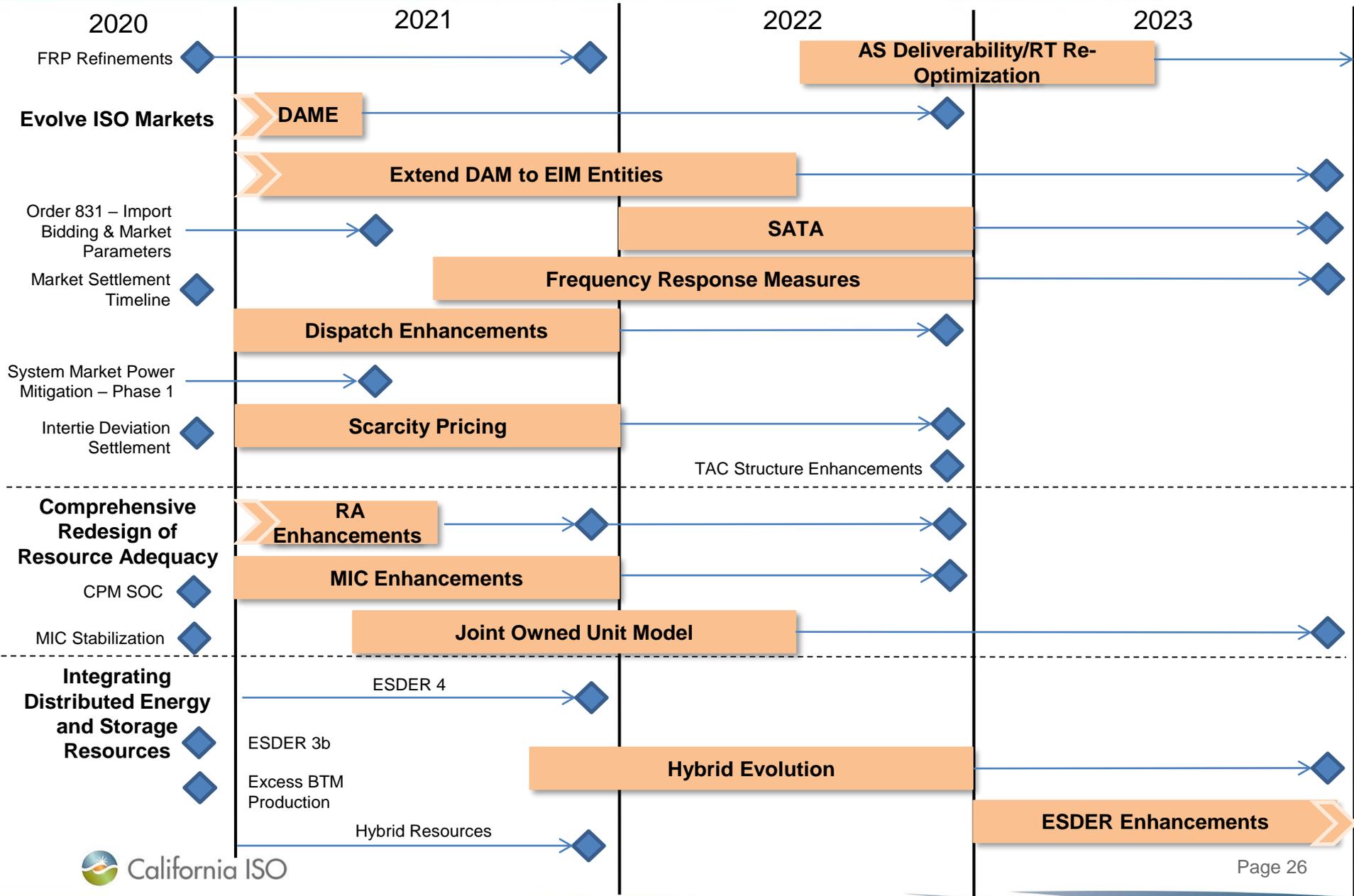


# 2020 Roadmap Initiatives not included in 2021 Roadmap

- **System Market Power Mitigation Phase 2**
  - Second phase will be conducted in conjunction with EDAM design
- **Congestion Revenue Rights Track 2**
  - Major modifications not immediately needed but further refinements will be considered
- **Commitment Costs and Default Energy Bid Enhancements Phase 2**
  - Want to see how Phase 1 performs and confirm consistency with EDAM and DAME
- **Contingency Modeling Enhancements**
  - Changing NERC standards decrease benefit of implementation

