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Standard LSE Plan

CleanPowerSF

2020 INTEGRATED RESOURCE PLAN

September 1, 2020

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How to use this template:

- *All LSEs required to file a Standard LSE Plan must use this template, as well as the accompanying Resource Data Template and Clean System Power calculator provided by staff.*
- *All LSEs filing a Non-Standard Plan may use this template. If Non-Standard LSE Plan filers choose to submit this template, they do not have to submit the Clean System Power calculator tool, the Resource Data Template, or address any of the requirements based on contracted or planned resource information.*
- *Instructions are provided in italics under each section. Delete all instructions before submitting the form, but preserve the numbered section headings.*
- *Complete each section. If the section is not applicable to the LSE, simply indicate "Not applicable" and provide a brief explanation.*
- *Definitions are provided in the Glossary of Terms at the end of this template.*

I. Executive Summary

Use this section to provide an overview of the process used by the LSE to develop its plan and summarize the LSE's findings, including a brief overview of the LSE's Preferred Conforming Portfolio and Action Plan.

II. Study Design

Use this section to describe how the LSE approached the process of developing its LSE Plan.

Load Assignments for Each LSE

IOUs and CCAs should use the "mid Baseline mid AAEE" version of Form 1.1c of the California Energy Commission's (CEC) 2019 IEPR demand forecast for planning purposes across the IRP planning horizon (i.e., until 2030, for the purposes of 2020 IRP Filings), unless a different load forecast has been approved through an ALJ Ruling finalizing load forecasts and GHG benchmarks.

ESPs should utilize load forecasts confidentially communicated to each ESP individually by Commission staff. Staff will aggregate any ESP submittals to protect confidentiality.

LSEs may provide their own load or load modifier shapes in the Clean System Power (CSP) calculator, but, for "Conforming Portfolios," the total annual energy volumes for both load and load modifiers must remain consistent with their assigned forecast. If using their own shapes, LSEs must provide detailed explanations as to how their load or load modifier shapes were developed, including data sources. If LSEs to not provide their own specific shapes, they will be automatically assigned the default hourly shapes in the CSP calculator, which reflects the 2019 IEPR "mid Baseline mid AAEE" hourly forecast for the CAISO system average.

LSEs are not be permitted to use an annual load forecast (MWh) that differs from the one assigned to it in IRP.

Required and Optional Portfolios

Each LSE must produce and submit at least two "Conforming Portfolios:" one that addresses the LSE's proportional share of the 46 MMT GHG target, and another that addresses the LSE's proportional share of a 38 MMT target. A Conforming Portfolio is one that utilizes the LSE's assigned load forecast and is consistent with the Commission-adopted Reference System Portfolio according to the following criteria:

- *For the 46 MMT conforming portfolio, achieves emissions equal to the LSE's 46 MMT 2030 GHG Emissions Benchmark.*
- *For the 38 MMT conforming portfolio, achieves emissions equal to or less than the LSE's 38 MMT 2030 GHG Emissions Benchmark.*
- *LSEs should use their individual load assignment as indicated above*
- *Uses inputs and assumptions consistent with those used by staff to develop the Reference System Portfolio, with the following exceptions based on updated information:*
    - *If the LSE has better capital cost and financing information that more accurately reflects its situation, the LSE is free to use those inputs and/or assumptions. For example, an LSE may have its own view of future resource levelized costs and it is free to use this information to develop its portfolio. LSEs should clearly identify, and provide an explanation for, instances where it used its own assumption in lieu of the default used by staff to develop the RSP.*
    - *Baseline resources – An LSE may have progressed with the development of resources since the formation of the baseline used in the Reference System Portfolio. The LSE is free to determine which of its resources are in its baseline when developing its portfolio, based on their latest information.*
- *Completing all three filing items (Resource Data Template, CSP calculator, and Narrative template) according to completeness definition which has been provided in the "Filing Requirements Standards" document.*

For a more comprehensive definition of a conforming portfolio refer to the "Filing Requirements Overview" document.

LSEs may study and report multiple Conforming Portfolios for each 2030 GHG target. LSEs are required to select two "Preferred Conforming Portfolios" among all Conforming Portfolios developed and submitted. One Preferred Conforming Portfolio that achieves emissions equal to the LSE's share of the 46 MMT GHG target, and a second Preferred Conforming Portfolio that achieves emissions equal to or less than the LSE's share of the 38 MMT GHG target. LSEs should justify the selections for each GHG target, including why the portfolio is consistent with all state goals and is the best representation for how the LSE plans to meet state goals. LSEs that submit a Preferred Conforming Portfolio that achieves less than its share of the 38 MMT target must also explain whether and how that portfolio might operate differently, from a reliability perspective, depending on whether other LSEs procure in a manner consistent with a 46 MMT or 38 MMT target.

