Standard LSE Plan

[NAME OF FILING ENTITY]

2022 INTEGRATED RESOURCE PLAN

[DATE]

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- *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, and a brief summary of each section and sub-section of this template.

II.   Study Design

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

Load Assignments for Each LSE

All LSEs should use the finalized energy and peak demand load forecasts, and behind-the-meter photovoltaic (BTM PV) information that has been developed pursuant to an ALJ June 15, 2022 Ruling. The load forecast that each LSE shall use as the basis for its individual IRP planning horizon has been approved through an ALJ June 15, 2022 Ruling finalizing load forecasts and GHG benchmarks. Staff will finalize the peak capacity forecast and related behind-the-meter photovoltaic (BTM PV) component for use by each LSE by no later than July 1, 2022, and will distribute this information individually to each LSE.

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 do not provide their own specific shapes, they will be automatically assigned the default hourly shapes in the CSP calculator, which reflects the 2021 Integrated Energy Policy Report (IEPR) "mid Baseline mid AAEE" hourly forecast for the CAISO system average.

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

Required and Optional Portfolios

Each LSE must produce and submit at least two "Conforming Portfolios:" one that achieves emissions that are equal to or less than the LSE's proportional share of the 38 MMT by 2030 and 30 MMT by 2035 GHG targets (the 30 MMT conforming portfolio), and another that achieves emissions that are equal to or less than the LSE's proportional share of a 30 MMT by 2030 and 25 MMT by 2035 GHG targets (the 25 MMT conforming portfolio). If the LSE intends to go below its proportional share of both the 2030 30 MMT target and the 2035 25 MMT target, then that LSE will only be required to submit one conforming portfolio as part of its individual IRP filing. A Conforming Portfolio is one that utilizes the LSE's assigned load forecast and is consistent with the Commission-adopted Preferred System Portfolio according to the following criteria:

- *For the 30 MMT conforming portfolio, achieves emissions equal to or lower than the LSE's 38 MMT 2030 GHG Emissions Benchmark and 30 MMT 2035 GHG Emissions Benchmark*

- *For the 25 MMT conforming portfolio, achieves emissions equal to or lower than the LSE's 30 MMT 2030 GHG Emissions Benchmark and 25 MMT 2035 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 Preferred System Portfolio as updated by IRP staff with more recent inputs and posted on the IRP website on June 15, 2022 (2021 PSP Portfolio with updates),[1] 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. The LSE 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 2021 PSP Portfolio with updates.*

- *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 Overview" 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 2030/2035 GHG target. LSEs are required to select two "Preferred Conforming Portfolios" among all Conforming Portfolios developed and submitted: one that achieves emissions that are equal to or less than the LSE's proportional share of the 38 MMT by 2030 and 30 MMT by 2035 GHG targets (the 30 MMT preferred conforming portfolio), and another that achieves emissions that are equal to or less than the LSE's proportional share of a 30 MMT

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[1] Posted on IRP website on the following link and titled "LSE Filing Requirement RESOLVE Results": https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials

by 2030 and 25 MMT by 2035 GHG targets (the 25 MMT preferred conforming portfolio). . LSEs should justify the selection of 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. As stated above, if the LSE intends to go below its proportional share of both the 2030 30 MMT target and the 2035 25 MMT target, then that LSE will only be required to submit one Preferred Conforming Portfolio as part of its individual IRP filing. However, LSEs submitting one Preferred Conforming Portfolio will still be required to submit that portfolio in each of the two required sets of Resource Data Templates and Clean System Power calculators required for each set of 2030/2035 GHG targets.

LSEs may also study and report additional "Alternative Portfolios" developed from different assumptions (including different annual levels of load modifiers) from the Preferred 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[2] 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.

Community Choice Aggregators (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.

Investor-Owned Utilities (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) and Modified CAM in its Conforming Portfolios.

GHG Emissions Benchmark

LSEs have been assigned new 2030 and 2035 GHG Emissions Benchmarks based on the results of the Preferred 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,"[3] and the 2035 GHG planning targets set via ALJ Ruling. LSE GHG Benchmarks were assigned via ALJ Ruling on June 15, 2022 and are posted on the IRP website.