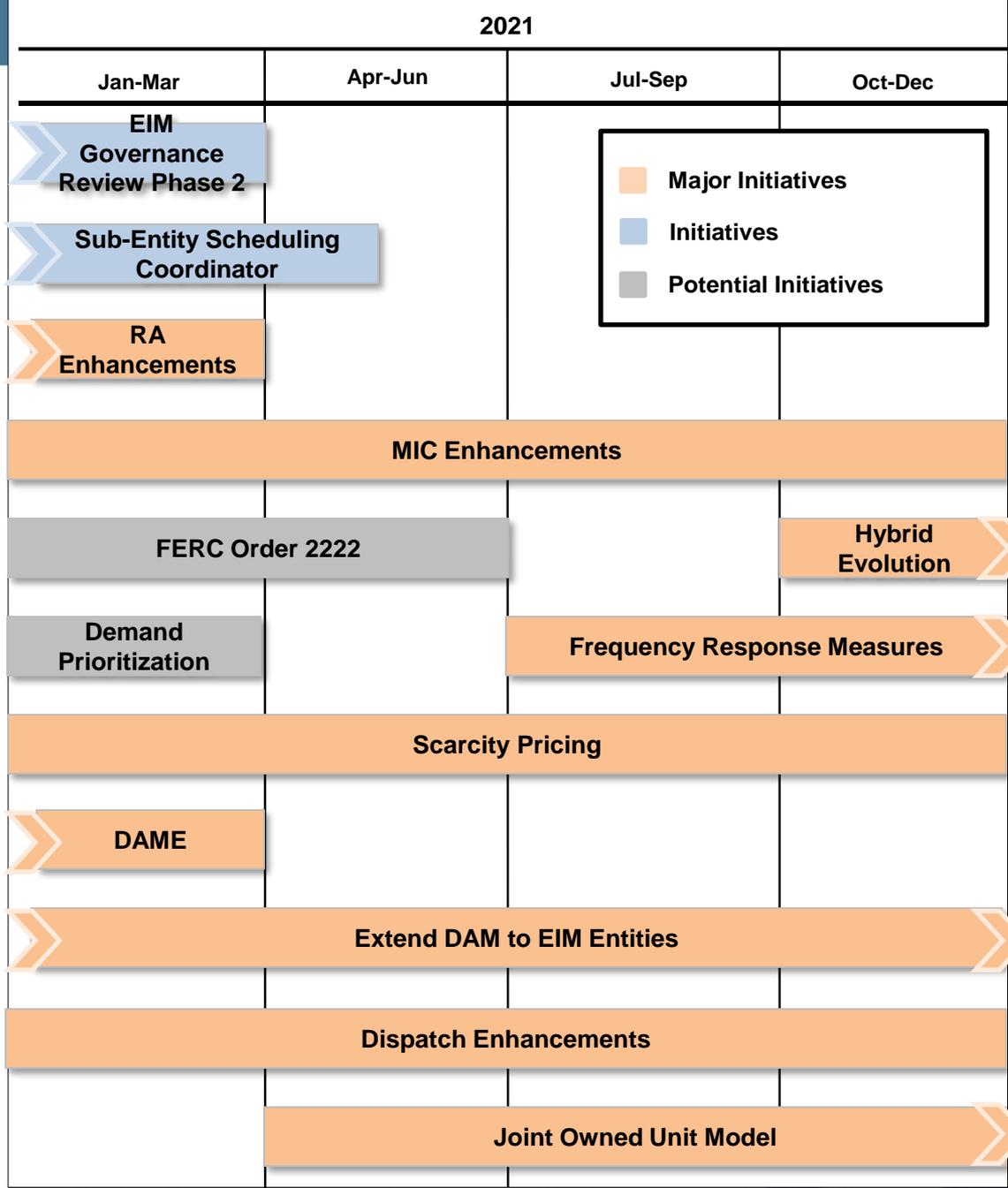
# Proposed Three-year Policy Roadmap of Major Initiatives

◆ = Implementation



# 2021 Draft Annual Plan

\*Timeframes are approximate and subject to change



# 2021 Policy Initiatives Roadmap process schedule

- Final roadmap and annual plan – November 20
  - Stakeholder call – November 23
  - Comments due December 7 to [initiativecomments@caiso.com](mailto:initiativecomments@caiso.com)
  - Process webpage:  
<http://www.caiso.com/informed/Pages/StakeholderProcesses/AnnualPolicyInitiativesRoadmapProcess.aspx>
- Board of Governors briefing – December 16-17
- EIM Governing Body briefing – January 21