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Standard LSE Plan

ORANGE COUNTY POWER AUTHORITY

2022 INTEGRATED RESOURCE PLAN

NOVEMBER 1, 2022

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I. Introduction and Executive Summary

a. Introduction

Description of the Orange County Power Authority

The Orange County Power Authority ("OCPA") is a Joint Powers Authority ("JPA") formed pursuant to the Joint Exercise of Powers Act (Cal. Gov. Code § 6500 *et seq.*, California Public Utilities Code section 366.2, and its *Joint Powers Agreement*, dated November 20, 2020, in order to provide Community Choice Aggregation ("CCA") service.

As a JPA, OCPA is a public agency and local government. OCPA is governed by a six-member board of directors whereby each member city or county appoints a director and alternate director to represent the member on the OCPA Board. OCPA is committed to providing safe, reliable, affordable, and clean energy to its customers and seeks to collaborate with statewide energy stakeholders to support California's energy goals.

OCPA began serving load in April 2022. OCPA plans to expand its service to unincorporated Orange County in November 2023. OCPA currently provides retail electric generation services and complementary energy programs to customers in SCE service territory within the municipal boundaries of the following communities:

- City of Buena Park
- City of Fullerton
- City of Huntington Beach
- City of Irvine

Starting November 2022, OCPA will begin serving unincorporated County of Orange customers located within the SCE and SDG&E service areas.

OCPA currently serves approximately 220,000 residential accounts and 34,000 commercial and industrial accounts. Pursuant to its most recent Integrated Energy Policy Report filing, OCPA's 2023 forecasted peak load is 823 MW, with total energy usage of 3,604 GWh.

OCPA's Mission

OCPA was formed for the express purpose of empowering its member communities to choose the generation resources that reflect their specific values and needs. OCPA seeks to provide reliable electric service at a lower cost than offered by the incumbent electric utility and also prioritizes economic development and environmental stewardship in Orange County.

Consistent with California Public Utilities Code Sections 366.2(a)(5) and 454.52 (b)(3),[1] all procurement by OCPA, including the portfolios set forth in this Integrated Resource Plan ("IRP"), must comply with policy direction provided by OCPA's governing board.

Introduction to OCPA's IRP

In accordance with the requirements of PUC Sections 454.51 and 454.52 and California Public Utilities Commission ("Commission") Decision ("D.") D.22-02-004, *Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Emissions Benchmarks for 2022 Integrated Resource Plan Filings*,[2] and guidance provided by the Commission's Energy Division,[3] OCPA is providing its load-serving entity ("LSE")-specific IRP to the Commission for certification and use in the Commission's statewide planning process. This IRP is publicly available and documents OCPA's resource planning policies and objectives over the upcoming IRP planning period.

In addition to this narrative, OCPA's IRP includes the following documents:

- OCPA's 2030 38 MMT & 2035 30 MMT Resource Data Template and Clean System Power Calculator
- OCPA's 2030 30 MMT & 2035 25 MMT Resource Data Template and Clean System Power Calculator
- OCPA's IRP Verification

As provided for in D.22-02-004 and described in Commission Guidance documents, OCPA is submitting a single conforming portfolio ("Preferred Conforming Portfolio") in this IRP which meets the following GHG emissions limits:

[1] All further citations to statute are to the California Public Utilities Code unless otherwise noted.

[2] Rulemaking ("R.") 20-05-003, *Administrative Law Judge's Ruling Finalizing Load Forecasts and Greenhouse Gas Emissions Benchmarks for 2022 Integrated Resource Plan Filings* ("Final Ruling") (June 15, 2022).

[3] Energy Division Guidance can be accessed at: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/long-term-procurement-planning/2022-irp-cycle-events-and-materials.

1. A portfolio that achieves emissions that are equal to or less than OCPA's proportional share of the 38 million metric ton ("MMT") greenhouse gas ("GHG") target by 2030 and 30 MMT by 2035; and
2. A portfolio that achieves emissions that are equal to or less than OCPA's proportional share of the 30 MMT by 2030 and 25 MMT by 2035 GHG targets.

Projecting resource needs over the planning horizon covered by the IRP is a fluid process and OCPA expects changes over time. The future resources identified in OCPA's IRP represent OCPA's current good-faith projection of the resource mix that will be procured over the IRP planning horizon. Such projections are based on best available information regarding planning directives, OCPA policy, resource availability and other key considerations. The resources identified in future iterations of OCPA's IRP may change due to new information and evolving circumstances, and the ultimate resource mix that OCPA actually procures (in future years) may differ from what is reflected in this plan due to a number of variables, including availability of supply, technology changes, price of supply, and/or other market or regulatory considerations.

Examples of future regulatory changes include the upcoming "Slice of Day" framework for the Resource Adequacy ("RA") program,[4] the implementation of the Central Procurement Entity ("CPE"),[5] as well as structural, programmatic changes to the IRP program.[6] Though the impact of these changes is uncertain at this time, they have the potential to materially reshape how capacity and energy are valued for reliability purposes, and in turn, such changes may impact OCPA's future procurement decisions. Through its involvement and membership in the California Community Choice Association ("CalCCA"), OCPA will continue to monitor and engage in Commission proceedings and incorporate pertinent planning and procurement adaptations as necessary.

Board Approval of IRP

OCPA is structured as a joint powers authority and is governed by a Board of Directors comprised of appointed officials from cities and the county within its service territory. OCPA procures electricity for its customers from a variety of resources guided by policies adopted by the Board, and by regulatory requirements established by the California Legislature and state regulatory agencies. Procurement activities are structured to achieve internal energy and financial goals, as directed by its Board, including meeting all compliance obligations to achieve a safe, affordable, reliable, and clean power supply.

In compliance with Section 454.52(b)(3), this IRP was formally submitted to OCPA's Board of Directors for approval based on the IRP's compliance with Sections 454.51 and 454.52 ("IRP Statute").

[4] D.22-06-050.

[5] See D.20-06-002 and D.22-03-034.

[6] See R.20-05-003, *Administrative Law Judge's Ruling Seeking Comments on Staff Paper on Procurement Programs and Potential Near-Term Actions to Encourage Additional Procurement* Attachment A (September 8, 2022).

On October 25, 2022, OCPA's board adopted Resolution No. 2022-##, which formally approves this IRP and adopts OCPA's Preferred Conforming Portfolio ("PCP"). In Resolution No. 2022-##, OCPA's board also makes the following determinations regarding OCPA's PCP:

- OCPA's PCP is expected to achieve economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in Section 454.52(a)(1)(A-I).
- OCPA's PCP includes a diversified procurement portfolio consisting of both short-term and long-term electricity and electricity-related and demand reduction products.
- OCPA's PCP achieves the resource adequacy requirements established pursuant to Public Utilities Code Section 380.
- OCPA's PCP is consistent with the procurement timing, resource mix, and operational attributes of the Commission's 2022 Preferred System Portfolio ("PSP").[7]
- OCPA's PCP is fully compliant with all OCPA procurement directives.

A copy of the IRP and Resolution is available on OCPA's website.[8]

Request for Certification

OCPA respectfully requests that the Commission certify this IRP. As both the Legislature and the Commission have recognized, the Legislature has granted CCAs broad authority to procure resources on behalf of their respective customers, an authority limited only where "other generation procurement arrangements have been expressly authorized by statute."[9] Likewise, the Legislature has granted CCAs autonomy in setting their own rates and managing interactions with their customers.[10] OCPA understands that the Commission has three primary interests in the CCA IRP process:

- Ensuring that CCA IRPs provide requisite procurement information needed by the Commission to develop its statewide plan.[11]
- Ensuring that CCA current and planned procurement is consistent with the RA requirements established pursuant to Public Utilities Code Section 380.5.[12]

[7] In D.22-02-004 at page 105 and Ordering Paragraph 8, the Commission adopted the 38 MMT Core Portfolio with 2020 IEPR Demand and High Electric Vehicle ("EV") Penetration Scenario.
[8] See *Key Documents and Resources*, available at https://OCPAcommunitenergy.org/about-us/key-documents/.
[9] Cal. Pub. Util. sec. 366.2(a)(5).
[10] D.05-12-041 at 9-11 ("Nothing in the statute directs the CPUC to regulate the CCA's program except to the extent that its programs may affect utility operations and the rates and services to other customers. For example, the statute does not require the CPUC to set CCA rates or regulate the quality of its services… We are confident that existing law protects CCA customers. Entities of local government, such as CCAs, are subject to numerous laws that will have the effect of protecting CCA customers and promoting accountability by CCAs…").
[11] D.19-04-040 at 17-18 ("The Commission's portfolio aggregation and evaluation process, which relies of fulfillment of IRP filing requirements by LSEs, is the only process capable of assessing the overall needs of the CAISO grid and meeting the statewide GHG, reliability, and least-cost goals collectively. While LSEs may use their IRP process to meet local planning needs as well, the statewide planning function is the statutorily required process . . . .").
[12] Cal. Pub. Util. Code sec. 454.52(b)(3)(C).

