




CAISO RA Workshop: Current Processes and Interoperability with the CPUC's Slice of Day Reform

June 6, 2023

Housekeeping reminders

- This call is being recorded for informational and convenience purposes only. Any related transcriptions should not be reprinted without ISO's permission.
- Meeting is structured to stimulate dialogue and engage different perspectives.
- Please keep comments professional and respectful.
- Please try and be brief and refrain from repeating what has already been said so that we can manage the time efficiently.

Instructions for raising your hand to ask a question

- If you are connected to audio through your computer or used the “call me” option, select the raise hand icon  located on the top right above the chat window. **Note:** #2 only works if you dialed into the meeting.
 - Please remember to state your name and affiliation before making your comment.
- If you need technical assistance during the meeting, please send a chat to the event producer.
- You may also send your question via chat to either Kaitlin McGee or to all panelists.

CAISO: Welcome, Objectives & RA Roadmap

Partha Malvadkar, Principal Resource Adequacy &
Anja Gilbert, Lead Policy Developer (CAISO)

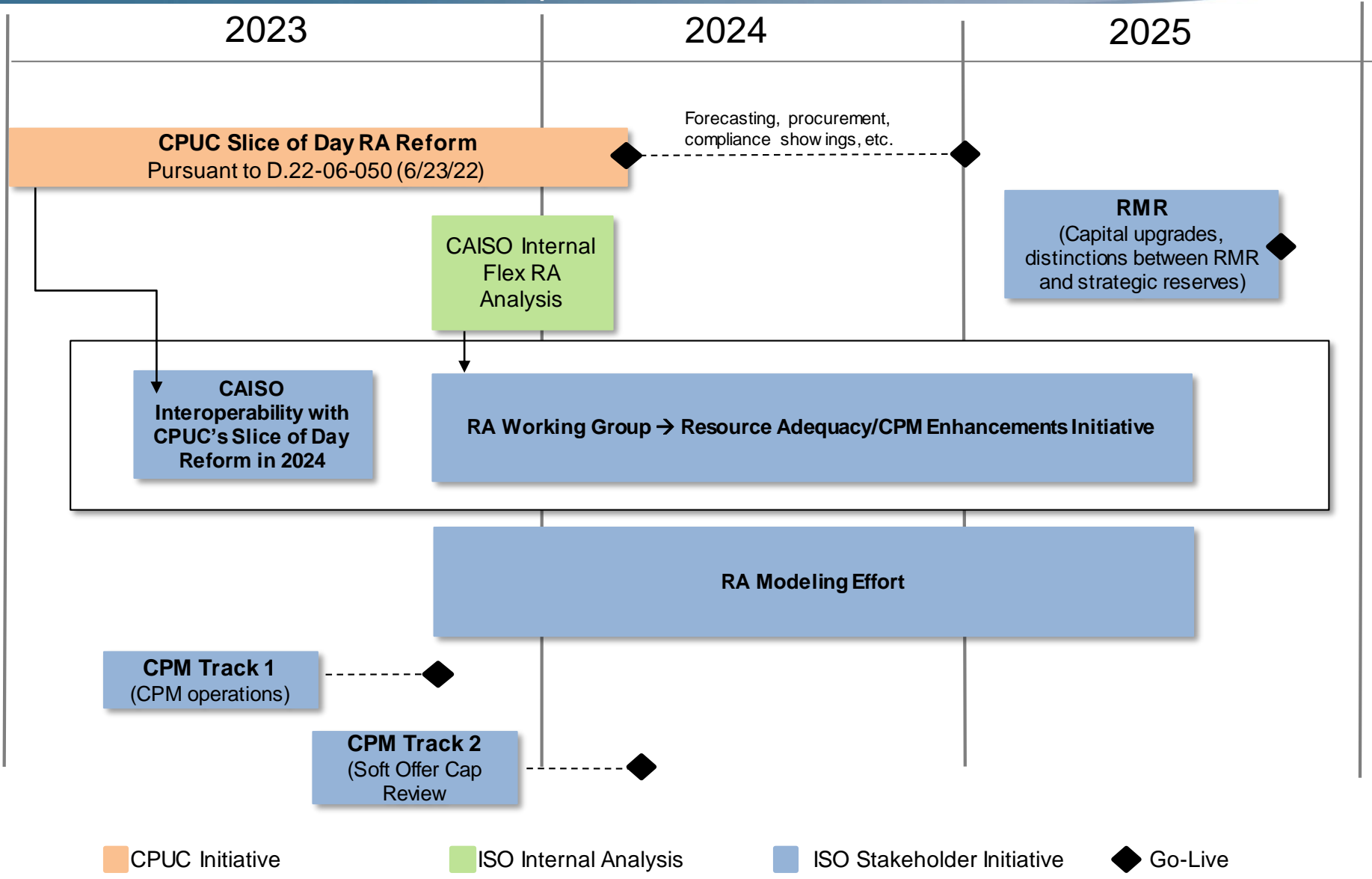
Workshop Agenda

| Time | Topic | Presenter |
|-----------------|--|---|
| 9:00am- 9:15am | Welcome, Objectives & RA Roadmap | Partha Malvadkar & Anja Gilbert (CAISO) |
| 9:15am-10:15am | Overview of the CPUC's Slice of Day Reform | Luke Nickerman (PG&E) |
| | <i>15 min break</i> | |
| 10:30 – 11:30pm | CAISO Presentation on RA Processes and Procedures | Partha Malvadkar & Abdul Mohammed-Ali (CAISO) |
| | <i>lunch break</i> | |
| 12:30pm-2:15pm | Deliverability Study Process for Internal and External Resources | Catalin Micsa & Robert Sparks (CAISO) |
| | <i>15 min break</i> | |
| 2:15pm- 3:00pm | Slice of Day Impact on CAISO Processes | Abdul Mohammed-Ali & Anja Gilbert (CAISO) |
| 3:00pm-3:45pm | Open Discussion: Changes to LRA RA Programs | Discussion |
| 3:45-4:00 | Next Steps | Anja Gilbert (CAISO) |

Workshop Objectives

- Provide an overview of the CAISO RA program and processes.
- Create a forum to discuss the CAISO-specific questions that arose in the CPUC's Slice of Day workshops.
- Discuss the CAISO's approach to collect information on Slice of Day for RAY 2024 and address compliance as a part of RA Enhancements for RAY 2025.
- Hear from LRAs in CAISO's footprint on any near-term changes being considered to their RA program (e.g., PRM and resource counting).

