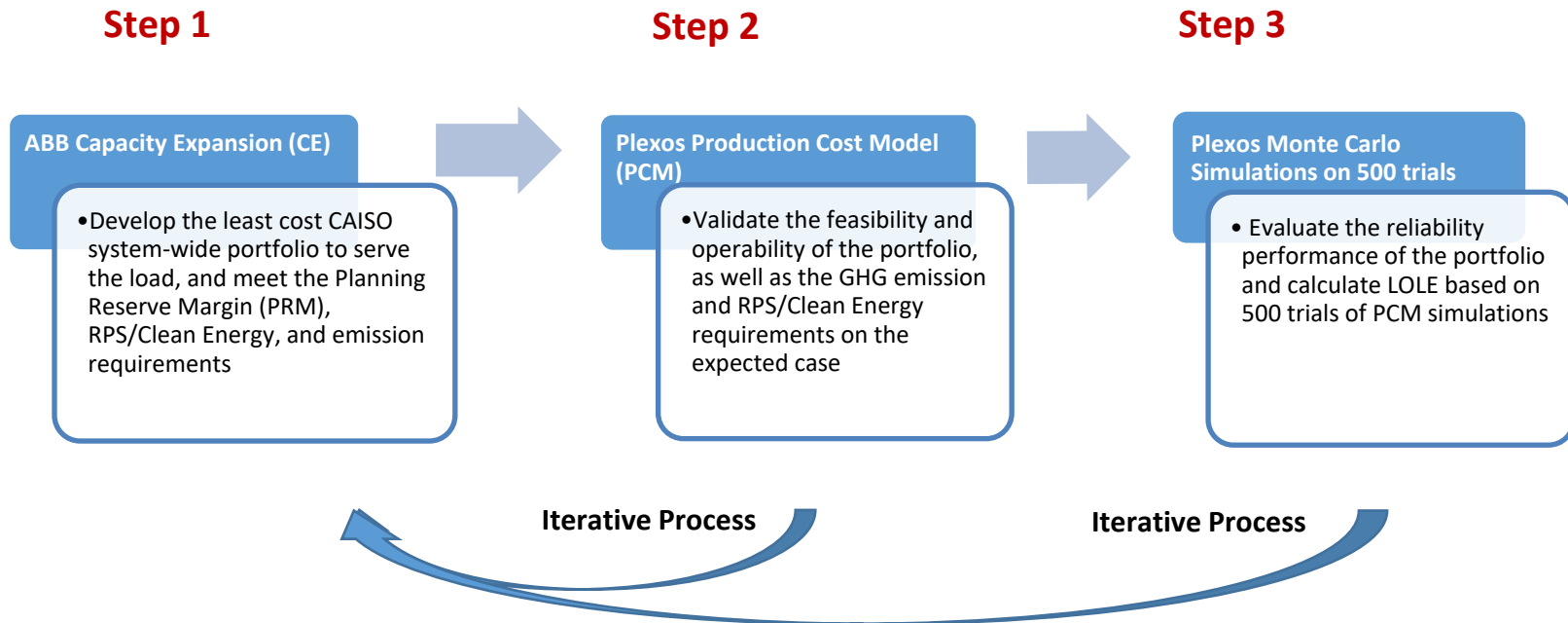


SCE's System Modeling Approach for the 2022 IRP Process

CPUC MAG Meeting

July 19, 2022

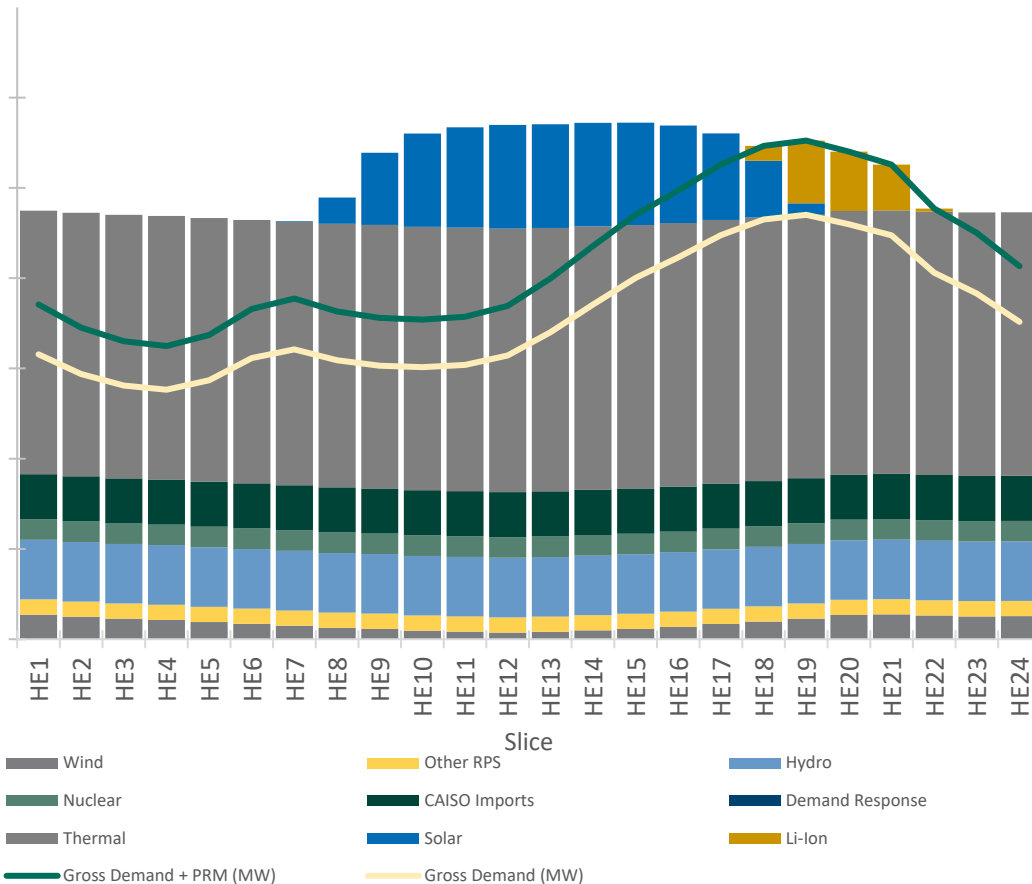
SCE's Iterative CAISO-System Wide Modeling and Analysis



- The only change in the 2022 IRP process is the first step of Capacity Expansion, the RA 24-hourly Slice framework will be implemented in the ABB Capacity Expansion.

24-Hourly Slice of Day: Framework and Resource Counting Adopted for RA Program in D.22-06-050

Illustrative for System



- For each month, each LSE must demonstrate it has enough capacity to satisfy its load profile + PRM in all 24 hours on the CAISO's "worst day" in that month
- Resource counting will generally be defined in the following manner:
 - **Solar and wind** will count based on their hourly profiles; Must be fully deliverable
 - **Standalone batteries** count based on their capacity and duration as shown by the LSE
 - **Use-limited resources** count based on their capacity and available duration as shown by the LSE
 - **Other resources** will have a single counting value (e.g., NQC)
 - **Contracted resources** (e.g., 16-hour imports) must be shown in their available hours
- Additional checks will be applied to confirm run-hour feasibility of use-limited resources:
 - **Standalone batteries** must demonstrate there is sufficient "excess capacity" in other hours for their dispatch (plus losses)
 - **Hydro** must have sufficient energy to support the shown capacity

Modified Capacity Expansion of Implementing the 24-Hourly Slice of Day – Newly Adopted RA Approach