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[2] Forms used for the 2021 IEPR cycle are available here: https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report/2021-iepr; see the March 2021 Webinar on Forms and Instructions to Collect Electricity Demand Forecast and Electricity Resource Plan Data

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

Because the IEPR does not include load forecasts for individual Electric Service Providers (ESPs), each ESP is required to calculate its own confidential GHG Emissions Benchmarks based on its 2030 and 2035 load shares 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 for 2030 and 2035. 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 BTM CHP emissions when calculating electric sector emissions of the aggregated LSE portfolios during the development of the Preferred System Plan.

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 SERVM, and an explanation of how those differences should be considered during evaluation of the LSE's portfolio(s).

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 2021 PSP Portfolio with updates 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—the 30 MMT Preferred Conforming Portfolio and the 25 MMT Preferred Conforming Portfolio—for which the LSE seeks Commission approval or certification. LSE should justify the portfolio selections for each GHG target. The LSE can provide a detailed description of just one Preferred Conforming Portfolio if it has used the same Preferred Conforming Portfolio to achieve both its 30 MMT Preferred Conforming Portfolio and the 25 MMT Preferred Conforming Portfolio requirements.

Explain the reasons for the LSE's preference and how its selections are consistent with each relevant statutory and administrative requirement. Specifically, the LSE should address the following relevant statutory and administrative requirements in PU Code Section 454.52(a)(1) and explain how its Preferred Conforming Portfolios satisfy those requirements:

(A) Meet the greenhouse gas emissions reduction targets established by the State Air Resources Board, in coordination with the commission and the Energy Commission, for the electricity sector and each load-serving entity that reflect the electricity sector's percentage in achieving the economywide greenhouse gas emissions reductions of 40 percent from 1990 levels by 2030 (I.e. meet the LSE's GHG benchmarks).

(B) Procure at least 60 percent eligible renewable energy resources by December 31, 2030, consistent with Article 16 (commencing with Section 399.11) of Chapter 2.3.

(C) Enable each electrical corporation to fulfill its obligation to serve its customers at just and reasonable rates.

(D) Minimize impacts on ratepayers' bills.

(E) Ensure system and local reliability on both a near-term and long-term basis, including meeting the near-term and forecast long-term resource adequacy requirements of Section 380.

(F) Comply with paragraph (1) of subdivision (b) of Section 399.13 (I.e., at least 65 percent of the LSE's RPS procurement for each compliance period shall be from its contracts of 10 years or more in duration or in its ownership or ownership agreements for eligible renewable energy resources).

(G) Strengthen the diversity, sustainability, and resilience of the bulk transmission and distribution systems, and local communities.

(H) Enhance distribution systems and demand-side energy management.

(I) Minimize localized air pollutants and other greenhouse gas emissions, with early priority on disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code.

In providing its rationale, the LSE should assume that other LSEs procure in a manner consistent with the 2021 PSP Portfolio with updates. If the LSE submits a portfolio that achieves emissions reductions lower than its 25 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 30 MMT or 25 2035 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.

Lastly, if the LSE's preferred confirming portfolios include new natural gas resources or re-contracting with existing natural gas resources for a term of five years or more, the LSE should describe why another lower-emitting or zero-emitting resource could not reasonably meet the need identified. This description is not required for any tariffed or must-take resources required by separately authorized Commission programs or decisions.

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 2035 30 MMT GHG target and another for the 2035 25 MMT GHG target. LSEs should use the associated version for each GHG target for their reporting. If the LSE submits a conforming portfolio that achieves lower than its 2035 25 MMT benchmark, it should estimate emissions for that portfolio using the 2035 25 MMT version.

If an LSE uses a custom hourly load shape or user-specified 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 this document 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 minimize 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. This includes both residential and non-residential customers. The finest level of granularity would be census tracts, but LSEs may summarize at the zip code level if that is all that is available to them. If census tracts granularity is not being used, LSEs must explain the reason for the level of granularity they are providing. An ESP can report its total customers in disadvantaged communities divided by the total customers the ESP serves. Finally, the LSE must describe and provide specific details of outreach to disadvantaged communities undertaken prior to finalizing and submitting its IRP, summarize the feedback received from disadvantaged communities and their representatives, and describe how such feedback influenced development of the LSE's Preferred Conforming Portfolios.