- Ensuring that CCA current and planned procurement satisfies the CCA's share of renewable integration resources identified in the Commission's PSP, and that the CCA either self-provides or pays for investor-owned utility ("IOU") procurement to support its share of any renewable integration shortfall.[13]

OCPA has prepared its IRP with these interests in mind, and recognizes benefits of a collaborative planning approach between the State and CCAs.

b. Executive Summary

This narrative provides a detailed description of the development and content of OCPA's PCP, each portfolio's compliance with applicable requirements, and an action plan detailing OCPA's next steps (to promote conformance with such requirements).

OCPA developed its IRP through the following steps:

- OCPA compiled data for its existing energy contracts, RA capacity contracts, and its share of capacity for allocated Cost Allocation Mechanism ("CAM") resources using the guidance provided by the Energy Division.
- For each IRP planning year, OCPA identified its short positions relative to known planning targets and its assigned load forecast.
- OCPA populated the Resource Data Template with all current contracts.
- OCPA compiled detailed information on projects for which it is currently negotiating power purchase agreements, including information regarding project status and timing.
- OCPA added generic future contracts with existing resources, including renewable and large hydroelectric generators, to help fill its remaining open positions.
- OCPA used the Commission's Clean System Power Calculator Tool to check the GHG emissions associated with the resulting portfolio to ensure that these emissions are less than or equal to OCPA's assigned share of the 25 MMT and 30 MMT benchmarks.
- OCPA identified the resulting portfolio as its PCP.
- OCPA checked its PCP for reliability by comparing the total portfolio net qualifying capacity ("NQC") against OCPA's RA requirements as shown in the Reliability tab of both the 25 MMT RDT and the 30 MMT RDT and adding in sufficient RA capacity to ensure reliability.

OCPA reached the following findings regarding its PCP:

- OCPA's PCP includes the procurement of the following new resources:
    - New hybrid resources totaling 590 MW solar/250 MW battery storage
    - New wind resources totaling 400 MW
    - New geothermal resources totaling 25 MW
    - New grid connected battery storage of 200 MW

[13] *Id.* at sec. 454.51.

    - New long duration storage of 100 MW
- OCPA's PCP provides for the following overall resource mix in 2035:
    - 290 GWh of Large Hydro
    - 25 GWh of Biomass
    - 284 GWh of Geothermal
    - 203 GWh of Nuclear
    - 6 GWh of Small Hydro
    - 1,721 GWh of Wind
    - 2,185 GWh of Solar
    - 450 MW of Short Duration (4-hour) Battery Storage Capacity
    - 100 MW of Long Duration (8-hour) Battery Storage Capacity
    - 466 MW of Natural Gas/Baseload/Other (Capacity-Only)
    - 82 MW of SCE resources (Capacity-Only) allocated through the Cost Allocation Mechanism.

OCPA's PCP is consistent with procurement timing, resource quantities, and general resource attributes identified in the PSP:

- Using the 30 MMT CSP calculator, OCPA's PCP would have 2030 emissions of 0.293 MMT and 2035 emissions of 0.303 MMT, which is less than OCPA's assigned share of 2030 and 2035 emissions.
- Using the 25 MMT CSP calculator, OCPA's PCP would have 2030 emissions of 0.320 MMT and 2035 emissions of 0.321 MMT, which is less than OCPA's assigned share of 2030 and 2035 emissions.
- OCPA's PCP meets all relevant reliability metrics.
- OCPA's PCP provides approximately OCPA's load-proportional share of renewable integration resources.
- OCPA's PCP is also consistent with the Commission's PSP and can be used in either a 25 MMT or 30 MMT consolidated statewide portfolio.

To implement its PCP, OCPA is adopting the action plan described in Section IV, below. This action plan consists of the following steps:

- OCPA will periodically solicit offers for new renewable generation and storage projects. These resources are typically secured through long-term power purchase agreements. OCPA expects to secure power purchase agreements for new and existing projects in multiple solicitations conducted over the next several years.
- Periodically throughout the year, OCPA will solicit offers for short-term renewable energy, resource adequacy, system energy, and other products needed to balance the portfolio and adhere to position limits established through OCPA's risk management policy and practices. These solicitations may take the form of formal request for offers processes, bilateral discussions, and/or transactions arranged through broker markets.

- OCPA will continue to procure resources to meet any remaining assigned requirements from D.19-11-016 and D.21-06-035, as well as the specific sub-categories from that decision.

II. Study Design

a. Objectives

OCPA had the following objectives in performing the analytical work to develop its IRP:

1. Identify a portfolio that meets OCPA's goals for renewable energy utilization and that has GHG emissions equal to or less than OCPA's proportional share of the 30 MMT and 25 MMT GHG reduction benchmark, as determined using the Commission's emissions calculator.
2. Identify a portfolio that achieves economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth in Public Utilities Code Section 454.52(a)(1)(A-I).
3. Identify diverse and balanced portfolio that include both short-term and long-term electricity products as well as electricity-related demand reduction products.
4. Identify portfolios that achieve the resource adequacy requirements established pursuant to Public Utilities Code Section 380 and provide OCPA's share of system reliability and renewable integration resources.
5. Identify portfolios that comply with all of OCPA's procurement directives.
6. Identify portfolios that are compliant with OCPA's obligations under the Renewables Portfolio Standard ("RPS") program.
7. Identify portfolios that are cost-effective and minimize rate impacts on OCPA's customers.

b. Methodology

i. Modeling Tool(s)

In developing its planned portfolios, OCPA made use of the modeling done by the Energy Division using RESOLVE and SERVM and incorporated into the RDTv3 and CSP templates as a starting point. After studying this modeling and its conclusions, OCPA used its own experience and expertise in procurement to construct models to quantify portfolio targets for renewable energy content, capacity, and portfolio GHG emissions, as well as physical and financial positions to ensure adherence to OCPA's currently effective risk management policies and business practices.

OCPA starts by utilizing a commercially available energy trading and risk management system to monitor positions, market exposure, credit exposure, value-at-risk, and other risk management metrics.

OCPA uses the outputs of the energy trading system to develop reports and models which are then analyzed to assess annual, monthly, and hourly open positions, taking account of forecasted hourly electric loads and expected deliveries from OCPA's resource portfolio. OCPA uses a proprietary financial model to project power supply costs and incorporates existing and planned procurement into an overall financial assessment of revenues, costs, and cash flows.

For new resource selection, OCPA relied upon the modeling and assumptions in the PSP, and on OCPA's ongoing and recent procurement experience, which provides insight into resource availability and cost. In addition, OCPA's new resource selection reflects the goals adopted by its Board that reflect the unique geographic location and local resource availability.

GHG emissions were assessed using the Commission's Clean System Power tool for the 30 MMT and 25 MMT variations.

i. Modeling Approach

Load Forecast

OCPA developed this IRP using its assigned load forecast from the file 2022 Final GHG Emission Benchmarks for LSEs_public(4).xlsx (also contained in the CSP templates), as specified in the June 15, 2022 *Administrative Law Judge's Ruling Finalizing Load Forecats and Greenhouse Gas Emissions Benchmarks for 2022 Integrated Resource Plan Filings.* In future IRPs, and once OCPA has more robust data to apply to its modeling effort subsequent to service launch, OCPA plans to expand the scope of its modeling approach to integrate a more detailed and comprehensive modeling process.