LSEs may also study and report additional "Alternative Portfolios" developed from different assumptions (including different annual levels of load modifiers) from the Reference System Plan. LSEs may propose to meet their load and GHG requirements with both supply-side and demand-side investments and must explain how these resources meet or beat their assigned load levels and GHG target.

For all Alternative Portfolios developed, any deviations from the Conforming Portfolio must be explained and justified. If the LSE uses different annual levels of load modifiers as part of any Alternative Portfolio the LSE should report that information using the standard IEPR filing form templates[1] associated with that information. All Alternative and Conforming Portfolios must use the same assigned load forecast as a starting point, but Alternative Portfolios can use demand-side resources such as energy efficiency or electrification to deviate from the annual levels of load modifiers assigned to them for their Conforming Portfolios.

CCAs are permitted, in the Action Plan section of this template, to also describe a procurement strategy certified by their governing board if it differs from the one associated with their Preferred Conforming Portfolio.

IOUs should assume no procurement on behalf of non-bundled customers would be needed unless specifically required by the Commission.

Additionally, each LSE should account for the costs and benefits of any resources subject to the cost allocation mechanism (CAM) in its Conforming Portfolios. In estimating its share of resources subject to the CAM, including for the purposes of entry into the Resource Data Template and Clean System Power calculator, each LSE should refer to the most recent year-ahead CAM resource list available on the Commission's Resource Adequacy Compliance Materials webpage. The year-ahead CAM list reflects the contract start and end dates of Commission approved CAM resources. The list itemizes the resource adequacy capacity value by month for each IOU service territory. In developing its Conforming Portfolios, each LSE should assume its future resource adequacy obligations are reduced by its proportional share of the resource adequacy capacity value reflected in the year-ahead CAM list, and then use the same methodology for estimating other costs and benefits associated with those resources. An LSE's proportional share is determined by its year-ahead share of the total coincident peak load for each IOU service territory, as assigned in the Commission's annual resource adequacy process. The LSE's proportional share of that resource is assumed static through the IRP planning horizon, but it will be updated each IRP cycle based on the current proportional share assignment from the Commission's annual resource adequacy process. LSEs should not make assumptions or predictions on what resources may be procured on behalf of all load and subject to the CAM in the future.

GHG Emissions Benchmark

[1] Forms used for the 2019 IEPR cycle are available here: https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report/2019-iepr ; see the October 2018 Webinar on Forms and Instructions to Collect Electricity Demand Forecast and Electricity Resource Plan Data from Load-Serving Entities

LSEs have been assigned a new 2030 GHG Emissions Benchmark based on the results of the Reference System Portfolio, specifically the 2030 GHG planning target adopted by the Commission for the electric sector, calculated using the same methodology from the previous IRP cycle, and as established by the California Air Resources Board (CARB) 2018 Staff Report, "Senate Bill 350 Integrated Resource Planning Electricity Sector Greenhouse Gas Planning Targets."[2] LSE GHG Benchmarks were assigned via ALJ Ruling on April 15, 2020 and are posted on the IRP website.

Because the IEPR does not include load forecasts for individual ESPs, each ESP is required to calculate its own confidential GHG Emissions Benchmark based on its 2030 load share within the host IOU's territory. For any ESP that serves load in more than one IOU service territory, that ESP should add up the separate GHG Emissions Benchmarks calculated based on its share of direct access load for each IOU service territory to result in a single benchmark. The CSP calculator includes a table for performing this calculation in the tab titled "ESP GHG Benchmark."

LSEs filing a Standard LSE Plan should use the CSP methodology and calculator for estimating their GHG emissions across the IRP planning horizon. It is important to note that neither emissions from, nor demand met by, Behind-the-Meter Combined Heat and Power (BTM CHP) resources are included in the CSP calculator. While individual LSEs are not required to plan to reduce BTM CHP emissions, these emissions nevertheless count towards the electric sector emissions total and are included in LSE GHG Benchmarks. Commission staff plans to account for 5.5 MMT of BTM CHP emissions when calculating electric sector emissions of the aggregated LSE portfolios during the development of the Preferred System Plan.