For purposes of IRP, a disadvantaged community is defined as following based on CalEPA's designation:[4]

I. *Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0 (1,984 tracts).*

II. *Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores (19 tracts)*

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[4] SB 535 Disadvantaged Communities | OEHHA (ca.gov)

III.   Census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0 (307 tracts).

IV.   Lands under the control of federally recognized Tribes.[5]

For the purposes of this IRP filing, LSE portfolio impacts on disadvantaged communities are not limited to impacts within the LSE's own boundaries. Almost all LSEs have impacts on disadvantaged communities, at least indirectly, as a result of their reliance on some system power or other power with local pollutant or GHG emissions, which can still impact disadvantaged communities. In its response, the LSE must take an expansive view of its responsibilities in this area and describe in detail its efforts to minimize disadvantaged community air pollution impacts, not only in its own service area, but also in the state as a whole.

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 2021 PSP Portfolio with updates.

Requirements for IOUs Only

Data must be provided showing the forecasted revenue requirement and system average rate for bundled customers for current (baseline)[6] and all portfolios developed by the IOU. The costs should be forecasted consistently with the categories covered by each IOU in its general rate case and other Commission approved revenues and balancing accounts, and should incorporate all revenue requirements approved but not yet implemented as well as pending requests.[7] 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 and include modeling assumptions for each category:

- *Transmission*

- *Distribution (e.g. includes costs from distribution upgrades driven by customer-generation)*

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[5] For purposes of this designation, a Tribe may establish that a particular area of land is under its control even if not represented as such on CalEPA's DAC map and therefore should be considered a DAC by requesting a consultation with the CalEPA Deputy Secretary for Environmental Justice, Tribal Affairs and Border Relations.

[6] The baseline scenario uses the same cost assumptions as the conforming portfolios but excludes all generic resource additions.

[7] Pending revenue requests refers to revenue requests that have been filed and for which a decision by the Commission is pending.

- *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 complete three tables to 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 the preferred conforming portfolios (one table for each conforming portfolio). 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.

Revenue Requirements and Bundled System Average Rates for Baseline Scenario (2021 $)

Line No.	Cost Category	2023	…	2035
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	Bundled System Average Rate (¢/kWh)			

Revenue Requirements and Bundled System Average Rates for 30 MMT Preferred Conforming Portfolio (2021 $)

Line No.	Cost Category	2023	...	2035
1	Distribution			
2	Transmission			
3	Generation			
4	Demand Side Programs			
5	Other			
6 (sum lines 1-5)	Preferred Conforming Portfolio Revenue Requirement			
7	System Sales (GWh)			
8	Bundled Sales (GWh)			
9	System Average Delivery Rate (¢/kWh)			
10	Bundled Generation Rate (¢/kWh)			
11	Bundled System Average Rate (¢/kWh)			

Revenue Requirements and Bundled System Average Rates for 25 MMT Preferred Conforming Portfolio (2021 $)

Line No.	Cost Category	2023	...	2035
1	Distribution			
2	Transmission			
3	Generation			
4	Demand Side Programs			
5	Other			

6 (sum lines 1-5)	Preferred Conforming Portfolio Revenue Requirement			
7	System Sales (GWh)			
8	Bundled Sales (GWh)			
9	System Average Delivery Rate (¢/kWh)			
10	Bundled Generation Rate (¢/kWh)			
11	Bundled System Average Rate (¢/kWh)			

Requirements for All LSEs

All LSEs should consider cost and rate impacts on their customers when planning and submitting their individual IRPs. At a minimum, LSEs should include a narrative description of how they approached the issue of affordability when developing their preferred conforming portfolios, the cost and (if applicable) rate findings of their analysis, and how each of their preferred conforming portfolios compare from a cost (and rate) impact perspective. Please explain the key assumptions used in the LSE's cost (and rate) impact analysis and the LSE's findings regarding the key drivers of cost and rate differences. If the LSE prefers one of its preferred conforming portfolios as a blueprint for its own procurement, the LSE should explain why its preference is justified from a cost (and rate) impact perspective.

f. System Reliability Analysis

Use the RDT to show that each portfolio contributes its fair share to system reliability and report those results in this section. The LSE should provide a Load and Resource Table by Contract Status, as well as a chart of this information, for each preferred conforming portfolio that includes total reliability need (effective MW), total supply (effective MW), and net capacity position (effective MW) for all study years.