OCPA's assigned load forecast is as follows:

Table 1: OCPA's 2023-2035 Load Forecast (GWh)

Year	Load Forecast
2023	3,604
2024	4,112
2025	4,144
2026	4,172
2027	4,211
2028	4,244
2029	4,280
2030	4,312
2031	4,346
2032	4,370
2033	4,397
2034	4,421
2035	4,446

Load Shape

In developing its portfolio OCPA used the default load shape from the Clean System Power Calculator, which reflects the California Independent System Operator ("CAISO") hourly system average load shape forecast for the 2021 IEPR Mid Case.[14] Because OCPA used the default load shape in the Clean System Power Calculator, OCPA's total annual energy volumes remain consistent with OCPA's assigned load forecast.

Load-Proportional GHG Emissions Benchmark

OCPA's modeling was assessed against its 2035 load-proportional share of the respective 30 MMT and 25 MMT benchmarks, as assigned in Table 1 of the Load Forecast Ruling. This assessment yielded the following results:[15]

Table 2: OCPA's Assigned Shares of GHG Reduction Benchmarks[16]

2035 Load (GWh)	2035 GHG Benchmark – 30 MMT Scenario	2035 GHG Benchmark – 25 MMT Scenario
4,446	0.327	0.411

Compiling Existing Resources

To populate its baseline resource templates, OCPA added existing resources from the following procurement categories:

- Energy Contracts
- Capacity (Resource Adequacy) Contracts
- OCPA's assigned share of capacity for CAM resources, taken from Energy Division's Aggregated CAM Resources for LSEs Plan Development, dated September 29, 2022
- OCPA's selected Voluntary Allocation and Market Opportunities ("VAMO") allocation of RPS resources from SCE and SDG&E
- OCPA's allocation of GHG-free resources from SCE

Selecting New Resources

To identify its new resource procurement opportunities, OCPA first determined the new resource capacity it intends to add each year, which considered resource needs (open positions), long-term

[14] *Final Ruling* at 3.

[15] See 2022 Final GHG Emission Benchmarks for LSEs, LSE Demand Forecast (June 28, 2022) ("GHG Benchmarks"), *available at* https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/2022-final-ghg-emission-benchmarks-for-lses_public.xlsx.

[16] *GHG Benchmarks* at Tab "Benchmarks_30 MMT" and "Benchmarks_25 MMT".

renewable contracting requirements, RPS requirements, resource adequacy requirements, the need for incremental resource adequacy capacity to contribute to system reliability and renewable integration needs, the potential for technological improvements, and financial considerations. OCPA selected resource types based on its experience with competitive solicitations for new renewable and storage resources, its experience in procuring resource adequacy resources, as well as consideration of the studies and modeling underlying the adopted PSP.

Confirming Reliability

OCPA's portfolios were evaluated to ensure that sufficient dependable capacity (net qualifying capacity) is available to meet peak load requirements, as shown in the RDTv3. This includes a 14% Perfect Capacity ("PCAP") Planning Reserve Margin.[17] OCPA used technology-specific Effective Load Carrying Capacity ("ELCC") factors provided by the Commission to assess the contribution of each resource to system reliability. In order to ensure that its portfolio met the reliability requirements, OCPA added sufficient short-term RA capacity in each year. OCPA's portfolios were also designed to ensure that current incremental resource capacity obligations from D.19-11-016 and D.21-06-035 are met.

Calculating GHG Emissions

OCPA calculated the emissions associated with its PCP using the Commission's Clean System Power calculator. The assigned load forecast and default load shapes and behind the meter adjustments were used for this assessment, along with the planned supply portfolios. The results were checked against the assigned GHG benchmarks included in the Clean System Power tools.

III. Study Results

a. Conforming and Alternative Portfolios

Pursuant to Commission direction, OCPA is submitting one PCP because this portfolio meets the requirements of both the 30 MMT and 25 MMT system plans. As required, OCPA presents this singular PCP separately in both the 30 MMT and 25 MMT RDTs and CSP calculators, respectively. OCPA is not submitting alternative portfolios.

OCPA's PCP

The table below provides a summary of OCPA's PCP, identifying resources by type and distinguishing between the following procurement categories:

- Existing resources (energy and capacity) that OCPA owns or contracts with, consistent with definitions provided in the Resource Data Template.
- Existing resources (energy and capacity) that OCPA plans to contract with in the future.
- Existing resources (capacity) that OCPA partially pays for through CAM.

[17] See *Workshop: Reliability Filing Requirements for Load Serving Entities' 2022 Integrated Resource Plans- Results of PRM and ELCC Studies*, Slide 31 (July 29, 2022).

- New resources (energy and capacity) that are under development that OCPA is planning to procure.
- Future new resources (energy and capacity) that OCPA is planning to procure.

In summary, to meet OCPA's projected 2035 energy demand of 4,446 GWh, OCPA has selected a PCP composed primarily of the resource types and energy volumes detailed below.[18]

Table 3: OCPA 2035 Projected Resource Types and Energy Volumes

Resource Category	Under Development	Owned or Contracted	Planned Existing	Planned New	Under Review	Total
Asset Controlling Supplier (GWh)	0	0	175	0	0	**175**
Battery Storage (MWh Energy Capacity)	76	32	0	800	0	**907**
Biomass (GWh)	0	0	0	25	0	**25**
Geothermal (GWh)	0	12	75	197	0	**284**
Hybrid or Paired Solar and Battery (GWh)	0	0	0	1,565	0	**1,565**
Large Hydro (GWh)	0	115	0	0	0	**115**
Small Hydro (GWh)	0	6	0	0	0	**6**
Solar Existing California (GWh)	0	392	225	0	0	**617**

[18] Residual energy needs are assumed to be supplied by unspecified CAISO system energy purchases.

Wind Existing California (GWh)	0	232	175	0	0	**407**
Wind Wyoming (GWh)	0	0	0	359	0	**359**
Wind New SCE SDG&E (GWh)	0	0	0	526	0	**526**
Wind Offshore Morro Bay (GWh)	0	0	0	429	0	**429**

Additionally, OCPA's 2035 PCP includes capacity-only resources composed primarily of the following resources:

- CAM, Demand Response, and RMR Allocations – 118 MW
- Existing natural gas, baseload, and other (planned procurement) – 466 MW

OCPA's portfolio includes a mix of existing and new resources. Approximately 1,565 MW of OCPA's PCP is composed of new resources, reflecting OCPA's role as an active player in the State's development of new renewable and storage resources. Furthermore, OCPA's PCP is comprised of a mix of resources in which OCPA can minimize customer rate impacts while still achieving the State's GHG-reduction targets.

OCPA's PCP Is Consistent with the Preferred System Plan

The new resources included in OCPA's PCP are generally consistent with the PSP 2035 new resource mix adopted in D.22-02-004, as updated.[19]

The Decision identifies planned use of resources in the following categories: Gas, Biomass, Geothermal, Wind, Wind on New-Out-of-State Transmission, Offshore Wind, Utility-Scale Solar, Battery Storage, Pumped (Long-Duration) Storage, Shed Demand Response.

As demonstrated in the following table, OCPA's PCP is generally consistent with OCPA's proportional share of new procurement for each of the "resource types" identified in D.22-02-004:

[19] *LSE Plan Filing Requirements RESOLVE Modeling Results* at 16 (June 15, 2022), available at https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2022-irp-cycle-events-and-materials/lse-filing-requirement-resolve-results.pdf.

Table 4: Comparison of OCPA's PCP vs PSP

Resource Category	PSP	OCPA's Proportional Share of PSP New Resources	OCPA's 30 MMT Conforming Portfolio
Gas	-	0	0
Biomass	134	0	3
Geothermal	1,135	25	22
Wind	3,562	200	70
Wind on New Out-of-State Transmission	4,636	100	91
Offshore Wind	4,707	100	92
Utility-Scale Solar	17,418	590	342
Battery Storage	17,350	450	340
Pumped (long-duration) Storage	1,000	100	20
Shed Demand Response	977	0	19

OCPA's proportional share of the PSP New Resources and the resources reflected in OCPA's PCP are relatively aligned; however, OCPA's PCP reflects a higher level of new resource procurement due to OCPA's emphasis on providing renewable energy to its customers. Additionally, OCPA has selected a much higher than proportional amount of biomass.

b. Preferred Conforming Portfolios

OCPA's PCP consists of a combination of:

- Utility-scale solar;
- In-state wind;
- Out-of-state wind;
- Off-shore wind;
- Short-duration storage;
- Long-duration storage;
- Large hydro-electric and Asset Controlling Supply (Mostly imported large hydro);
- Geothermal;
- Nuclear (via allocation from SCE);
- Biomass/biogas; and
- Natural gas/other (capacity only).