When calculating emissions in the CSP calculator, LSEs should achieve GHG emissions results that are slightly below their GHG benchmarks to leave room in the system for BTM CHP emissions that will be added during the portfolio aggregation process. The CSP calculator tab titled "Benchmarks Net BTM CHP" contains the LSE-specific benchmarks that LSEs should use for planning when using the CSP calculator. LSEs should use this worksheet to look up the maximum GHG emissions that its portfolio in the calculator can achieve.

a. Objectives

Provide a description of the LSE's objectives for the analytical work it is documenting in the IRP.

b. Methodology

i. Modeling Tool(s)

Name all modeling software used by LSE to develop its IRP, if any, and include the vendor and version number. Provide an explanation of differences between the LSE's modeling tool and RESOLVE, and an explanation of how those differences should be considered during evaluation of the LSE's portfolio(s).

[2] Available at https://ww3.arb.ca.gov/cc/sb350/staffreport_sb350_irp.pdf.

ii. Modeling Approach

Describe the LSE's overall approach to developing the scenarios it evaluated, and explain why each scenario was considered. Also describe any calculations, including post-processing calculations, used to generate metrics for portfolio analysis.

III. Study Results

Use this section to present the results of the analytical work described in Section 2: Study Design.

a. Conforming and Alternative Portfolios

Provide a list of all Conforming Portfolios and Alternative Portfolios developed. The portfolios should clearly identify and distinguish between the following:

- *Existing resources that the LSE owns or contracts with, consistent with definitions provided in the Resource Data Template.*
- *Existing resources that the LSE plans to contract with in the future.*
- *New resources that the LSE plans to invest in.*

For new resources, LSEs should provide a description in table form of how those planned resources compare to the mix of new resources identified in the Reference System Portfolio and comment on the significance of the variances, if any.

LSEs should report all contracted and planned resources for each plan filed in the Resource Data Template and provide a narrative summary of those reported resources in this section.

For the Alternative Portfolios, deviations from the Conforming Portfolio need to be explained and justified.

b. Preferred Conforming Portfolios

Provide a detailed description of the two Conforming Portfolios, one for the 46 MMT GHG target and another for the 38 MMT GHG target for which the LSE seeks Commission approval or certification. LSE should justify the portfolio selections for each GHG target. Explain the reasons for the LSE's preference and how its selections are consistent with each relevant statutory and administrative requirement (refer to PU Code Section 454.52(a)(1)). In providing its rationale, the LSE should assume that other LSEs procure in a manner consistent with the Reference System Plan. If the LSE submits a

portfolio that achieves emissions reductions less than its 38 MMT benchmark, the LSE should explain and justify its selection of that portfolio, and explain whether and how that portfolio might operate differently, from a reliability perspective, depending on whether other LSEs procure in a manner consistent with a 46 MMT or 38 MMT target. If the LSE has a preference, it should also state in its Narrative Template which Preferred Conforming Portfolio it prefers as a blueprint for its own procurement, and justify that choice.

c. GHG Emissions Results

Use the CSP calculator to estimate the GHG emissions associated with each portfolio and report those results in this section. There are two versions of the CSP calculator, one for the 46 MMT GHG target and another for the 38 MMT GHG target. LSEs should use the associated version for each GHG target for their reporting. If the LSE submits the a conforming portfolio that achieves less than its 38 MMT benchmark, it should estimate emissions for that portfolio using the 38 MMT version.

If an LSE uses a custom hourly load shape or GHG-free production profile in the CSP calculator for any portfolio, it must provide a detailed explanation as to how its load shape or production profile was developed, including the source of the data used.

d. Local Air Pollutant Minimization and Disadvantaged Communities

i. Local Air Pollutants

Use the CSP calculator to estimate the NOx, PM2.5, and SO2 emissions associated with the LSE's Preferred Conforming Portfolios and report those results in this section. If the LSE's only contribution to air pollutants are a result from reliance on system power, then the LSE should provide explanation in the Action Plan Section of its plan of how it plans to reduce reliance on system power.

ii. Focus on Disadvantaged Communities

Use this section to describe and provide quantitative evidence to support how the LSE's Preferred Conforming Portfolios minimizes local air pollutants with early priority on disadvantaged communities. The LSE must provide a description of which disadvantaged communities, if any, it serves. LSEs must also specify customers served in disadvantaged communities along with total disadvantaged population number served as a percentage of total number of customers served. Finally, LSEs must specify what current and planned LSE activities/programs, if any, address disadvantaged communities, and describe how the LSE's actions and engagement have changed over time. Please also describe any analysis or activities targeted at identifying feasible procurement opportunities to reduce reliance on fossil-fueled power plants, particularly those that are located within disadvantaged communities.