g. High Electrification Planning

The Preferred System Plan decision delegated staff to work with the CEC and CAISO staff to explore the development of a portfolio with a 30 MMT emission limit in 2030 using high electrification assumptions for study as a policy-driven sensitivity in the 2022-2023 TPP. The lead staff of the Energy Agencies (CEC, CPUC, and CAISO) agreed to collectively develop inputs necessary for the CAISO to conduct an assessment of the transmission system impacts of a scenario representing a high electrification future. CEC has developed and adopted two demand side projections: High Electrification (HE) and Additional Transportation Electrification (Additional TE).[8] The CPUC is developing the resource portfolio satisfying the higher load, using the Additional TE, and a 2030 30 MMT target and will transmit this portfolio to CAISO by the end of June to be studied as a policy-driven sensitivity in the 2022-2023 TPP. This portfolio goes through 2035.

Use this section to describe and provide qualitative and quantitative information on what additional resource planning and procurement the LSE would do under this high electrification scenario (ATE) to satisfy its assigned 2035 GHG Emission Benchmarks by 2035.

Please include a table that specifies resource type, MW amount, and what GHG target it is for ("30MMT", "25MMT", or "both"). Please fill Transmission Zone, Substation/Bus, and Alternative location after completing section III(N): Transmission Planning. Information provided in this table should be for additional resource planning by 2035.

Resource Type	MWs	Annual GWh	2035 GHG target	Transmission Zone	Substation/Bus	Alternative location	Note

h. Existing Resource Planning

The 2021 Preferred System Plan found that in the 2019-21 IRP cycle, aggregated LSE Preferred Conforming Portfolios failed to meet GHG and reliability targets due to insufficient new capacity being planned for, and that this was caused in part by LSEs over-relying on existing resources. In other words, the quantity of contracted and uncontracted existing resources that LSEs included in their plans exceeded the amount of existing resources available on the system. This indicates that some LSEs may have trouble procuring the existing resources that they planned for in the previous IRP cycle.

Provide a narrative analysis and discussion of how this finding impacted the LSE's approach to developing its 2022 Preferred Conforming Portfolios. In its response the LSE should describe the extent to which its Preferred Conforming Portfolios include existing resources, defined here as resources in the Resource Data Template with contract statuses of "online" and "planned existing." If the LSE filed a 2020 IRP, it should compare the amounts of existing resources included in its 2022 Preferred Conforming Portfolios to the amounts of existing resources included in its 2020 38 MMT Preferred Conforming Portfolio. LSEs that did not file a 2020 IRP can just describe how this finding

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[8] https://efiling.energy.ca.gov/GetDocument.aspx?tn=243222

influenced their approach to developing their 2022 Preferred Conforming Portfolios without a comparison to their 2020 plans. The response should also include analysis explaining why the amounts of existing resources being planned for are appropriate, why the LSE believes that its planned amounts of existing resources will be available in the market, and what potential challenges the LSE might have in procuring existing resources (e.g., competition with other LSEs).

i. 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 2021 PSP Portfolio with updates 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.

j. Long-Duration Storage Planning

Use this section to discuss the approach that the LSE took to planning for long-duration storage that is able to discharge at maximum capacity over at least an eight-hour period from a single resource to meet medium- and long-term needs. The LSE should discuss the potential it sees, how it arrived at the amounts included in its portfolios, the benefits and risks of including this resource in its portfolio mix, and whether the LSE plans to procure amounts additional to its ordered procurement requirements.

k. Clean Firm Power Planning

Use this section to discuss the approach that the LSE took to planning for clean firm generation (with an annual capacity factor of at least 80 percent) resources that are not subject to use limitations or are weather dependent. The type of resource described here must be a generating resource, not storage, able to generate when needed, for as long as needed, and may not have any on-site emissions, except if the resource otherwise qualifies under the Renewables Portfolio Standard (RPS) program eligibility requirements. The LSE should discuss the potential it sees, how it arrived at the amounts included in is portfolios, the benefits and risks of including this resource in its portfolio mix, and whether the LSE plans to procure amounts additional to its ordered procurement requirements. If the LSE included any of this resource located outside of the CAISO balancing authority area in its portfolio, the LSE should describe the potential Maximum Import Capability (MIC) expansion or transmission upgrades needed to ensure the resource can be delivered to the CAISO.