As stated above, in accordance with Public Utilities Code Section 454.51(b)(3), OCPA's governing board has determined that the resource mix in the PCP achieves "economic, reliability, environmental, security, and other benefits and performance characteristics that are consistent with the goals set forth [in Section 454.51(a)(1)]." These benefits and characteristics are discussed as follows.

GHG Reduction Goals

OCPA's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(A) goal of meeting the Commission's 30 MMT or 25 MMT GHG reduction benchmarks.[20] OCPA's proportional share of the 30 MMT GHG target is 0.534 MMT in 2030 and 0.411 MMT in 2035. According to the Commission's emissions calculator for the 30 MMT scenario, OCPA's PCP would account for 0.293 MMT of emissions in 2030 and 0.303 MMT of emissions in 2035. OCPA's proportional share of the 25 MMT GHG target is 0.401 MMT in 2030 and 0.327 MMT in 2035. According to the Commission's emissions calculator for the 30 MMT scenario, OCPA's PCP would account for 0.320 MMT of emissions in 2030 and 0.321 MMT of emissions in 2035.

Renewable Energy

OCPA's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(B) goal of ensuring that portfolios are composed of at least 50% eligible renewable resources. In 2035, OCPA's 30 MMT PCP portfolio would consist of 95% eligible renewable generation, which exceeds the 60% requirement.

Minimizing Bill Impact

OCPA's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(D) goal of minimizing the impact of planned procurement on ratepayer bills. OCPA's PCP portfolio consists primarily of renewable resources that have no exposure to volatile natural gas prices that have risen dramatically in recent years.

OCPA prioritizes cost competitiveness, reliability, and use of renewable energy. OCPA anticipates that bill impacts will be minimized during its planned portfolio transition as new solar and wind generation projects secured via long-term contract generally have lower net costs than prices paid in the short-term renewable energy markets. Coupling new solar with battery storage increases the capacity value of the projects, displacing the need to buy expensive resource adequacy products, and provides limited dispatchability for the solar generation, minimizing the risk of energy value degradation over time. OCPA seeks generation and/or storage projects that meet portfolio fit considerations and that have positive net present value in consideration of expected contract costs and the value of the energy, reliability, and environmental attributes provided by the project. Such projects help reduce costumer costs relative to alternative sources of energy and capacity. Further, OCPA's PCP minimizes exposure to volatile natural gas prices as well as bill impacts that may result from periodic spikes in fossil fuel prices.

[20] See D.22-02-004 at 105.

Ensuring System and Local Reliability

OCPA's PCP achieves results and performance characteristics consistent with the Section 454.52(a)(1)(E) goal of ensuring system and local reliability. OCPA's PCP is reliable from both an OCPA-specific and systemwide perspective under the 30 MMT and 25 MMT Scenarios. The PCP would provide adequate energy storage and RA capacity to meet OCPA's generation needs during non-solar generating hours.

The PCP meets system resource adequacy requirements as detailed in Section III. With the adoption of the Central Procurement Entity structure, OCPA no longer has local resource adequacy requirements in the SCE area since the CPE has taken over the procurement of local resource adequacy capacity within OCPA's service area. Local resource adequacy obligations continue for OCPA's load in the SDG&E service area. The CPE construct is only recently operational. OCPA's portfolio assumes CAM allocations and CAM resources, which incorporate CPE system and flexible capacity allocations, consistent with the information provided by the Energy Division for use in this IRP. OCPA anticipates that it will meet its reliability (RA) needs through renewable energy resources, battery storage, and capacity-only contracts with existing natural gas plants.

As a practical matter, the ability of OCPA's portfolio to meet OCPA's own load requirements will not be materially impacted by whether other parties procure consistent with the 30 MMT or 25 MMT target. As discussed in Section III.f, OCPA's PCP includes sufficient NQC to meet peak loads and reserve margins regardless of whether other load serving entities procure to the 25 MMT or 30 MMT benchmark targets. If other LSEs procure in accordance with a 25 MMT GHG target, the NQC and contribution to reliability of OCPA's PCP would increase by an average of 13 MW. Based on results from the CSP calculator, OCPA should expect similar hours of curtailment for its renewable resources between the 30 MMT and 25 MMT scenarios.

Ensure that at least 65% of RPS Procurement is From Long-Term Contracts

Consistent with Section 454.52(a)(1)(F), OCPA is on pace to meet the requirement that 65% of its Renewables Portfolio Standards ("RPS") procurement must come from contracts of 10 years (long-term or more for each compliance period. For the current compliance period, OCPA has procured 61% from long-term contracts, with additional long-term contracts currently being evaluated. Additionally, the majority of the resources shown in OCPA's PCP are expected to be acquired through long-term contracts. OCPA will continue to procure renewables through short-term contracts when opportunities present themselves for cost-efficient procurement and when doing so would reduce any remaining dependency on system power.

Strengthen the diversity, sustainability, and resilience of the bulk transmission and distribution systems, and local communities

OCPA's PCP achieves results and performance characteristics that strengthen the diversity, sustainability and resilience of the bulk transmission and distribution systems, as well as local communities, meeting Section 454.52(a)(1)(G). OCPA's PCP relies on procurement from a variety of resource types as well as significant storage resources incorporated in hybrid solar and storage configurations. OCPA believes that the complementary nature of the solar and storage in hybrid resources makes better use of the existing transmission system. OCPA carefully evaluates the long-term generation load-matching and congestion risks of new resources and

weighs its options in the context of its existing supply and net demand on an hourly basis for the full duration of any contract period.

Demand-Side Energy Management

OCPA's 30 MMT portfolio achieves results and performance characteristics consistent with the section 454.52(a)(1)(G) goal of enhancing demand-side energy management. OCPA utilizes demand response capacity allocated to it from the SCE portfolio and will be exploring development of demand-side management programs such as demand response, energy efficiency, and behind the meter energy storage solutions.

Minimizing Localized Air Pollutants with Emphasis on Disadvantaged Communities ("DACs")

OCPA's 30 MMT portfolio achieves results and performance characteristics consistent with the section 454.52(a)(1)(l) goal of minimizing localized air pollutants and other GHG emissions with early priority on disadvantaged communities. OCPA's PCP relies primarily on renewable generation, and this portfolio is expected to exhibit relatively low GHGs and localized air pollution emissions. The PCP minimizes reliance on unspecified system power, instead incorporating renewable generation procurement/development whenever feasible.

Results from the 30 MMT CSP tool indicate the following localized air pollutants associated with OCPA's PCP in 2035:

- NOx: 43 tonnes/year
- PM 2.5: 19 tonnes/year
- SO2: 4 tonnes/year

Results from the 25 MMT CSP tool indicate the following localized air pollutants associated with OCPA's PCP in 2035:

- NOx: 40 tonnes/year
- PM 2.5: 16 tonnes/year
- SO2: 4 tonnes/year

These emissions are expected to result from the planned use of system energy and biomass energy in the 30 MMT PCP, as well as emissions from Combined Heat and Power ("CHP") resources and system energy assigned to the OCPA portfolio by the CSP tool. In evaluating use of biomass resources, OCPA will prioritize procurement from those located outside of DACs to the greatest practical extent.

c. GHG Emissions Results

GHG emissions associated with MCE's PCP are shown below for the 30 MMT and 25 MMT Scenarios. As stated above, the emissions associated with MCE's PCP are lower than MCE's proportional share for both the 30 MMT and 25 MMT benchmarks.

Table 5: Portfolio GHG Emissions

Scenario	*Unit*	2024	2026	2030	2035
30 MMT	*MMt/yr*	0.354	0.264	0.293	0.303
25 MMT	*MMt/yr*	0.346	0.276	0.320	0.321

d. Local Air Pollutant Minimization and Disadvantaged Communities

i. Local Air Pollutants

The 30 MMT version of the CSP calculator estimates the following emissions associated with OCPA's PCP:

Table 6: 30 MMT Portfolio Air Pollutants

Emissions Total	*Unit*	2024	2026	2030	2035
PM2.5	*tonnes/yr*	36	18	14	19
SO_2	*tonnes/yr*	12	6	3	4
NOx	*tonnes/yr*	116	67	43	43

The 25 MMT version of the CSP calculator estimates the following emissions associated with OCPA's PCP:

Table 7: 25 MMT Portfolio Air Pollutants

Emissions Total	*Unit*	2024	2026	2030	2035
PM2.5	*tonnes/yr*	36	17	14	16
SO_2	*tonnes/yr*	12	6	3	4
NOx	*tonnes/yr*	115	66	42	40

OCPA's contribution to air pollutants is a result of system power, its assigned amounts of CHP power, and biomass resources. The tables below show the portion of load that is being served from fossil fuel resources and system power each year for the respective portfolios.