For purposes of IRP, a disadvantaged community is defined as any community statewide scoring in the top 25 percent statewide or in one of the 22 census tracts within the top five percent of communities with the highest pollution burden that do not have an overall score, using the most recent version (CalEnviroScreen 3.0) of the California Environmental Protection Agency's CalEnviroScreen tool.

e. Cost and Rate Analysis

Describe and provide quantitative information to reflect how the LSE anticipates that its Preferred Conforming Portfolios will affect the costs for its customers. For this analysis, assume other LSEs procure resources in a manner consistent with the Reference System Plan.

Requirements for IOUs Only

Data must be provided showing the forecasted revenue requirement and system average rate for bundled customers for all portfolios developed by the IOU. The costs should be forecasted consistently with the categories covered by each IOU in its general rate case. The data should reflect the IOU's assigned load forecast (for the conforming portfolio), and revenue requirements for each portfolio should be broken down by the following categories:

- *Transmission*
- *Distribution (e.g. includes costs from distribution upgrades driven by customer-generation)*
- *DSM Programs (e.g. includes costs of energy-efficiency, demand response, and other programs)*
- *Generation (e.g. includes costs of utility-owned generation, bilateral contracts, renewables contracts, and storage contracts, net of revenue from EDU allowances)*
- *Other (e.g. includes nuclear decommissioning, DWR bonds, public purpose programs, and other miscellaneous)*

In presenting revenue requirement data, IOUs should clearly distinguish between current (baseline) projected revenue requirement broken down by the categories above, and the incremental projected revenue requirement broken down by the same categories. For each new resource portfolio that the IOU is showing results for in its Plan report all assumptions used such as cost escalation rate, inflation rate, levelization period, discount rate, taxes, financing, etc.

IOUs should complete the following tables, adhering as closely as possible to the units and categories listed. If the IOU is unable to report data in this exact format, it is permitted to deviate but must provide an explanation.

System Average Rates Associated with Preferred Conforming Portfolio (2019 $)

	2020	*2021*	*2022*	*2023*	*…*	*2030*
¢/kWh						
Rev. Req. $						

Revenue Requirements and System Average Bundled Rates for Preferred Conforming Portfolio (2019 $)

Line No.	*Cost Category*	*2020*	*…*	*2030*
1	*Distribution*			
2	*Transmission*			
3	*Generation*			
4	*Demand Side Programs*			
5	*Other*			
6 (sum lines 1-5)	*Baseline Revenue Requirement*			
7	*System Sales (GWh)*			
8	*Bundled Sales (GWh)*			
9	*System Average Delivery Rate (¢/kWh)*			
10	*Bundled Generation Rate (¢/kWh)*			
11	*System Average Bundled Rate (¢/kWh)*			

Requirements for All LSEs

All LSEs should consider cost and rate impacts on their customers when planning and submitting their individual IRPs, and, at a minimum, include a narrative description of their approach in support of this requirement.

f. System Reliability Analysis

Use this section to describe how the LSE's Preferred Conforming Portfolios contribute its fair share to system reliability and renewables integration. Whether the LSE's portfolios contribute its fair share or not will not be judged based solely on the content of this section. System reliability and adequate renewables integration cannot be conclusively assessed until all LSEs' portfolios are combined and CPUC staff conducts LOLE studies on that aggregation.

However, requiring the LSE to report a quantitative summary of the effective capacity in its portfolios is a useful means to track the LSE's progress in contributing to reliability, in advance of a more conclusive assessment by CPUC staff after aggregating all LSEs' portfolios. To that end, the LSE shall include its "System Reliability Progress Tracking Table" from the LSE's Resource Data Template dashboard here, except for the row containing peak demand, as that data is based on confidential 2021 resource adequacy peak demand allocations (more detail below). This row can be omitted from this (public) Narrative Template, but must be included in the (confidential) Resource Data Template.

The amount of effective capacity in the System Reliability Progress Tracking Table will be auto-calculated based on the portfolio the LSE enters into the Resource Data Template. Following the instructions in the Resource Data Template, the LSE shall enter its confidential 2021 resource adequacy peak demand allocation for September in MW. The Resource Data Template will automatically calculate the LSE's share of peak in MW for all years by prorating the forecasted CAISO managed coincident peak demand (net of non-CPUC jurisdictional demand) using the ratio of the LSE's 2021 resource adequacy peak demand allocation to the 2021 CAISO managed coincident peak demand (net of non-CPUC jurisdictional demand). Because the resource adequacy peak demand allocations are confidential, the LSE need only include that information in its confidential version of the Resource Data Template. The row containing peak demand may be redacted from the System Reliability Progress Tracking Table inserted in this section of the Narrative Template, as described earlier. An example table is provided below; note that the confidential load-related rows are excised, and the table only displays procurement. Please provide one table per Preferred Conforming Portfolio.