l. Out-of-State Wind Planning

Use this section to discuss the approach that the LSE took to planning for out-of-state wind resources out to 2035. The LSE should discuss the potential it sees, how it arrived at the amounts included in its portfolios, and the benefits and risks of including this resource in its portfolio mix. The LSE should discuss the status of the transmission route the resources included in its portfolio mix will likely utilize to reach the CAISO border — will only existing, already online, transmission be needed or will any planned new transmission that is not yet online be required?

m. Offshore Wind Planning

Use this section to discuss the approach the LSE took to planning for offshore wind resources out to 2035. The LSE should discuss the potential it sees, how it arrived at the amounts included in its portfolios, and the benefits and risks of including this resource in its portfolio mix. The LSE should address how its plan interacts, if at all, with the planning goals required by Assembly Bill 525 (Chiu, 2021) and also the procurement approaches discussed in Section 7.2 of D.22-02-004, that the Commission will explore with stakeholders in 2022. To the extent applicable, the LSE should differentiate between offshore located in the central coast and the north coast.

n. Transmission Planning

Background information:

The CPUC transmits to the CAISO, resource portfolios to be used as an input for their Transmission Planning Process (TPP). The base case resource portfolio is used for CAISO to identify transmission needs in the ten-year timeframe. Because these transmission needs are then approved by the CAISO Board of Governors to accommodate planned resources, among other reasons, it is important that the CPUC use all available information, including LSE plans, when mapping the resources in the base case portfolio. For this reason, LSEs should carefully consider transmission planning when submitting IRP plans.

- *Busbar mapping methodology[9] 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 locations intended. The details of these resources should be included in the Resource Data Template (RDT), 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*

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[9] Available for "Modeling Assumptions for the 2022-2023 Transmission Planning Process" at:
https://files.cpuc.ca.gov/energy/modeling/Busbar%20Mapping%20Methodology%20for%20the%20TPP_V2021_12_21.pdf

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[10] include generally maximizing utilization of existing transmission capability where possible. For this reason, if LSEs are planning resources that will exceed existing transmission capability limits, LSEs need to demonstrate that they are actively planning for upgrades and can justify the costs, timeline, and risks.*

As responses are provided to the questions below, describe what available information on transmission upgrades, interconnection, and resource planning was used. Suggested sources include, but are not limited to:

- *CAISO White Paper[11]*
- *CAISO's 2021-2022 Transmission Plan[12]*
- *Interconnection information such as that listed in CAISO's Data Transparency Matrix[13]*
- *Busbar mapping results of the PSP Portfolio and the High Electrification Sensitivity Portfolio for the 2022-2023 TPP[14]*

If the above sources of information are not utilized, please explain why. If additional information is utilized, please link and describe.

Required information:

a. *For contracted resources, describe any known transmission upgrades needed to ensure interconnection of the resource, including online date.*
b. *For planned resources with their locations specified in the RDT:*
   I. *describe how transmission deliverability was ascertained; does the location align with current transmission systems with existing capability, upgrades currently under construction or approved by the CAISO board, or will it require additional new transmission upgrades?*
   II. *The LSE should provide justification if in the RDT, the LSE noted it preferred such planned resources not be relocated to another location by staff in modeling or busbar mapping efforts. Please note whether this is investment grade information around which CAISO should be planning the transmission system and approving transmission 10 years out.*

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[10] Available at: [Methodology for Resource-to-Busbar Mapping & Assumption for the TPP](#)

[11] Available here: https://www.caiso.com/Documents/RevisedWhitePaper-2021TransmissionCapabilityEstimates-CPUCResourcePlanningProcess.pdf

[12] Available here: https://stakeholdercenter.caiso.com/RecurringStakeholderProcesses/2021-2022-Transmission-planning-process

[13] Available at: [Interconnection Process Enhancements 2021 - Data Transparency Matrix](#)

[14] Report available here: https://files.cpuc.ca.gov/energy/modeling/Modeling_Assumptions_2022-2023_TPP_V.2022-2-7.pdf; Dashboard available here: https://files.cpuc.ca.gov/energy/modeling/BusbarMapping_Dashboard_38MMT_V2022_02_08_v2.xlsx

III. *The LSE should provide justification of locations noted in the RDT for planned resources if the selected resource locations do not align with the LSE's previously submitted 38 MMT by 2030 plan and/or with the resource locations either studied in CAISO's 2021-2022 Transmission Plan or identified in the busbar mapping results of the PSP Portfolio and the High Electrification Sensitivity Portfolio for the 2022-2023 TPP noted above.*

For the additional procurement described under Section III(G): High Electrification Planning, please add transmission zone, substation/busbar location (if LSE has preference), and possible alternative locations (if any) in that section.