Table 8: 30 MMT Portfolio Demand, Fossil Fuel Resources and System Power

Demand Summary	*Unit*	2024	2026	2030	2035
Managed Retail Sales Forecast (assigned to LSE)	*GWh*	4,112	4,172	4,312	4,446
Demand (at generator bus-bar)	*GWh*	4,439	4,504	4,656	4,802

LSE Supply, before curtailment and exports	*GWh*	*4,029*	*4,358*	*4,693*	*4,791*
Net Purchases, before curtailment and exports	*GWh*	*410*	*146*	*(37)*	*10*
Curtailment	*GWh*	(142)	(196)	(405)	(440)
Exports	*GWh*	(39)	(37)	(96)	(139)
Zero Emissions Power From System	*GWh*	0	0	0	-
Net System Power (incurs emissions)	***GWh***	**590**	**379**	**464**	**589**
Percent of Demand from Net System Power		13%	8%	10%	12%

Table 9: 25 MMT Portfolio Demand, Fossil Fuel Resources and System Power

Demand Summary	***Unit***	**2024**	**2026**	**2030**	**2035**
Managed Retail Sales Forecast (assigned to LSE)	*GWh*	4,112	4,172	4,312	4,446
Demand (at generator bus-bar)	*GWh*	4,439	4,504	4,656	4,802
LSE Supply, before curtailment and exports	*GWh*	*4,023*	*4,350*	*4,666*	*4,775*
Net Purchases, before curtailment and exports	*GWh*	*417*	*154*	*(9)*	*26*
Curtailment	*GWh*	(125)	(229)	(407)	(438)
Exports	*GWh*	(32)	(43)	(140)	(163)
Zero Emissions Power From System	*GWh*	0	0	0	0
Net System Power (incurs emissions)	***GWh***	**574**	**427**	**538**	**627**
Percent of Demand from Net System Power		13%	9%	12%	13%

OCPA discusses its plans to reduce reliance on system power in Section IV. Action Plan.

ii. Focus on Disadvantaged Communities

OCPA intends to provide and manage its energy portfolio and products in a manner that promotes public health, clean energy procurement, as well as tenets of social, economic and environmental justice in areas impacted by energy production, including Disadvantaged Communities ("DAC"). It offers several service options that benefit the DACs and low-income communities it serves. In the future, OCPA intends to contract exclusively with renewable or GHG-free generation resources, pursuant to its program objective and SB 100 mandate. To promote cost savings and risk management for our ratepayers, OCPA will continue to rely on some unspecified CAISO system power for short-term energy needs beyond its long-term contracts; however, OCPA's long-term energy procurement policy is not expected to negatively impact local air quality. To the extent practicable, OCPA is committed to identifying opportunities to support the replacement of retired facilities with renewable resources to reduce the pollution burden in these communities through its procurement activities.

OCPA's IRP is consistent with the goal of minimizing local air pollutants, with early priority on DACs. As defined by the CalEPA's designation, a Disadvantaged Community includes four categories:

- Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0 (1,984 tracts).
- 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).
- Census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0 (307 tracts).
- Lands under the control of federally recognized Tribes.

As identified by CalEPA's designation, OCPA serves the following DACs:

Table 10: Orange County Power Authority DACs

Census Tract	City	Category
6059052410	Irvine	CalEnviroScreen 4.0 Top 25%
6059052404	Irvine	CalEnviroScreen 3.0 Disadvantaged Communities Only
6059099402	Huntington Beach	CalEnviroScreen 3.0 Disadvantaged Communities Only
6059099702	Huntington Beach	CalEnviroScreen 4.0 Top 25%
6059110500	Buena Park	CalEnviroScreen 4.0 Top 25%
6059110302	Buena Park	CalEnviroScreen 3.0 Disadvantaged Communities Only
6059110402	Buena Park	CalEnviroScreen 4.0 Top 25%
6059110603	Buena Park	CalEnviroScreen 4.0 Top 25%
6059001801	Fullerton	CalEnviroScreen 4.0 Top 25%
6059001802	Fullerton	CalEnviroScreen 4.0 Top 25%
6059086803	Buena Park	CalEnviroScreen 4.0 Top 25%
6059011403	Fullerton	CalEnviroScreen 4.0 Top 25%
6059011502	Fullerton	CalEnviroScreen 4.0 Top 25%
6059011602	Fullerton	CalEnviroScreen 4.0 Top 25%
6059011601	Fullerton	CalEnviroScreen 4.0 Top 25%
6059099702	Unincorporated Orange County	CalEnviroScreen 4.0 Top 25%

Power Procurement in DACs

OCPA does not currently procure electricity directly from any natural gas or other fossil fuel power plants. However, OCPA recognizes the need to help mitigate the impacts of air pollution in regions of the state where communities have been disproportionately impacted by the existing generating fleet and the need for economic development in areas with high unemployment and poverty. OCPA evaluated its indirect impacts on disadvantaged communities throughout the state. OCPA relies on 13% of system power, and while such energy cannot be traced to its specific source, some of it may be generated within DAC areas. OCPA strives to reduce its dependence on resources that emit GHGs and other local pollutants through a clean electric supply portfolio the vast majority of which is renewable and GHG-free.

e. Cost and Rate Analysis

OCPA's PCP is reasonable from a cost perspective. In selecting resources for its portfolios, OCPA carefully considered the cost implications of specific resource selections and procurement timing. This analysis was informed by OCPA's procurement experience and the standard assumptions and results of the Commission's RESOLVE/SERVM modeling.

OCPA strives to keep customer costs as low as possible, while meeting customer choice for a highly renewable power supply. This is reflected both in the resources procured and in the timing of those procurements. OCPA employs risk-management that considers risk associated with under-procurement, as well as risks of potential over-procurement which could occur from unforeseen changes in load going forward. Risk management also involves assessing the currently available technologies, expected technological developments, and potential for radically different technologies in the future. The assessment of potential resources is not strictly done based on contract price but includes consideration of how well the resources match the specific needs of OCPA's customers' load. For example, solar resources are often the least expensive on a simple cost per MWh basis, but other resources which may cost more on a simple MWh basis may provide additional benefits in terms of RA capacity, better matching OCPA's load profile, or serving the needs of the communities that OCPA serves.

In general, OCPA sought to balance the need to procure resources with enough lead time to meet OCPA's LSE-specific procurement shortfalls and the Commission-identified overall system new resource needs with the cost-saving benefits of waiting to procure renewable and storage resources with downward sloping cost projections. OCPA also recognizes that future resource costs are highly uncertain, and technological advancement can happen unexpectedly. OCPA's procurement cycle is designed to take advantage of technological and cost improvements by incrementally adding new resource commitments over time.

OCPA's PCP takes advantage of the fact that, compared to the IOUs, CCAs significantly shorter generation project development timelines, in part due to the fact that CCAs do not require Commission approval of such projects. These shorter timelines result in significant direct savings and give OCPA more flexibility to time its procurement activities in a way that takes advantage of falling renewable generation prices or other cost-effective procurement opportunities that may arise over time.