System Reliability Progress Tracking Table (NQC MW) for month of September by contract status, 46 MMT portfolio	ELCC type	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
online	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
online	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
online	biomass	-	-	-	-	-	-	-	-	-	-	-
online	cogen	-	-	-	-	-	-	-	-	-	-	-
online	geothermal	-	-	-	-	-	-	-	-	-	-	-
online	hydro	-	-	-	-	-	-	-	-	-	-	-
online	thermal	-	-	-	-	-	-	-	-	-	-	-
online	battery	-	-	-	-	-	-	-	-	-	-	-
online	nuclear	-	-	-	-	-	-	-	-	-	-	-
online	solar	-	-	-	-	-	-	-	-	-	-	-
online	psh	-	-	-	-	-	-	-	-	-	-	-
online	unknown	-	-	-	-	-	-	-	-	-	-	-
development	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
development	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
development	biomass	-	-	-	-	-	-	-	-	-	-	-
development	cogen	-	-	-	-	-	-	-	-	-	-	-
development	geothermal	-	-	-	-	-	-	-	-	-	-	-
development	hydro	-	-	-	-	-	-	-	-	-	-	-
development	thermal	-	-	-	-	-	-	-	-	-	-	-
development	battery	-	-	-	-	-	-	-	-	-	-	-
development	nuclear	-	-	-	-	-	-	-	-	-	-	-
development	solar	-	-	-	-	-	-	-	-	-	-	-
development	psh	-	-	-	-	-	-	-	-	-	-	-
development	unknown	-	-	-	-	-	-	-	-	-	-	-
review	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
review	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
review	biomass	-	-	-	-	-	-	-	-	-	-	-
review	cogen	-	-	-	-	-	-	-	-	-	-	-
review	geothermal	-	-	-	-	-	-	-	-	-	-	-
review	hydro	-	-	-	-	-	-	-	-	-	-	-
review	thermal	-	-	-	-	-	-	-	-	-	-	-
review	battery	-	-	-	-	-	-	-	-	-	-	-
review	nuclear	-	-	-	-	-	-	-	-	-	-	-
review	solar	-	-	-	-	-	-	-	-	-	-	-
review	psh	-	-	-	-	-	-	-	-	-	-	-
review	unknown	-	-	-	-	-	-	-	-	-	-	-
planned_existing	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
planned_existing	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
planned_existing	biomass	-	-	-	-	-	-	-	-	-	-	-
planned_existing	cogen	-	-	-	-	-	-	-	-	-	-	-
planned_existing	geothermal	-	-	-	-	-	-	-	-	-	-	-
planned_existing	hydro	-	-	-	-	-	-	-	-	-	-	-
planned_existing	thermal	-	-	-	-	-	-	-	-	-	-	-
planned_existing	battery	-	-	-	-	-	-	-	-	-	-	-
planned_existing	nuclear	-	-	-	-	-	-	-	-	-	-	-
planned_existing	solar	-	-	-	-	-	-	-	-	-	-	-
planned_existing	psh	-	-	-	-	-	-	-	-	-	-	-
planned_existing	unknown	-	-	-	-	-	-	-	-	-	-	-
planned_new	wind_low_cf	-	-	-	-	-	-	-	-	-	-	-
planned_new	wind_high_cf	-	-	-	-	-	-	-	-	-	-	-
planned_new	biomass	-	-	-	-	-	-	-	-	-	-	-
planned_new	cogen	-	-	-	-	-	-	-	-	-	-	-
planned_new	geothermal	-	-	-	-	-	-	-	-	-	-	-
planned_new	hydro	-	-	-	-	-	-	-	-	-	-	-
planned_new	thermal	-	-	-	-	-	-	-	-	-	-	-
planned_new	battery	-	-	-	-	-	-	-	-	-	-	-
planned_new	nuclear	-	-	-	-	-	-	-	-	-	-	-
planned_new	solar	-	-	-	-	-	-	-	-	-	-	-
planned_new	psh	-	-	-	-	-	-	-	-	-	-	-
planned_new	unknown	-	-	-	-	-	-	-	-	-	-	-

In this section, the LSE shall also provide an explanation of any capacity shortages relative to its share of CAISO managed coincident peak demand. The LSE shall explain how it plans to address shortages in the Action Plan section of this document, below.