Draft CAISO RA Reforms Roadmap



Overview of the CPUC's Slice of Day Reform

Luke Nickerman, Principal Strategic Analyst, PG&E

RA Reform Overview CAISO Workshop

June 6, 2023



Together, Building
a Better California

Agenda

- RA Reform Background
- CPUC Principles
- Final Decision Framework Elements Summary
- Illustrative System-Level Example
- Framework Element Details
- Timeline and remaining issues

- **R.19-11-009:** Effort scoped into proceeding (early 2020)
 - “Examination of the broader RA capacity structure to address energy attributes and hourly capacity requirements, given the increasing penetration of use-limited resources, greater reliance on preferred resources, rolling off of a significant amount of long-term tolling contracts held by utilities, and material increases in energy and capacity prices experienced in California over the past years.”
- **D.21-07-014:** Adopted PG&E’s “slice-of-day” concept and Principles
 - Workshops followed; SCE proposed an hourly slice concept.
- **D.22-06-050:** Commission adopted SCE’s hourly slice approach, decided on some elements of the framework, and directed additional workshops to address remaining elements.
- **D.23-04-010:** Commission adopted all outstanding elements of the slice-of-day framework and directed additional work to ready the approach for a 2024 test year and 2025 implementation.

Principles as Directed by the CPUC in D.21-07-014 (July 15, 2021):

1. Balance a Reliable Electrical Grid with Minimizing Costs to Customers
2. Balance Addressing Hourly Energy Sufficiency with Advancing Environmental Goals
3. Balance Granularity in Meeting Hourly Needs with Simplicity and Transactability
4. Implementable in the Near-Term (2024)
5. To be Durable and Adaptable to a Changing Electric Grid



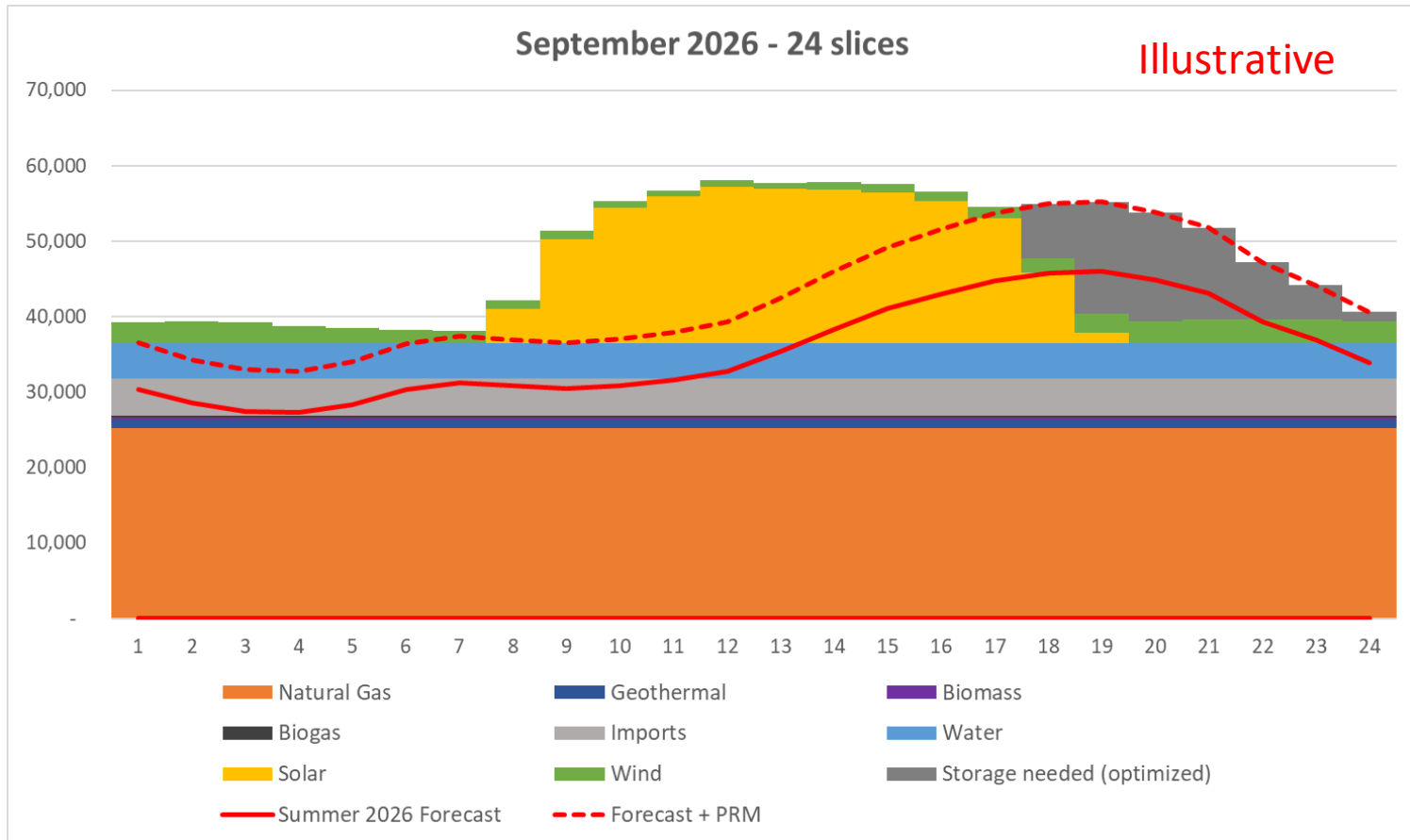
Final Reform Framework Elements

| Proposal Component | | |
|----------------------|--|---|
| Slice Structure | 1 Hour (24 slices) | |
| Seasons | 12 Seasons (monthly) | |
| Showings | Monthly | |
| Resource Counting | Solar/Wind: Exceedance based on high-load profile | Hydro: Existing (single value) |
| | Dispatchable: Pmax | DR: Variable; required during AAH |
| | Storage: Pmax | Imports: Contracted amount (non-specific) |
| | Hybrid: Existing w/ updates | Non-dispatchable: Existing |
| | Other requirements: full-capability MOO; resources must be deliverable | |
| Charging Requirement | Yes (check performed in showing tool) | |
| MCC Buckets | Cap on DR only | |
| Load Forecast | 1 in 2 | |
| | Gross Load | |
| | Worst day values | |
| LSE Allocation | Existing applied to slice (CEC performing test) | |
| PRM | LOLE Determined | |
| Unbundling | Slices: No | Requirements: No |



Slice-of-Day Mechanics

Key Feature: Each LSE needs to bring resources to meet their Demand + PRM in all hours, with excess capacity in some hours to charge storage



FRAMEWORK ELEMENT DETAILS

- **Master Resource Database (MRD)**
 - Will contain all relevant information about RA-eligible resources needed for LSE showings
 - Resources must be on the MRD to qualify for RA
 - Some new information includes storage characteristics (continuous run energy and charging efficiency) and wind and solar profiles
 - Energy Division is producing the MRD, in coordination with CAISO and generators
 - Draft released February 2023, final expected this summer
 - Annual updates for deliverability and NQC changes; monthly for new resources
 - Disadvantaged Community (DAC) information will also be included
- **LSE Showing and Verification Tools**
 - Showing tool: Used by LSEs to make RA showings, leveraging MRD
 - Verification tool: Used by ED to ensure LSE showings are compliant
 - Includes pass/fail logic
 - Decision adopts SCE's showing tool and directs incorporation of Clean Power Alliance's (CPA) energy storage sufficiency logic
 - Energy Division is developing the final tool