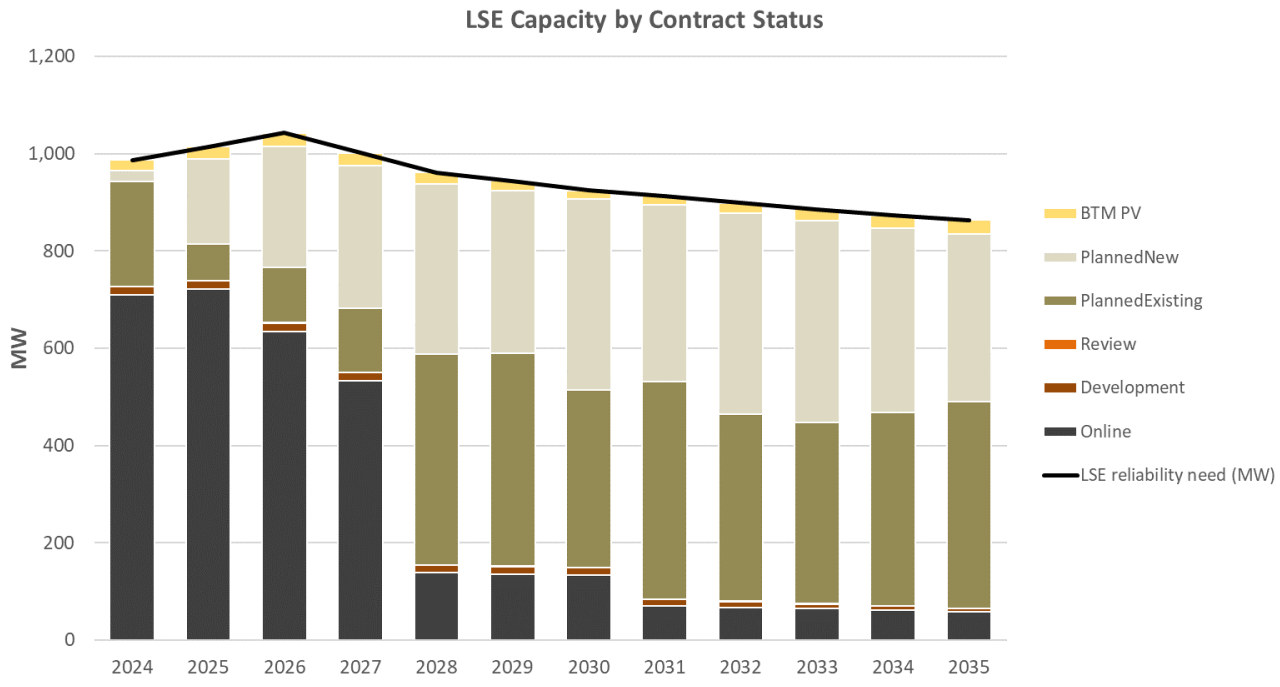
OCPA continuously monitors the energy markets and reassesses current market prices, expected future prices, technological progress, and its expected needs. When opportunities arise OCPA will take advantage of them.

f. System Reliability Analysis

OCPA's PCP is expected to be reliable and will contribute OCPA's fair share to system reliability needs. As the figures below demonstrate, OCPA's PCP meets or exceeds reliability requirements under the 30 MMT and 25 MMT scenarios. The CPUC's reliability metric shows expected contribution to reliability for each resource by year, taking into consideration the ELCC of each resource type. The PCP meets or exceeds the reliability metrics in every year. Expected reductions in the ELCC for many resource types require increases in a new generation capacity in order to provide the same level of reliability. The PCP includes significant new resources that contribute to reliability throughout the planning period. By 2030, nearly half (48%) of the PCP's net qualifying capacity is expected to come from new resources.

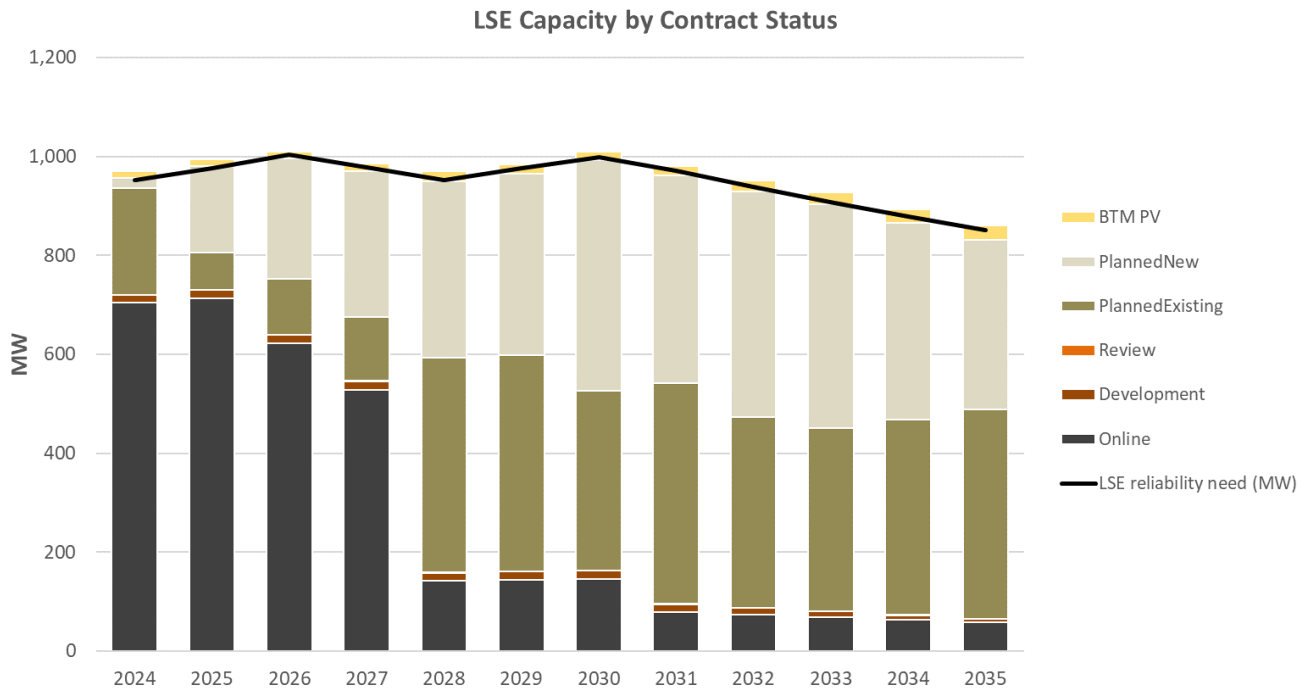
The reliability analysis for the 30 MMT scenario is shown below:

Load and Resource Table by Contract Status												
	2024	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
LSE reliability need (MW)	**987**	**1,014**	**1,043**	**1,002**	**961**	**944**	**924**	**913**	**899**	**886**	**873**	**863**
ELCC by contract status (effective MW)												
Online	710	721	634	533	138	136	134	70	67	64	61	58
Development	17	18	18	17	15	15	15	13	12	10	9	8
Review	-	-	1	1	1	1	1	1	1	1	1	-
PlannedExisting	216	76	114	131	434	437	364	447	386	372	397	425
PlannedNew	22	174	247	294	350	334	394	363	412	415	379	344
BTM PV	22	25	29	26	23	20	17	19	22	24	26	29
LSE total supply (effective MW)	**987**	**1,014**	**1,043**	**1,002**	**961**	**944**	**924**	**913**	**899**	**886**	**873**	**863**
Net capacity position (+ve = excess, -ve = shortfall) (effective MW)	-	-	-	-	-	-	-	-	-	-	-	-



The reliability analysis for the 25 MMT scenario is shown below:

Load and Resource Table by Contract Status												
	2024	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
LSE reliability need (MW)	**952**	**977**	**1,003**	**977**	**952**	**977**	**999**	**970**	**938**	**908**	**878**	**851**
ELCC by contract status (effective MW)												
Online	704	713	621	529	142	143	145	79	74	69	63	58
Development	17	17	17	17	16	17	17	15	13	11	9	8
Review	-	-	2	1	1	1	1	1	1	1	1	-
PlannedExisting	215	75	112	130	433	437	364	446	385	370	395	423
PlannedNew	22	176	244	293	357	367	465	420	457	452	398	344
BTM PV	13	13	13	17	21	20	18	20	22	24	27	29
LSE total supply (effective MW)	**970**	**994**	**1,009**	**986**	**970**	**984**	**1,010**	**981**	**952**	**928**	**893**	**861**
Net capacity position (+ve = excess, -ve = shortfall) (effective MW)	**18**	**18**	**6**	**9**	**18**	**7**	**12**	**11**	**14**	**20**	**15**	**10**



g. High Electrification Planning

Under the Commission's High Electrification TPP case, the increase in loads remain small through 2030. System peak load in 2030 under the HE TPP case is only 1.5% higher than in the standard case, and the load is only 3.7% higher. For OCPA, this translates into an additional 15 MW of peak demand and 160 GWh of additional load. By 2035 the impacts are higher. Peak load is now 5.8% or 148 MW higher, and load is 14.4% or 638 GWh higher. Because these increases in the near future are small, OCPA expects it will have time to see how the high electrification situation impacts load before deciding on any additional procurement. OCPA anticipates that it might procure additional resources in the 2030-2035 time frame and may meet earlier needs by potentially moving up some of the procurement it already has in its plans.