g. Hydro Generation Risk Management

Provide a narrative analysis and discussion of the risk that in-state drought poses to the LSE's Preferred Conforming Portfolios, including the controls and strategies the LSE has in place to manage such risk. Using quantitative analysis, identify whether and how the LSE's Preferred Conforming Portfolios differ from the Reference System Portfolio in terms of the amount of hydro generation proposed, and the level of risk thus incurred. Describe the degree to which the LSE's expected costs, GHG emissions, and reliability are dependent on in-state hydro availability, and the controls such as hedging strategies or contingency plans.

h. Long-Duration Storage Development

Use this section to discuss the activities the LSE is pursuing or intends to pursue to support the development of pumped storage, or other long-duration storage with similar attributes to meet medium- and long-term needs. The LSE should discuss the potential it sees and the efforts it has undertaken or will undertake.

i. Out-of-State Wind Development

Use this section to discuss the activities the LSE is pursuing or intends to pursue to support the development of out-of-state wind resources out to 2030. The LSE should discuss the potential it sees and the efforts it has undertaken or will undertake.

j. Transmission Development

- Geographic diversity of portfolio; local resources load pocket benefits

Provide commentary that supports resource location information provided in the Resource Data Template. Such commentary may be important to transmission planning, given the following:

- *Busbar mapping methodology[3] criteria include consideration of commercial interest. This interest can be inferred from LSEs' plans, as well as interconnection queues. LSEs can identify which resources in their plans have been contracted since the IRP baseline was formed, and should therefore be included in the baseline for modeling in the transmission planning process. Further, LSEs can identify which resources, whilst not yet contracted, have specific*

[3] Available for "Modeling Assumptions for the 2020-2021 Transmission Planning Process" at: https://www.cpuc.ca.gov/General.aspx?id=6442464144

locations intended. The details of these resources should be included in the Resource Data Template, specifically by identifying the interconnection queue position. This section of the Narrative Template should summarize the data, and in the case of resources which do not yet have an interconnection queue position, provide as specific location as appropriate for the LSE's stage of planning.

- *Transmission upgrades may be cost-effective ways for LSEs to access new resources. The principles for aggregating LSEs' plans[4] include generally avoiding exceeding transmission capability limits[5] where possible, unless LSEs demonstrate that they are actively planning for upgrades and can justify the costs, timeline, and risks.*

IV. Action Plan

Use this section to demonstrate to the Commission and to stakeholders how feasible the LSE's planning strategy is, what barriers it envisions to implementing its plan, and what actions the Commission should consider in order to facilitate plan implementation.

a. Proposed Activities

Describe all the activities the LSE proposes to undertake across resource types in order to implement its Preferred Conforming Portfolios, including any proposed procurement-related activities as required by Commission decision. Describe how each planned resource identified in the Study Results section corresponds to proposed activities. For each new resource identified, provide a narrative description of procurement plans, potential barriers, and resource viability, consistent with what is reported in the Resource Data Template.

Additionally, use this section to describe planned activities to conduct outreach and seek input from any disadvantaged communities that could be impacted by procurement resulting from the implementation of the LSE's Plan. Please also include LSE's activities to minimize criteria air pollutants with priority on disadvantaged communities and LSE's activities targeted at identifying feasible procurement opportunities to reduce reliance on fossil-fueled power plants, particularly those located within disadvantaged communities.

[4] Available In section 8 of the November 2019 "Ruling Seeking Comment on Proposed Reference System Portfolio and Related Policy Actions" at: https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Energy/EnergyPrograms/ElectPowerProcurementGeneration/irp/2018/2019_RSP_Ruling.pdf

[5] Available in the "2019-20 Inputs and Assumptions" at: ftp://ftp.cpuc.ca.gov/energy/modeling/Inputs%20%20Assumptions%202019-2020%20CPUC%20IRP%202020-02-27.pdf

b. Procurement Activities

Identify when and how the LSE proposes to undertake resource procurement that it has identified in its Preferred Conforming Portfolios. Describe the type of solicitation(s), when the solicitation(s) is expected to take place, the desired online dates of projects requested, and other relevant procurement planning information.

c. Potential Barriers

- Sensitivity Analysis

Identify key market, regulatory, financial, or other resource viability barriers or risks associated with the resources coming online as identified in the LSE's Preferred Conforming Portfolios. Include an analysis of key risks associated with potential retirement of existing resources on which the LSE intends to rely in the future.

d. Commission Direction or Actions

If applicable, describe any direction that the LSE seeks from the Commission, including consideration in the IRP Procurement Track, new spending authorizations, changes to existing authorizations, or changes to existing programmatic goals or budgets. Draw clear connections between any requested direction and the study results, proposed activities, and barrier analysis presented above.

e. Diablo Canyon Power Plant Replacement

- Ben – reliability portion

All LSEs should describe how their plans assist in replacing the flexible baseload and/or firm low-emissions energy characteristic of Diablo Canyon when it retires in 2024 and 2025. Because the Diablo Canyon power plant (DCPP) is a system resource adequacy resource within the balancing area of the CAISO, all LSEs are required to provide narrative description explaining which specific resources are planned to be procured to serve their load in the absence of DCPP. Consistent with decision D.19-04-040, those LSEs will have to demonstrate that new resources are suitable substitutes and are able to maintain system reliability without increasing GHG emissions (i.e., renewable energy credits alone do not satisfy this requirement, nor do natural gas resources).