Framework Element Details

Compliance Tools

- **LSE Requirements Database**
 - Database holding LSE compliance obligations (288 values for each LSE – 12 months x 24 hours)
 - Populates the LSE allocation tab in the LSE compliance showing
 - Developed by ED after CEC determines 24-hour load shape for each LSE
 - CEC conducted a dry run in 2022 for 2023
- **Cost Allocation Mechanism (CAM) and RA Allocation Processes**
 - Addresses allocation issues of CAM, RMR, central procurement entity (CPE), and DR allocations
 - Resources to be allocated to LSEs based on monthly peak load ratio and by resource class
 - For storage resources, energy sufficiency requirements will also be allocated
 - LSEs have the flexibility to shape how they show storage CAM resources



Framework Element Details: Counting Rules

- **Solar / Wind:**
 - Final decision adopts PG&E’s Top 5 Days methodology (+ flex alert days)
 - Uses exceedance, with percentages based on a high-load profile:
 - 70% in summer months (Jun-Sep); 50% in non-summer months
 - Final product will be a 288 (12 months x 24 hours) capacity factor profile
 - Uses actual production data; applied at technology and regional profile level

Steps 4-6: Exceedance production at 70% level (Jun-Sep); 50% level (Oct-May)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|
| Jan | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 6% | 24% | 39% | 46% | 49% | 48% | 45% | 39% | 23% | 5% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Feb | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 15% | 44% | 58% | 61% | 62% | 62% | 59% | 55% | 46% | 19% | 1% | 0% | 0% | 0% | 0% | 0% | 0% |
| Mar | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 8% | 36% | 56% | 65% | 65% | 66% | 63% | 58% | 52% | 39% | 9% | 2% | 0% | 0% | 0% | 0% | 0% |
| Apr | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 20% | 50% | 64% | 72% | 74% | 74% | 73% | 73% | 66% | 60% | 43% | 14% | 0% | 0% | 0% | 0% | 0% |
| May | 0% | 0% | 0% | 0% | 0% | 0% | 7% | 35% | 58% | 69% | 77% | 79% | 78% | 79% | 77% | 73% | 64% | 51% | 24% | 3% | 0% | 0% | 0% | 0% |
| Jun | 0% | 0% | 0% | 0% | 0% | 0% | 10% | 39% | 61% | 73% | 81% | 85% | 85% | 84% | 83% | 78% | 69% | 57% | 33% | 7% | 0% | 0% | 0% | 0% |
| Jul | 0% | 0% | 0% | 0% | 0% | 0% | 6% | 31% | 57% | 70% | 78% | 82% | 83% | 81% | 79% | 76% | 68% | 56% | 31% | 6% | 0% | 0% | 0% | 0% |
| Aug | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 21% | 51% | 68% | 77% | 80% | 81% | 80% | 78% | 73% | 64% | 47% | 18% | 1% | 0% | 0% | 0% | 0% |
| Sep | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 15% | 46% | 64% | 73% | 76% | 76% | 76% | 74% | 68% | 56% | 32% | 4% | 0% | 0% | 0% | 0% | 0% |
| Oct | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 6% | 35% | 57% | 65% | 69% | 69% | 70% | 68% | 62% | 45% | 12% | 0% | 0% | 0% | 0% | 0% | 0% |
| Nov | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 17% | 42% | 55% | 58% | 59% | 58% | 56% | 47% | 26% | 3% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Dec | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 7% | 26% | 40% | 45% | 46% | 47% | 43% | 36% | 18% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

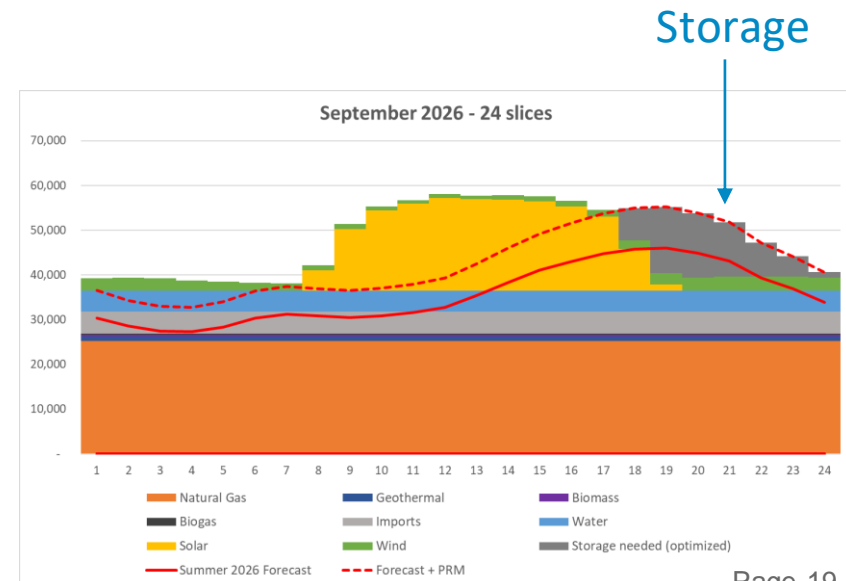
Illustrative

- **Hybrids / Co-Located**

- Uses existing additive methodology updated for exceedance (for wind/solar)
- Energy-only renewables are eligible for charging capacity when co-located with the storage

- **Storage**

- Is modular in nature – can be used to fill gaps between the requirements and the resource stack
- LSEs need excess charging capacity in other hours to fully charge the storage, including losses
- Can be shown for multiple cycles (if operationally and contractually able)
- MRD defaults
 - One cycle per day
 - 80% charging efficiency losses
- Multi-day storage: counting method deferred





Framework Element Details: Counting Rules and PRM

- **Dispatchable**
 - Pmax (existing methodology applied to all hours in the month)
 - UCAP-light was considered, but rejected in favor of exploring a full UCAP
- **Hydro**
 - Single monthly value based on existing QC counting methodology
 - Use of a profile deferred to future refinements
- **DR (2024 test year)**
 - Uses LIP methodology
 - Uses a variable profile and requires DR resources to be shown for four consecutive hours during the availability assessment hours (AAH)
 - Maintains a maximum cumulative capacity (MCC) bucket cap
- **PRM**
 - One PRM to be used for all hours of the year (at least initially)
 - Task in reform track is to convert and calibrate results of an LOLE study to the SOD framework
 - Decision directs integration of the NRDC and SCE calibration tools to convert the LOLE results to a SOD framework



Framework Element Details: MCC Buckets and Test Year Details

- **Maximum Cumulative Capacity (MCC) buckets**
 - Maintains the DR MCC bucket, using the same methodology applied to all hours
 - All other buckets are eliminated
- **Test year details**
 - Commission's test year goals are to ensure all tools and rules function as intended and provide LSEs time to adjust their portfolio to meet the SOD requirements
 - Limited showings: annual and month-ahead showings for March, June, September
 - Energy Division is directed to prepare a report summarizing test year experience by Feb 1, 2024