In considering how it might meet any addition needs during the 2030-2035 or later time frame, OCPA desires to further diversify its portfolio. At this point, it seems that the best option would be to add additional offshore or out-of-state wind to the portfolio. By the 2030-2035 time frame the expected offshore resources should be developed. The high resource adequacy capacity values of offshore wind, as compared with other wind and solar resources, along with its complementary nature to the solar hybrid resources that are planned for OCPAs portfolio make offshore wind an attractive resource option.

OCPA has included 100 MW of Morrow Bay Offshore Wind its PCP. For any additional offshore wind OCPA would likely look to source from a different location in order to ensure additional diversity in its portfolio. OCPA would look to procure the additional offshore wind from the Humbolt Bay Offshore CREZ as this would achieve the greatest amount of diversity. If Humbolt Bay Offshore Wind is not available, OCPA would consider an alternative location at Morro Bay or potentially wind imports for out-of-state.

Resource Type	MWs	Annual GWh	2035 GHG target	Transmission Zone	Substation/Bus	Alternative location	Note
Humboldt Bay Offshore Wind	160	686	Both			Morrow Bay	

h. Existing Resource Planning

OCPA is a new CCA that must rely on existing resources until such time as new generation projects can be identified, contracted for, and developed. OCPA's PCP shows declining use of existing resources as OCPA plans to work with developers to add new renewable generation to the OCPA power mix. As demonstrated in OCPA's PCP, OCPA will drive significant new resource development, which will have a corresponding decrease in OCPA's planned use of existing resources. The majority of OCPA's planned renewable energy purchases for this IRP

planning horizon are from yet-to-be built projects. Existing resources that OCPA plans to utilize are generally resources that have been available successfully contracted with in the past. Some of these contracts are for multi-year terms, which provides assurance that such resources will remain available. OCPA has chosen these resources in part due to their lower delivery risks compared to new resources. However, OCPA recognizes that there is a risk that some existing resources planned for use may ultimately not be available to meet OCPA's plans. OCPA's portfolios attempt to balance out these competing risks, and OCPA will adapt its plans should energy market conditions change.

i. Hydro Generation Risk Management

In developing its portfolios, OCPA took several steps to manage the risk of reduced hydro availability that may result from future in-state drought. First, OCPA has developed a network of Pacific Northwest-based hydroelectric power suppliers, including entities that have substantial Asset Controlling Supplier ("ACS") supply and are thus able to sell firm low-carbon supply to OCPA. OCPA's PCP includes hydroelectric resources located within California as well as imported hydroelectric power from the Pacific Northwest. The amount of in-state large hydro includes both the amount from the GHG-free allocation provided by SCE, as well as planned hydro procurement in the OCPA portfolio. Second, OCPA will prioritize hydroelectric contracts with marketers that provide firm delivery volumes, helping to reduce the planning uncertainty associated with drought and variable hydroelectric conditions within California. Third, OCPA's planned use of hydroelectric supply within its PCP relatively low, making up only 5 % of its 2035 supply portfolio. Due to OCPA's small hydroelectric needs, OCPA will have a greater probability of filling its annual positions than other LSEs that may be more dependent on use of hydro-electricity. With that noted, under a drought scenario or in the event that other factors restrict the availability of hydroelectricity and OCPA is unsuccessful in filling related shortfalls through short-term contracting opportunities, OCPA would plan to substitute with renewable energy resources to ensure it meets its assigned GHG benchmark.

j. Long-Duration Storage Planning

OCPA is planning significant new battery storage capacity to help balance load and supply as it integrates a greater percentage of renewable energy into its supply mix and continues to reduce reliance on natural gas generation capacity. OCPA sees a greater need and role for long-duration storage as the grid continues to evolve. To address this need, OCPA anticipates procuring up to 100 MW of long-duration storage resources in the 2030 to 2035 timeframe. In OCPA's view, battery storage technology is currently the most commercially viable technology to qualify for this long-duration attribute. However, OCPA is also evaluating other technologies that have long-duration storage capability as well. Technology performance risk is the biggest unknown at present because, with the exception of pumped hydro storage, there is no track record for utility scale, long-duration storage. OCPA expects rapid technological improvement in battery storage as the industry continues to scale-up and anticipates declining costs in the longer-term. In the short-term, however, costs are increasing, and project opportunities are limited, particularly

when the procurement is on accelerated procurement timelines. These factors may impact the pace at which OCPA adds storage to its resource portfolio.

k. Clean Firm Power Planning

While OCPA does not have a regulatory mandate to procure clean firm power resources, OCPA anticipates use of geothermal energy to help provide clean baseload power. Unfortunately, supply of geothermal, and clean firm resources generally, is very limited in California, and the cost of new-build resources is high. Clean firm energy imported from other balancing areas is complicated by transmission availability and the need to obtain equivalent Maximum Import Capability ("MIC") through the CAISO in order to utilize the capacity under the resource adequacy program. Despite these challenges to their expanded use, clean firm resources are important contributors to reliability and offer operational attributes that cannot be replicated by current-technology storage or other resource types. To develop these resources cost-effectively and efficiently, California LSEs will need the commitment of regulatory agencies and CAISO to facilitate this resource development by ensuring regulatory procedures and requirements align with market realities and that the physical infrastructure necessary for this development is available and accessible to California LSEs.

l. Out-of-State Wind Planning

The Commission's Preferred System Plan calls for over 4,600 MW of new out-of-state wind generation ("OOS Wind") to be developed and operational by 2035. OCPA's proportional share would be approximately 91 MW, and OCPA's PCP includes a similar amount at 100 MW. OCPA understands that the transmission projects needed to connect OOS Wind to the CAISO grid require significant lead-times which is why OCPA's PCP puts the OOS Wind contract starting 2029. This should provide sufficient lead time to ensure the required transmission can be built. OCPA's PCP contemplates procuring Wyoming wind because transmission for this resource area is already being developed. Indeed, the transmission developer has recently approached the CAISO about joining the CAISO balancing area, which should facilitate use of this resource to serve OCPA load.

m. Offshore Wind Planning

The Commission's PSP calls for 4,704 MW of new offshore wind generation to be developed and operational by 2035. Since California has little experience with offshore wind development, OCPA conservatively planned procurement of offshore wind to occur later in the planning horizon, with a focus on the Morrow Bay area where the PSP identifies significant potential. As explained above, if the High Electrification expectations develop, OCPA would look to add additional offshore wind in the Humboldt area to add diversity to its portfolio. OCPA is not aware of commercially available offshore wind opportunities in the near term and is basing its planning assumption on the significant potential indicated in the PSP. Offshore wind appears to

be a high potential resource with relatively high-capacity factors and resource adequacy values. At this time, costs of offshore wind development are largely uncertain. As such, cost and development timelines pose the greatest risk to utilization of this resource. OCPA will monitor industry developments that may make procurement of offshore wind commercially feasible.

n. Transmission Planning

In identifying resource locations for all portfolios, OCPA was guided by the following considerations:

- OCPA has a general preference for resources located within its service area and the community it serves, but more generally, within Southern California.
- OCPA prefers projects located in areas that can utilize existing transmission infrastructure with minimal upgrade/modification costs.
- OCPA prefers low-impact renewable energy projects that provide economic benefit to DACs, subject to community interest in siting projects within such locations.

Unlike the IOUs, OCPA is not a transmission and distribution ("T&D") system operator. OCPA does not enjoy the benefits of a granular knowledge of the SCE T&D system, or the CAISO grid, and OCPA is not in the best position to identify optimal resource locations and does not have the expertise inhouse to determine the best locations for new resources. In practice, OCPA relies on project developers to conduct the research and technical studies necessary for siting potential generation projects. OCPA evaluates projects offered by developers based on a variety of criteria, including transmission availability, nodal prices and potential for congestion, project viability, environmental, workforce, and other factors. As such, OCPA generally utilized the PSP selected candidate resources as a guide for likely resource locations in its PCP. These should be treated as general expectations based on the aforementioned considerations, not definitive selections – actual project locations will be selected during OCPA's future solicitation processes. OCPA believes that the best way to keep costs down during resource solicitations is to not limit the potential locations of the resources. Competition among the responders to resource solicitations ensures that OCPA can avail itself of the best possible resources, including allowing developers to explore different locations and select what they feel is the best location for their resource taking into account numerous factors, including the costs of any potential transmission upgrades or curtailment issues. Like most LSEs, OCPA doesn't have the necessary resources to examine all possible resource locations to find optimal one from a transmission perspective, but relies on the developers of projects doing just that.