IV. Action Plan

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

a. Proposed Procurement Activities and Potential Barriers

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, as well as potential market, regulatory, financial, and other resource viability barriers or risks associated with the LSE's Preferred Conforming Portfolios, consistent with what is reported in the Resource Data Template. As applicable, describe the type of solicitation(s), when the solicitation(s) is/are expected to take place, the desired online dates of projects requested, and other relevant procurement information.

The LSE should provide responses for each of the following resource categories:

       i.   Resources to meet D.19-11-016 procurement requirements

      ii.   Resources to meet D.21-06-035 procurement requirements, including:

             a.   1,000 MW of firm zero-emitting resource requirements

             b.   1,000 MW of long-duration storage resource requirements

             c.   2,500 MW of zero-emissions generation, generation paired with storage, or demand response resource requirements

             d.   All other procurement requirements

     iii.   Offshore wind

     iv.   Out-of-state wind

      v.   Other renewable energy not described above

     vi.   Other energy storage not described above

    vii.   Other demand response not described above

   viii.   Other energy efficiency not described above

     ix.   Other distributed generation not described above

      x.   Transportation electrification, including any investments above and beyond what is included in Integrated Energy Policy Report (IEPR)

     xi.   Building electrification, including any investments above and beyond what is included in Integrated Energy Policy Report (IEPR)

    xii.   Other

b. Disadvantaged Communities

Describe and provide specific details on any current and planned LSE activities/programs to address disadvantaged communities, including those located within the geographic area served by the LSE and beyond, and describe how the LSE's actions and engagement have changed over time. Please describe any analysis or activities targeted at minimizing criteria air pollutants in disadvantaged communities and identifying feasible procurement opportunities to reduce reliance on fossil-fueled power plants, particularly those that are located within disadvantaged communities, including but not limited to those located within the geographic area served by the LSE. Describe specific metrics and scoring criteria that the LSE uses to prioritize the minimization of criteria air pollution in

disadvantaged communities, how those metrics and scoring criteria have been used in past procurement, and how those metrics and scoring criteria will be applied to planned procurement.

Also provide specific details on current and planned activities to conduct outreach and seek input from any disadvantaged communities, including those located within the geographic area served by the LSE and beyond, that could be impacted by procurement resulting from the implementation of the LSE's Plan, as described in the LSE's response to Section 4a. Include a list of any upcoming outreach activities and a description of how community members will be notified of opportunities to participate in these activities. Descriptions of current and planned outreach activities should address efforts to provide:

1. *Accessible materials available in the languages spoken in the community;*
2. *Effective outreach and targeting to ensure that communities are aware of the opportunity to provide feedback;*
3. *Meaningful and transparent opportunities to provide input; and*
4. *Consideration of community input in the decision-making process.*

If the LSE is not conducting targeted outreach directed toward disadvantaged communities, the LSE should explain why and discuss its plans for conducting such outreach in the future.

c. Commission Direction of 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. In your response, please explain how you might have approached planning differently under the different IRP programmatic procurement options under consideration in 2022 in the IRP procurement track (per D.22-02-004 pages 152-156). If different program design options would have led to different amounts or types of planned resources in your Preferred Conforming Portfolios, please describe that difference and whether that influences how you think the Commission should design a programmatic approach to IRP procurement.

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 Preferred System Plan with updates. 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) methodology: *the methodology used to estimate GHG and criteria pollutant 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.*

Effective Megawatts (MW): *perfect capacity equivalent MW, such as the MW calculated by applying an ELCC % multiplier to nameplate MW.*

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.

Maximum Import Capability: a California ISO metric that represents a quantity in MWs of imports determined by the CAISO to be simultaneously deliverable to the aggregate of load in the ISO's Balancing Authority (BAA) Area and thus eligible for use in the Resource Adequacy process. The California ISO assess a MIC MW value for each intertie into the ISO's BAA and allocated yearly to the LSEs. A LSE's RA import showings are limited to its share of the MIC at each intertie.

Net Qualifying Capacity (NQC): *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.*

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).

Transmission Planning Process (TPP): annual process conducted by the California Independent System Operator (CAISO) to identify potential transmission system limitations and areas that need reinforcements over a 10-year horizon.