V. Lessons Learned

Document any suggested changes to the IRP process for consideration by the Commission. Explain how the change would facilitate the ability of the Commission and LSEs to achieve state policy goals.

Glossary of Terms

Alternative Portfolio: *LSEs are permitted to submit "Alternative Portfolios" developed from scenarios using different assumptions from those used in the Reference System Plan. Any deviations from the "Conforming Portfolio" must be explained and justified.*

Approve (Plan)*: the CPUC's obligation to approve an LSE's integrated resource plan derives from Public Utilities Code Section 454.52(b)(2) and the procurement planning process described in Public Utilities Code Section 454.5, in addition to the CPUC obligation to ensure safe and reliable service at just and reasonable rates under Public Utilities Code Section 451.*

Balancing Authority Area (CAISO): *the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.*

Baseline resources: *Those resources assumed to be fixed as a capacity expansion model input, as opposed to Candidate resources, which are selected by the model and are incremental to the Baseline. Baseline resources are existing (already online) or owned or contracted to come online within the planning horizon. Existing resources with announced retirements are excluded from the Baseline for the applicable years. Being "contracted" refers to a resource holding signed contract/s with an LSE/s for much of its energy and capacity, as applicable, for a significant portion of its useful life. The contracts refer to those approved by the CPUC and/or the LSE's governing board, as applicable. These criteria indicate the resource is relatively certain to come online. Baseline resources that are not online at the time of modeling may have a failure rate applied to their nameplate capacity to allow for the risk of them failing to come online.*

Candidate resource: *those resources, such as renewables, energy storage, natural gas generation, and demand response, available for selection in IRP capacity expansion modeling, incremental to the Baseline resources.*

Capacity Expansion Model: *a capacity expansion model is a computer model that simulates generation and transmission investment to meet forecast electric load over many years, usually with the objective of minimizing the total cost of owning and operating the electrical system. Capacity expansion models can also be configured to only allow solutions that meet specific requirements, such as providing a minimum amount of capacity to ensure the reliability of the system or maintaining greenhouse gas emissions below an established level.*

Certify (a Community Choice Aggregator Plan)*: Public Utilities Code 454.52(b)(3) requires the CPUC to certify the integrated resource plans of CCAs. "Certify" requires a formal act of the Commission to determine that the CCA's Plan complies with the requirements of the statute and the process established via Public Utilities Code 454.51(a). In addition, the Commission must review the CCA Plans to determine any potential impacts on public utility bundled customers under Public Utilities Code Sections 451 and 454, among others.*

Clean System Power (CSP, formerly "Clean Net Short") methodology*: the methodology used to estimate GHG emissions associated with an LSE's Portfolio based on how the LSE will expect to rely on system power on an hourly basis.*

Community Choice Aggregator*: a governmental entity formed by a city or county to procure electricity for its residents, businesses, and municipal facilities.*

Conforming Portfolio*: the LSE portfolio that conforms to IRP Planning Standards, the 2030 LSE-specific GHG Emissions Benchmark, use of the LSE's assigned load forecast, use of inputs and assumptions matching those used in developing the Reference System Portfolio, as well as other IRP requirements including the filing of a complete Narrative Template, a Resource Data Template and Clean System Power Calculator*.

Effective Load Carrying Capacity*: a percentage that expresses how well a resource is able avoid loss-of-load events (considering availability and use limitations). The percentage is relative to a reference resource, for example a resource that is always available with no use limitations. It is calculated via probabilistic reliability modeling, and yields a single percentage value for a given resource or grouping of resources.*

Electric Service Provider*: an entity that offers electric service to a retail or end-use customer, but which does not fall within the definition of an electrical corporation under Public Utilities Code Section 218.*

Filing Entity*: an entity required by statute to file an integrated resource plan with CPUC.*

Future*: a set of assumptions about future conditions, such as load or gas prices.*

GHG Benchmark (or LSE-specific 2030 GHG Benchmark)*: the mass-based GHG emission planning targets calculated by staff for each LSE based on the methodology established by the California Air Resources Board and required for use in LSE Portfolio development in IRP.*