QC values

- For 2025 and beyond, the Commission will transmit three values to the CAISO for their compliance purposes:
 - Maximum showing values from LSEs
 - Peak showing values from LSEs
 - Greater of the peak hour value and a very small non-zero value if the minimum value is zero (wind, solar, DR) – to create a non-zero QC value for use in the NQC list

Timeline:

- Test for compliance year 2024
 - Annual and March, June, September
 - Different submission timeline
- Full implementation in compliance year 2025

Remaining Tasks:

- Final Master Resource Database
- Final LSE Showing and Verification Tools
- Final LSE Requirements Database
- PRM calibration

CAISO: RA Processes & Procedures

Partha Malvadkar, Principal Resource Adequacy &
Abdul Mohammed-Ali, Operations Engineering Resource
Adequacy Manager (CAISO)

California Resource Adequacy Shared Responsibilities



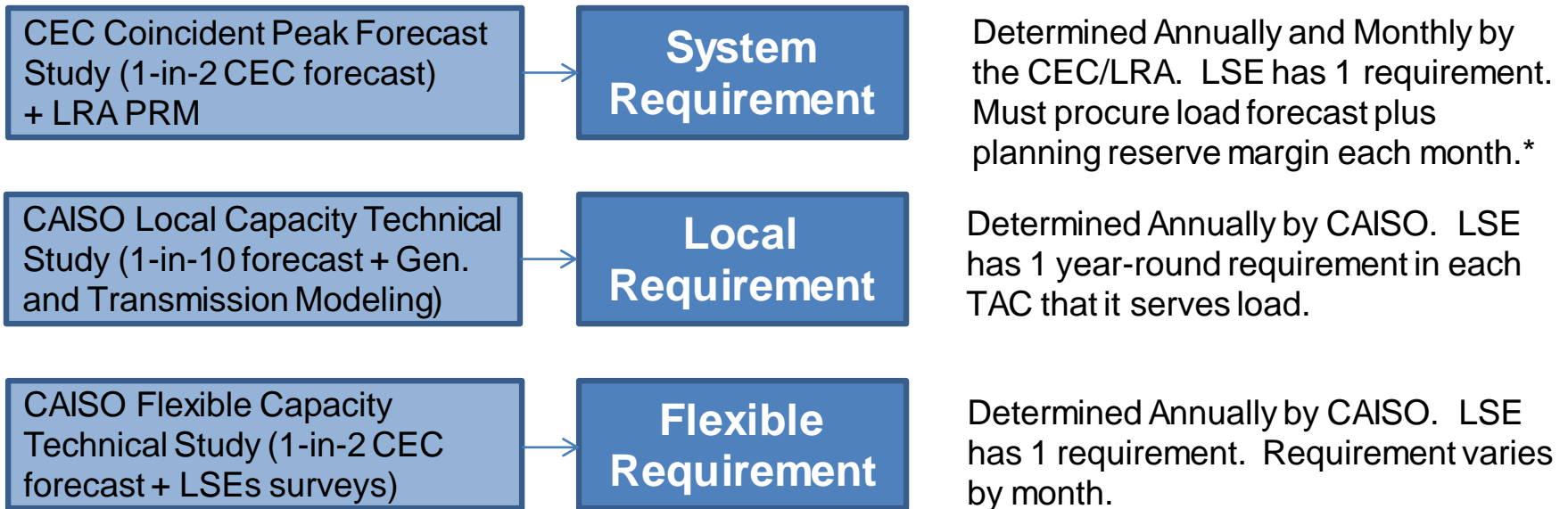
Shared Responsibility with LRAs

- CAISO collaborates with Local Regulatory Authorities (LRAs) on the establishment and execution of the RA program
- The LRAs have the authority to set the Qualifying Capacity (QC) for resources and the Planning Reserve Margin (PRM)
- CAISO tariff has default resource adequacy requirements for LRAs that have not adopted RA requirements

Essential Components of CAISO Annual and Monthly Resource Adequacy Programs

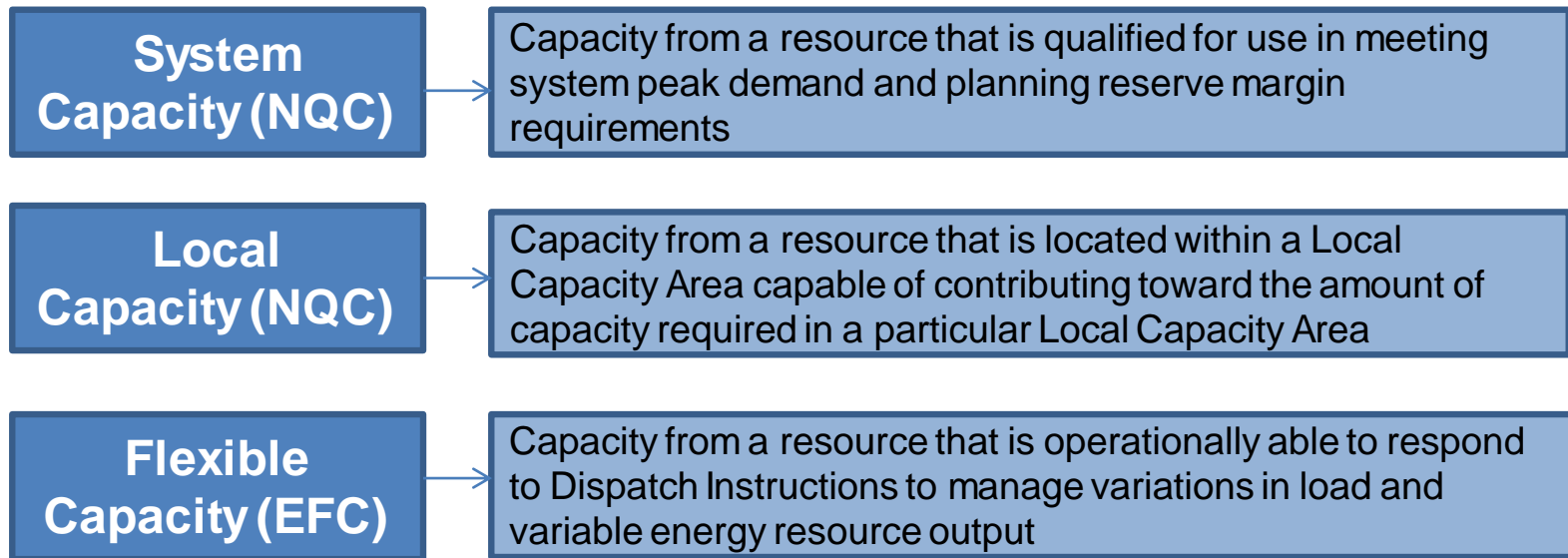
| Requirements setting | Procurement and showings | Qualifying Capacity | Enforcement and backstop | Must offer |
|---|--|---|---|---|
| <i>Target</i> requirements that ensure system, local and flexible operational needs are met | Annual and monthly <i>procurement</i> requirements to meet targets and showings to the CAISO | Rules to qualify and evaluate whether resources can meet resource adequacy requirements | Showings validation and assessments for deficiencies and allocation of backstop costs | All resource adequacy resources shown must offer into the CAISO markets |

How the Three Types of Requirements for LSEs are Determined



* Percentage can vary based on LRA

Three Types of Capacity Must be Secured by LSEs



CAISO uses either: the values provided by the LRA to set the QC of all RA Resources or the CAISO's own criteria if the LRA has not established one

CAISO establishes the "N" in the NQC by reducing, if necessary, the QC values provided by the LRAs for different reasons (deliverability, Pmax test, interconnection agreement etc.)