OCPA will remain flexible to adapt to market conditions as they evolve. If OCPA's expected resource locations become infeasible due to various constraints, or if the Commission's modeling efforts happen to indicate that certain resource locations are no longer feasible/desirable, then OCPA would ultimately locate and contract for alternative resources that fall in preferred locations.

Most of the resources in the OCPA PCPs are not expected to require transmission upgrades beyond the standard interconnection process. Those resources in OCPA's PCP that might require substantial transmission upgrades or new transmission lines are generally planned for much later

in the planning cycle, and OCPA expects that the developers will have determined that the transmission will be available before OCPA enters into agreements with them. These resources in the OCPA PCPs would include the Wyoming Wind and Offshore Wind. It is clear that off-shore and significant new out-of-state wind will require additional transmission infrastructure, and this is a part of any consideration of these resources. In addition, in selecting these future resources for its portfolios OCPA has considered transmission and chosen projects for which any transmission concerns should be minimized or already addressed. For example, OCPA's choice of Wyoming Wind was made because of the existing plans for transmission to bring that energy to California.

IV. Action Plan

a. Proposed Procurement Activities and Potential Barriers

OCPA's procurement process for implementing its PCP over the coming years (i.e., by 2035) will include the following key activities:

- Identification of planned resources by type, desired online date, and capacity.
- Planning for procurement activities in consideration of OCPA's risk management policy; resource acquisition lead times including, where applicable, development timelines; staff capacity; and financial considerations.
- Design and administration of resource solicitations. For new resources, these typically take the form of periodic request for offers processes, while for existing resources, procurement activity is more frequent and routinized.
- Careful negotiation of contract terms to ensure positive outcomes for OCPA customers with appropriate risk mitigation.
- Ongoing contract management, including where applicable, careful monitoring of development milestones.
- Ongoing contract management, including where applicable, careful monitoring of generator performance after a resource has achieved commercial operation date ("COD").
- Conduct and participate in joint CCA solicitation processes in order to expand procurement opportunities available to OCPA.

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

OCPA does not have an obligation under D.19-11-016 due to the timing of its origination and commencement of service.

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

OCPA does not have an obligation under D.21-06-035 due to the timing of its origination and commencement of service.

iii. Offshore wind

As previously described, OCPA is planning to procure energy from the Morrow Bay offshore wind resource area and potentially from the Humboldt offshore wind resource area if these resource areas become developed with the requisite transmission infrastructure. OCPA is following the development of these resources, but as the leases for the offshore locations have not been issued, these resources remain somewhat speculative. OCPA will continue to monitor the development of these resources and expects to participate in solicitation processes as opportunities become available. OCPA's utilization of offshore wind is not planned to occur until the latter part of this IRP planning horizon. Should unforeseen barriers arise, there will be sufficient lead time for OCPA to adjust its portfolios and contract with other appropriate resources.

iv. Out-of-state wind

OCPA will evaluate offers for out-of-state wind as they are made through OCPA's regular solicitation processes. As explained above, OCPA has included Wyoming wind resources in its PCP due to the state of development of these resources and the accompanying transmission. OCPA does not expect any barriers to the procurement of these resources, but should any arise there remains sufficient time for OCPA to adjust its portfolio.

v. Other renewable energy not described above

OCPA is actively procuring all forms of RPS qualifying renewable energy to meet the very high renewable portfolio content dictated by OCPA's product offerings. In its short operational history, OCPA has administered several renewable energy competitive solicitations and plans to continue actively engaging the market for additional renewable energy supply. Over the next few years, OCPA anticipates conducting multiple renewable energy solicitations each year for both short term and long term renewable energy supply.

vi. Other energy storage not described above

OCPA expects to add storage to its supply portfolio as part of hybrid configurations with solar generation projects as well as standalone storage that can provide resource adequacy capacity. Most solar project offers OCPA receives include an element of storage, and OCPA expects that most, if not all, of its long-term power purchase agreements with solar resources will include

battery storage. OCPA will also consider standalone battery storage to meet resource adequacy obligations. OCPA expects that battery storage costs will decline in the long term as the industry achieves greater scale. However, near-term storage prices have been increasing, and supply is constrained due to high demand, supply chain disruptions, and significant increases in the cost of key components such as lithium. These factors may force OCPA to defer certain storage commitments until supply conditions stabilize and begin to improve. OCPA is open to other storage technologies beyond batteries, but to date has not seen any commercially attractive offers.

vii. Other demand response not described above

OCPA does not yet have plans to implement demand response programs beyond those available to OCPA customer through SCE and SDG&E.

viii. Other energy efficiency not described above

OCPA does not yet have plans to implement energy efficiency programs beyond those available to OCPA customer through SCE and SDG&E.

ix. Other distributed generation not described above

OCPA does not yet have plans to implement distributed generation programs beyond those available to OCPA customer through SCE and SDG&E.

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

OCPA does not have any transportation electrification investment plans at this time.

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

OCPA does not have any building electrification investment plans at this time.

xii. Other

OCPA continuously explores new methods of lowering electricity demand and increasing clean energy supply.

b. Disadvantaged Communities

OCPA intends to provide and manage its energy portfolio and products in a manner that promotes public health, clean energy procurement, as well as tenets of social, economic and environmental justice in areas impacted by energy production, including Disadvantaged Communities (DACs). OCPA offers several service options that benefit the DACs and low-income communities it serves. In the near term, OCPA is considering the launch of clean energy and energy storage RFOs to seek RPS-eligible and storage resources. OCPA is also considering the launch of an RFO for California's Disadvantaged Communities and Community Solar Green Tariff Program (DAC-GT & CSGT). These programs aim to promote the installation of renewable generation among residential customers in disadvantaged communities.

OCPA has also focused on programs that would assist low income and disadvantaged communities. OCPA plans to initiate an outreach program to encourage income eligible customers who are not currently enrolled in utility discount programs to sign up. These programs plan to include California Alternate Rates for Energy (CARE) that reduces energy bills for eligible customers by about 30% and Family Electric Rate Assistance (FERA) which provides an approximate 18% bill discount. OCPA procurement efforts have emphasized local projects that will bring local jobs and economic benefits to the community.

c. Commission Direction of Actions

OCPA encourages the Commission to adopt durable rules and processes to bring greater stability to the regulatory framework within which OCPA and other suppliers must plan and operate. Frequent rule changes disrupt OCPA's ability to execute long-term planning activities and adopted planning elements while minimizing customer costs. Such regulatory changes can also result in disproportionately high costs and administrative burdens, which would prompt related customer rate increases – certain regulatory changes may necessitate duplicative procurement efforts and/or stranded investments that are expected to impact a larger portion of OCPA's portfolio.

For example, the Commission is currently considering a programmatic approach to the IRP, a Slice-of-Day Resource Adequacy Program, and recently implemented the Central Procurement Entity structure. Each of these changes on their own represent significant regulatory uncertainty, which leads to market uncertainty. These changes together represent a complex, wholesale change to the regulatory landscape, which LSEs cannot reasonably account for in planning. The Commission should be cognizant that the scope of these reforms and how they may have broad, and somewhat unpredictable, impacts to the market. These market changes will likely alter planned procurement over the long term and may reduce the accuracy of LSE's IRP plans.

V. Lessons Learned

OCPA offers that as a new market participant busy with startup activities and initial procurement to support the rapid acquisition of customers, there is very little in this IRP that can be considered definitive. OCPA has done its best to accurately reflect its expectations in the plan, but much will change as OCPA expands its procurement activities.

OCPA observed that it takes considerable time to complete necessary templates and address all of the requirements articulated by the Commission, and recommends that an assessment be conducted by the Commission to determine if any non-critical elements can be eliminated from future processes.

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.*