Modified Step 1 of CE Modeling

- **Emission, RPS target, Load and generation balance requirements are unchanged**
- **Replacing the single point PRM constraint with the 24-Hourly Slice of Day requirement :**
 - Forcing the hourly requirements on the “worst day” of year
 - Ensuring CAISO system has enough capacity to satisfy its load profile + PRM in all 24 hours, and making sure the energy sufficiency for all storage devices in the system
 - Based on the resource counting rule based on RA proposal
 - Expected solar/wind contribution for 24 hours during the “worst day” based on their hourly profiles
 - Feasibility test to ensure both capacity and energy are sufficient for the use-limited resources, e.g., hydro, and storage
 - Storage must demonstrate there is sufficient “excess capacity” to provide charging/pumping energy

Existing Step 1 of CE Modeling

- **Emission, RPS target, Load and generation balance requirements are unchanged**
- **Single point PRM constraint (capacity requirement during the peak load hour)**
 - Forcing the single hour PRM requirement during the peak load hour in that year
 - Ensuring CAISO system has enough capacity to satisfy its load profile + PRM during the single peak load hour
 - Resource counting rule based on NQCs or ELCCs depending on resource type
 - Solar/wind/storage contribution based on the current single-point annual ELCC methodology

SCE will assess the costs of all installed resource capacity and energy and compare two different modeling approach using the same reliability metrics