Setting NQC and EFC

LRA's calculate the QC for resources based on their methodology and send them to CAISO



- $NQC = QC - \text{deliverability cuts} - \text{Testing (capped at } P_{max})$
- EFC = mostly capped at NQC and depends on the resource type

NQC/EFC are used as the basis for CAISO RA showings and are used in downstream processes (e.g., determining deficiencies, the must offer obligation, substitution obligation, RAIM) and available substitution capacity.

Procurement & Demonstration of RA

1. LRA mandates procurement of target system capacity of next year and month peak load forecast. CAISO allocates local and and flex requirements.

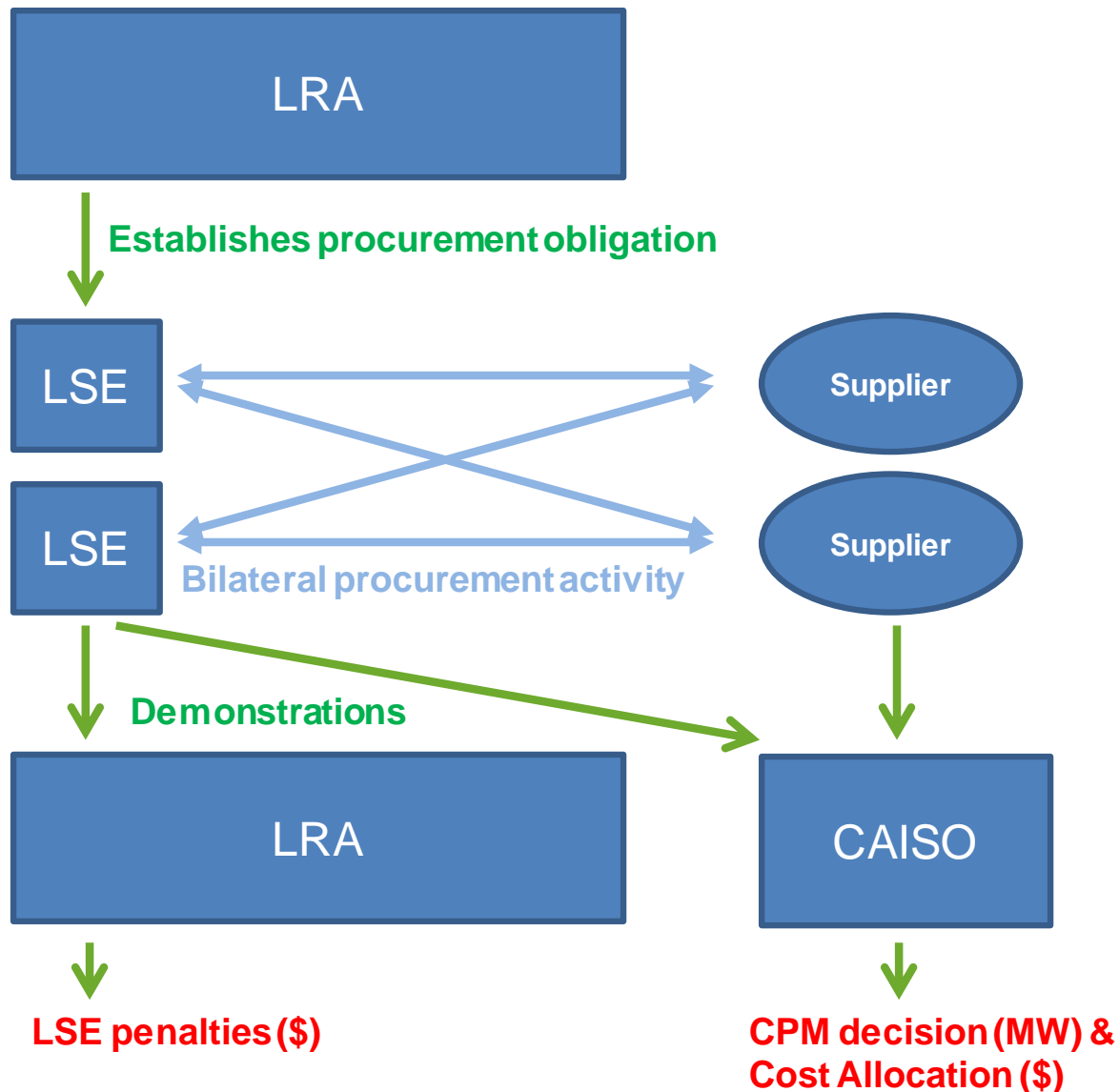
2. LSEs engage in bilateral procurement of capacity to meet this requirement.