GHG Planning Price: *the systemwide marginal GHG abatement cost associated with achieving a specific electric sector 2030 GHG planning target.*

Integrated Resources Planning Standards (Planning Standards)*: the set of CPUC IRP rules, guidelines, formulas and metrics that LSEs must include in their LSE Plans.*

Integrated Resource Planning (IRP) process*: integrated resource planning process; the repeating cycle through which integrated resource plans are prepared, submitted, and reviewed by the CPUC*

Long term*: more than 5 years unless otherwise specified.*

Load Serving Entity*: an electrical corporation, electric service provider, community choice aggregator, or electric cooperative.*

Load Serving Entity (LSE) Plan*: an LSE's integrated resource plan; the full set of documents and information submitted by an LSE to the CPUC as part of the IRP process.*

Load Serving Entity (LSE) Portfolio*: a set of supply- and/or demand-side resources with certain attributes that together serve the LSE's assigned load over the IRP planning horizon.*

Loss of Load Expectation (LOLE): *a metric that quantifies the expected frequency of loss-of-load events per year. Loss-of-load is any instance where available generating capacity is insufficient to serve electric demand. If one or more instances of loss-of-load occurring within the same day regardless of duration are counted as one loss-of-load event, then the LOLE metric can be compared to a reference point such as the industry probabilistic reliability standard of "one expected day in 10 years," i.e. an LOLE of 0.1.*

Net Qualifying Capacity: *Qualifying Capacity reduced, as applicable, based on: (1) testing and verification; (2) application of performance criteria; and (3) deliverability restrictions. The Net Qualifying Capacity determination shall be made by the California ISO pursuant to the provisions of this California ISO Tariff and the applicable Business Practice Manual.*

Non-modeled costs*: embedded fixed costs in today's energy system (e.g., existing distribution revenue requirement, existing transmission revenue requirement, and energy efficiency program cost).*

Nonstandard LSE Plan*: type of integrated resource plan that an LSE may be eligible to file if it serves load outside the CAISO balancing authority area.*

Optimization*: an exercise undertaken in the CPUC's Integrated Resource Planning (IRP) process using a capacity expansion model to identify a least-cost portfolio of electricity resources for meeting specific policy constraints, such as GHG reduction or RPS targets, while maintaining reliability given a set of assumptions about the future. Optimization in IRP considers resources assumed to be online over the planning horizon (baseline resources), some of which the model may choose not to retain, and additional resources (candidate resources) that the model is able to select to meet future grid needs.*

Planned resource: *any resource included in an LSE portfolio, whether already online or not, that is yet to be procured. Relating this to capacity expansion modeling terms, planned resources can be baseline resources (needing contract renewal, or currently owned/contracted by another LSE), candidate resources, or possibly resources that were not considered by the modeling, e.g., due to the passage of time between the modeling taking place and LSEs developing their plans. Planned resources can be specific (e.g., with a CAISO ID) or generic, with only the type, size and some geographic information identified.*

Qualifying capacity*: the maximum amount of Resource Adequacy Benefits a generating facility could provide before an assessment of its net qualifying capacity.*

Preferred Conforming Portfolio*: the conforming portfolio preferred by an LSE as the most suitable to its own needs; submitted to CPUC for review as one element of the LSE's overall IRP plan.*

Preferred System Plan: *the Commission's integrated resource plan composed of both the aggregation of LSE portfolios (i.e., Preferred System Portfolio) and the set of actions necessary to implement that portfolio (i.e., Preferred System Action Plan).*

Preferred System Portfolio: *the combined portfolios of individual LSEs within the CAISO, aggregated, reviewed and possibly modified by Commission staff as a proposal to the Commission, and adopted by the Commission as most responsive to statutory requirements per Pub. Util. Code 454.51; part of the Preferred System Plan.*

Reference System Plan: *the Commission's integrated resource plan that includes an optimal portfolio (Reference System Portfolio) of resources for serving load in the CAISO balancing authority area and meeting multiple state goals, including meeting GHG reduction and reliability targets at least cost.*

Reference System Portfolio*: the multi-LSE portfolio identified by staff for Commission review and adopted/modified by the Commission as most responsive to statutory requirements per Pub. Util. Code 454.51; part of the Reference System Plan.*

Short term*: 1 to 3 years (unless otherwise specified).*

***Staff**: CPUC Energy Division staff (unless otherwise specified).*

***Standard LSE Plan**: type of integrated resource plan that an LSE is required to file if it serves load within the CAISO balancing authority area (unless the LSE demonstrates exemption from the IRP process).*