3. LSEs demonstrate procurement to LRA and CAISO

4. Suppliers demonstrate RA sales to CAISO.

5. LRA ensures LSE compliance.

6. CAISO ensures suppliers corroborate LSE showings and met needs.

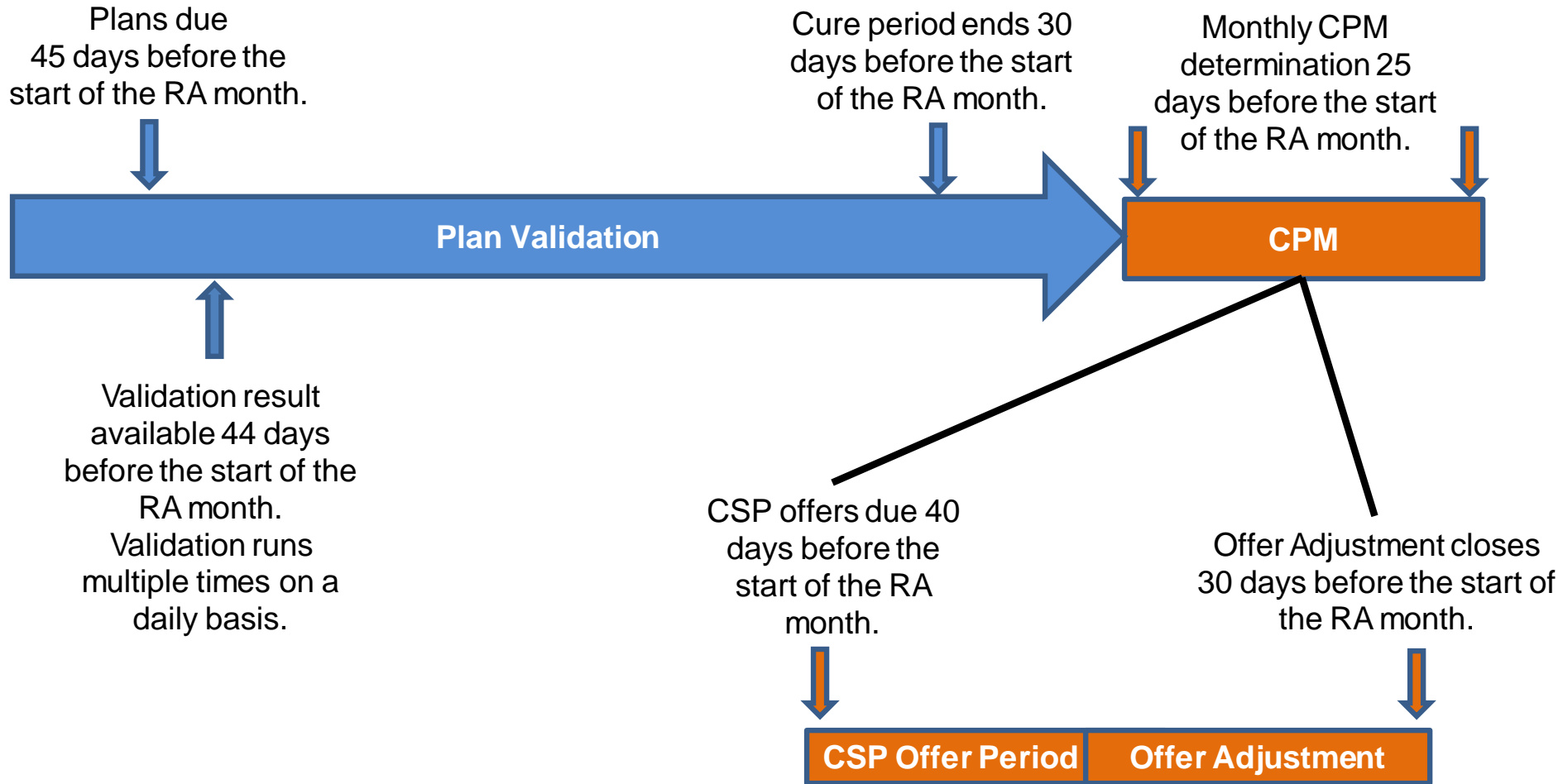


Timeline for Annual Showings

- **September:** Year ahead requirements are finalized
- **October:** LSEs and Suppliers make the year ahead showings
- **November:** CAISO makes any deficiency determinations and LSEs have a chance to cure
- **December:** CAISO may procure backstop capacity through the Capacity Procurement Mechanism (CPM)

- 90% System RA requirement for Summer Months- May to September
- 100% local capacity all 12 months
- 90% of each months flexible requirement

Timeline for Monthly Showings



Customer Interface for Resource Adequacy (CIRA)

For RA purposes, market participants interact with CAISO using web-based CIRA.

CIRA:

- NQC requests
- Bi-lateral trade of import allocation
- Annual/monthly RA showings
- View results of RA analysis
- Planned/forced outage substitution
- Competitive solicitation offers and CPM designation

CIRA is currently configured to validate a single forecast and reserve margin to validate all LSEs' RA plans. The CPUC's decision to pass the CAISO single, non-zero QC values and LSEs showings based on the peak hour are compatible with the current CIRA configuration.

Questions

CAISO: Deliverability Study Process for Internal and External Resources

Catalin Micsa, Senior Advisor, Regional Transmission Engineer & Robert Sparks, Senior Manager, Regional Transmission – South (CAISO)

RA Workshop vs Generation Deliverability Methodology Review

- In today's RA workshop the CAISO intends to discuss the general deliverability concepts and the current deliverability process for internal and external resources.
- This RA workshop is not intended to discuss the review or future changes to the existing deliverability process.
- If you are interested in discussing the details of the deliverability methodology including potential future changes please attend our "Generation Deliverability Methodology Review" stakeholder call scheduled for June 8, 2023 from 9:00AM-12:00PM.

Deliverability and Resource Adequacy

- Per ISO Tariff section 40.4.6 Reductions for Deliverability
 - The ISO will reduce the Local Regulatory Agency (LRA) established Qualifying Capacity (QC) values for any part proven to be undeliverable to the aggregate of load.
- Per ISO Tariff
 - Only fully deliverable resources (FCDS), the deliverable part of a resource (PCDS) or interim deliverable resources (IDS) can provide resource adequacy capacity.
 - Energy Only resources are not allowed to provide resource adequacy capacity.
- CPUC program transition to 24 hour accounting
 - Does not change what resources can count for resource adequacy under the CAISO Tariff.

Deliverability Enforcement

- Transmission deliverability must continue to be enforced for any resource that uses the grid for delivery.
- ISO will continue to perform deliverability studies at the appropriate stressed system condition(s).
- Deliverability studies are done at peak and “Battery charging” is mostly done during non-peak periods:
 - Available deliverability is typically highest at peak load periods
 - Any hour with “less load” has “lower deliverability available” and therefore deliverability constraints cannot be ignored during hours outside of peak either (to the contrary)
- EO resources cannot be used for resource adequacy:
 - To serve load across the transmission system
 - To charge batteries across the transmission system

Deliverability

- **Basics**

- A resource must be deemed “deliverable to the aggregate of load” in order to count for RA
- Being deemed “deliverable” conveys no priority rights when a resource utilizes the ISO controlled grid

- **Study Methodology**

- Peak load condition(s)
- “Generation Pocket” concept - generation in an area may exceed the transmission capacity available to deliver resource outside the area

- **Resources**

- External generation – not given “deliverability” effectively they are all Energy Only. The CAISO LSEs can make any import resource deliverable by using their RA Import Allocation
- Internal generation – deliverable amount determined based on studies under normal A(N-0), single B(N-1), and common mode C.5 (N-2) contingencies, with “deliverable imports” enforced

Deliverability Study Process: Purpose

- To test that the transmission system can reasonably ensure that resource adequacy capacity can be delivered to load during resource shortage conditions.
- This is an ISO process referred to in our tariff, and is used in our transmission planning process and generator interconnection process.
- Determines the Network Facility upgrades needed to obtain FCDS in the interconnection studies and TPP policy studies.
- Is also used to determine if Qualifying Capacity of generation will be fully deliverable in the next operating year.
- Deliverability does NOT ensure dispatch:
 - Deliverability does not mean 100% congestion elimination for all load levels.

Deliverability Study Process: Methodology

- A deliverability assessment is applied to existing and planned generation located in the balancing area, and to RA imports (MIC).
- Developed from PJM Methodology (MISO uses a similar methodology).
- Peak load conditions.
- Aggregate of generation can be transferred to aggregate of the ISO Balancing Area Load.
- Capacity resources within a given sub-area must be able to be exported to other parts of the Control Area experiencing a resource shortage due to forced generation outages.

Deliverability Study Process: Methodology

- Internal generation is dispatched in the base case to evenly distribute the total available generation.
- Imports are modeled based on the MIC levels.
- Since all available capacity is needed, it is all dispatched close to its maximum available capacity without consideration of cost.
- Base case values also represent approximate dispatch of generation outside of the study groups during the analysis.
- An automated tool is used to identify and analyze study groups.
- Generation inside of a study group is increased during the study.
- The process is intended to test the ability of resources inside of the study group to be dispatched at full output when various resources outside of the study group are unavailable.

Deliverability Study Process: Two Study Conditions

- The ISO peak load hour now occurs during very low solar generation production hours.
- The On-Peak deliverability assessment considers two solar generation production levels:
 1. At minimum solar production with the highest load level impacting the transmission system-- Highest System Need (HSN).
 2. As solar production is dropping, and with a similarly high load level—Secondary System Need (SSN).

Deliverability Study Process: Generation Dispatch Factors

| Area | HSN | | | SSN | | |
|----------------------------|-------------|-------|-------|-------|-------|-------|
| | SDG&E | SCE | PG&E | SDG&E | SCE | PG&E |
| Solar | 3.0% | 10.6% | 10.0% | 40.2% | 42.7% | 55.6% |
| Wind | 33.7% | 55.7% | 66.5% | 11.2% | 20.8% | 16.3% |
| New Mexico Wind | 67% | | | 35% | | |
| Wyoming Wind | 67% | | | 35% | | |
| Diablo OSW | 100% | | | 37% | | |
| Morro Bay OSW | 100% | | | 49% | | |
| Humboldt Bay OSW | 100% | | | 53% | | |
| Energy Storage (4 hour) | 100% | | | 50% | | |
| Non-Intermittent Resources | NQC or 100% | | | | | |

Maximum Import Capability (MIC) Methodology, Step 1

Historically Based

- Select 4 hours by choosing 2 in each one of the two years with the highest imports among the last five years (and different days within the same year) with the highest total net import level when peak load was at least 90% of the annual system peak load.
- The average of net import schedules (0 MW is assigned when net imports are negative) + the average of unused ETC (adjusted for future year availability) technically should represent the Maximum Import Capability (MIC) for each tie.
- In order to assure that all pre-RA import commitments (already paid by ratepayers) are allowed to count for RA until they expire, an uplift is added to the above established methodology for certain branch groups and this higher number is published and divided among LSEs as MIC.

Forward Looking Maximum Import Capability

Policy portfolios

- Expansion of RA import capability is an element of public policy objective for Transmission Planning Process (“TPP”) to identify needed transmission
 - Based on amount of external resources in state and federal portfolios
 - Determine whether additional network upgrades are needed to support target MIC MW values
 - Include these upgrades in Comprehensive Transmission Plan

MIC expansion requests

- Requests must meet Tariff requirements - mostly already executed RA contracts scheduled at interties that do not have enough Remaining Import Capability (RIC)
 - They do not drive new transmission expansion

Both included in the annual MIC assessment in order to expand MIC values to target levels as required.

Terminology

1. **Prospective RIC**

- Based on policy portfolios (highest priority) and MIC expansion requests (lower priority)

2. **Expanded MIC (historical and prospective)**

- Blend the two together to assure that new Expanded RIC can accommodate all required new policy driven imports and if possible MIC expansion requests as well
- To be modeled in next round of deliverability studies

Terminology

1. **Current Maximum Import Capability** (MIC based on historical methodology) = (Scheduled net energy imports from historical data) + (Unscheduled ETC and TOR import capacity)
2. **Current Remaining Import Capability** (RIC based on historical methodology) = Current MIC – (Total ETC and TOR import rights) – (Pre-RA import commitments)
3. **Expanded RIC** = Max{(Current RIC), (Prospective RIC based on TPP resource portfolio and MIC expansion requests)}
4. **Expanded MIC** = Expanded RIC + (Total ETC and TOR import rights) + (Pre-RA import commitments)

Illustrative Expanded MIC

| Description | MW |
|---|------|
| Current MIC | 309 |
| Existing Transmission Contract (“ETC”) | 0 |
| Pre-RA Import Commitment | 150 |
| New Use Import Commitment | 50 |
| Current RIC | 109 |
| | |
| Prospective RIC (based on portfolios and MIC expansion requests) | 1272 |
| | |
| Expanded RIC = max (109, 1272) | 1272 |
| | |
| Preliminary Expanded MIC | 1472 |
| Expanded RIC = max (109, 1272) | 1272 |
| ETC | 0 |
| Pre-RA Import Commitment | 150 |
| New Use Import Commitment | 50 |
| Run deliverability studies If needed propose and approve Network Upgrades | |
| | |
| Expanded MIC = 1,472 MW Expansion may be done in stages among future years To be published in Comprehensive TPP for years 2-10 To be modeled in next round of cluster studies | |

“Import Deliverability” is assigned every year to LSEs

- **Assignment of RA import capability to LSEs** – MIC on each intertie is available to LSEs for procuring RA capacity from external resources; it is not assigned directly to external resources.
- **Process for allocating MIC to LSEs** – Steps 2-13 in Tariff Section 40.4.6.2.1, Available Import Capability Assignment Process.
- **Annual determination of MIC** – MIC values for each intertie will still be calculated annually for a one-year term.

Available Import Capability Assignment Process 13 Steps in Tariff Section 40.4.6.2.1

| | |
|----------------|--|
| Step 1 | Determine Maximum Import Capability (MIC) |
| | Total ETC |
| | Total ETC for non-ISO BAA Loads |
| Step 2 | Available Import Capability |
| | Total Import Capability to be shared |
| Step 3 | Existing Contract Import Capability (ETC inside loads) |
| Step 4a | Total Pre-RA Import Commitments & ETC |
| Step 4b | New Use Import Commitments |
| | Remaining Import Capability after Step 4 |
| Step 5 | Allocate Remaining Import Capability by Load Share Ratio |
| Step 6 | CAISO Posts Assigned and Unassigned Capability per Steps 1-5 |
| Step 7 | CAISO Notifies SCs of LSE Assignments |
| Step 8 | Transfer [Trading] of Import Capability among LSEs or Market Participants. |
| Step 9 | Initial SC Request to ISO to Assign Remaining Import Capability by Intertie. |
| Step 10 | CAISO Notifies SCs of LSE Assignments & Posts unassigned Available Import Capability |
| Step 11 | Secondary SC Request to ISO to Assign Remaining Import Capability by Intertie. |
| Step 12 | CAISO Notifies SCs of LSE Assignments & Posts unassigned Available Import Capability |
| Step 13 | SCs may submit Requests for Balance of Year Unassigned Available Import Capability |

Questions

CAISO: Slice of Day Impact on CAISO Processes

Abdul Mohammed-Ali, Operations Engineering
Resource Adequacy Manager & Anja Gilbert, Lead
Policy Developer (CAISO)

Current QC/NQC framework and CAISO processes

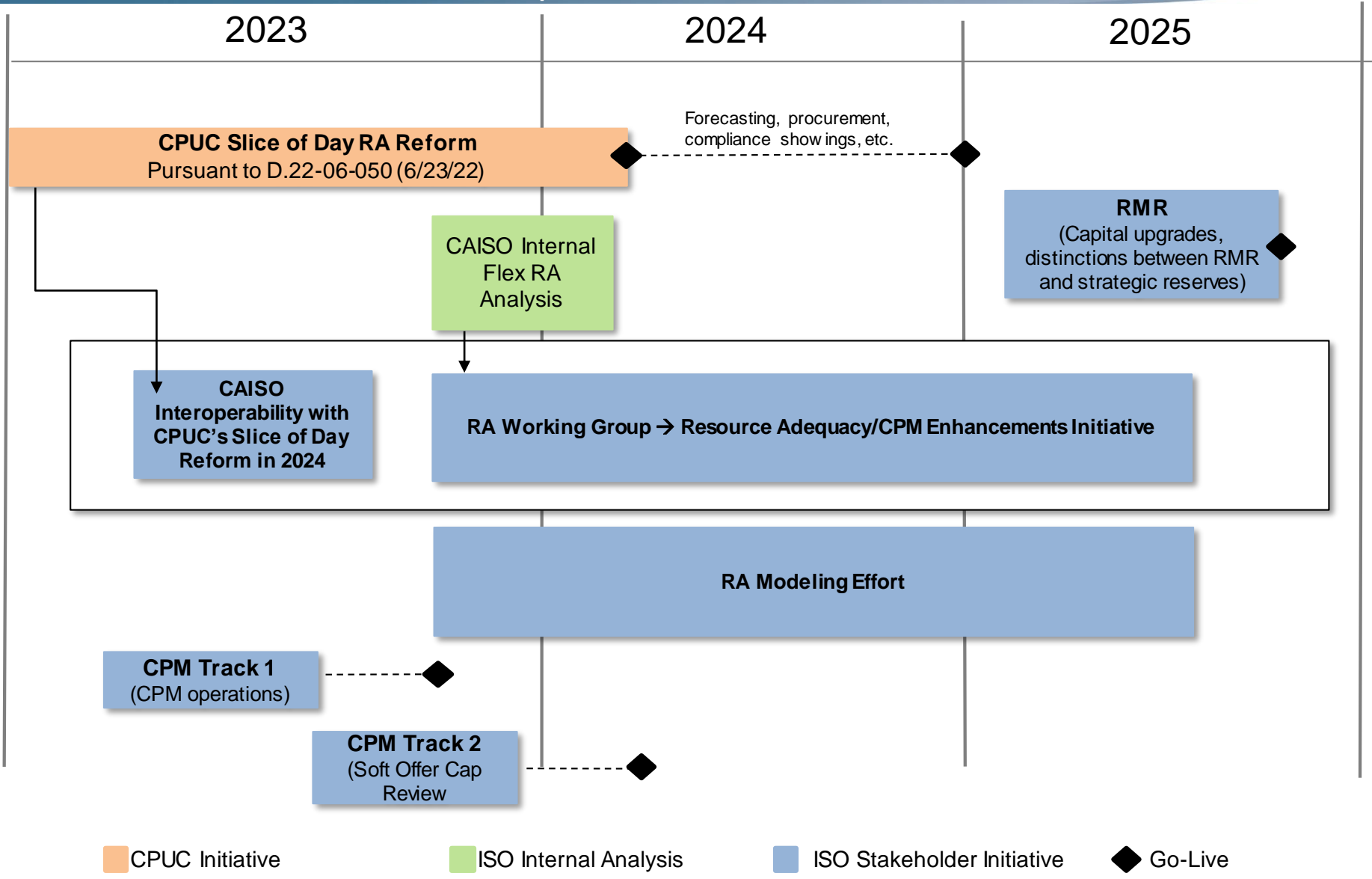
| CAISO Process | How QC/NQC values are used |
|------------------------|---|
| NQC list | QC values from LRAs may be adjusted by the CAISO for deliverability or other reasons (NQC); Deliverability is based on CAISO studies of resource capabilities to deliver output to load across the CAISO system |
| System assessments | RA shown by LSEs/suppliers is compared to coincident peak demand plus PRM, to determine whether LSEs meet overall system and individual system requirements |
| Local assessments | Resources are dispatched in local assessments based on the amount of the resource shown to the CAISO (shown RA as a % of NQC) to determine whether LSEs meet collective and individual local requirements |
| Outage substitution | Outage substitution obligations are based on shown RA |
| Must offer obligations | Must offer obligations are based on shown RA |
| MIC | LSEs must pair imports with a commensurate amount of MIC to count as RA at the CAISO |

Slice of Day: Impact on CAISO Processes

| CPUC | Data received |
|------------------------------------|--|
| 2024 | Single monthly QC value by resource; using current methods, including ELCC |
| 2025 | Single monthly non-zero QC value by resource: using SOD accounting, including exceedance |
| ISO Process for 2024 SOD Test Year | ISO Impacts |
| ISO RA showings | Status quo; data from the CPUC is informational for the 2024 test year. |
| System Assessments | |
| Local assessments | |
| Outage substitution | |
| Must offer obligations | |
| MIC | |

Any reforms for assessments or deficiencies for RAY 2025 would be a result of broader reform taking place in the CAISO's RA Enhancements initiative.

Draft CAISO RA Reforms Roadmap



Questions

Discussion: LRAs RA Processes

Open Forum

Are any changes occurring in your RA program?

- Resource counting methods
- Planning Reserve Margin
- Other?

Next Steps: Comments

- Please submit comments on the workshop discussion by end of day June 20, 2023 to initiativecomments@caiso.com.
- A comment template will be available on the Miscellaneous Meetings Page: <http://www.caiso.com/informed/Pages/MeetingsEvents/MiscellaneousStakeholderMeetings/Default.aspx>
- If you have any questions, please contact isostakeholderaffairs@caiso.com



- *Energy Matters* blog provides timely insights into ISO grid and market operations as well as other industry-related news <http://www.caiso.com/about/Pages/Blog/default.aspx>.

Read a recent article featured in the blog:

May 16, 2023
Summer conditions

2023 Summer Loads and Resources Assessment has been posted

The California Independent System Operator has released its 2023 Summer Loads and Resources Assessment, which shows considerable improvement in resource availability for the upcoming summer, driven by accelerated resource development and high hydro conditions within California.

[READ MORE](#)

The complex block contains a preview of a blog article. On the left is a photograph of a power transmission tower, wind turbines, and solar panels under a bright sky, with the text "SUMMER OUTLOOK" overlaid in white. To the right of the image is the article's metadata and title, followed by a short summary and a "READ MORE" link.

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