PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking to Continue Oversight of Electric Integrated Resource Planning and Procurement Processes.

Rulemaking 25-06-019

CALPINE ENERGY SOLUTIONS, LLC
2026 INTEGRATED RESOURCE PLAN

PUBLIC VERSION

CLEAN SYSTEM POWER CALCULATOR AND RESOURCE DATA TEMPLATE WORKBOOKS ARE CONFIDENTIAL AND SUBMITTED TO CPUC DOCKET OFFICE VIA ARCHIVAL GRADE CD-R

Greg Bass
Regulatory Director
Calpine Energy Solutions, LLC
401 West A Street, Suite 500
San Diego, CA 92101
Tel: (619) 684-8199
Email: Greg.Bass@calpine.com

August 10, 2026

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Continue Oversight of Electric Integrated Resource Planning and Procurement Processes.	Rulemaking 25-06-019

CALPINE ENERGY SOLUTIONS, LLC
2026 INTEGRATED RESOURCE PLAN

PUBLIC VERSION

Pursuant to the January 16, 2026 "Administrative Law Judge's Ruling Setting Requirements for Individual Integrated Resource plans due June 1, 2026", the March 9, 2026 "Email Ruling Granting Joint Request for Extension of Load Serving Entity ('LSE') Integrated Resource Plan ('IRP') Filings", and the March 20, 2026 "Administrative Law Judge's Ruling Correcting Table in January 16, 2026 Filing Requirements Ruling and Confirming August 10, 2026 Integrated Resource Plan Due Date", Calpine Energy Solutions, LLC ("Calpine Solutions") submits its 2026 Integrated Resource Plan ("IRP"). The public version of Calpine Solutions' 2026 IRP includes a redacted Standard LSE Plan narrative, but has removed in their entirety the confidential Clean System Power calculator, and Resource Data Template.

Dated: August 10, 2026

Respectfully submitted,

/s/

Greg Bass
Regulatory Director
Calpine Energy Solutions, LLC
401 West A Street, Suite 500
San Diego, CA 92101
Tel: (619) 684-8199
Email: Greg.Bass@calpine.com

OFFICER VERIFICATION FORM

I am an officer of the reporting organization herein, and am authorized to make this verification on its behalf. The statements in the foregoing document are true of my own knowledge, except as to matters which are therein stated on information or belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on _August 5th, 2026_ at _San Diego, California_

Jeff Huber, Vice President & Controller, Calpine Energy Solutions, LLC

Template posted by Commission on January 16th, 2026

Standard LSE Plan

CALPINE ENERGY SOLUTIONS, LLC

2026 INTEGRATED RESOURCE PLAN

AUGUST 10, 2026

PUBLIC VERSION

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I. Executive Summary

Calpine Energy Solutions, LLC ("Calpine Solutions")[1] is an Electricity Service Provider ("ESP") registered with the California Public Utilities Commission ("Commission") with ESP #1364. Calpine Solutions has been serving commercial, industrial and institutional customers since California restructured its wholesale and retail electricity markets in the late 1990s, albeit under different names as corporate ownership of Calpine Solutions has changed over time.

Calpine Solutions is a wholly owned subsidiary of Calpine LLC ("Calpine")[2]. Calpine is America's largest generator of electricity from natural gas and geothermal resources. Calpine's clean, efficient, modern and flexible generation fleet uses advanced technologies to generate electricity in a low-carbon and environmentally responsible manner. Calpine is the largest renewable power provider in California.

Calpine is a wholly owned subsidiary of Constellation Energy Corporation ("Constellation"). Constellation is the largest private-sector power producer, the largest producer of clean energy and the leading operator of nuclear power plants in the U.S., generating more 24/7, emissions-free electricity than any other company in the nation. With 55 gigawatts of capacity from nuclear, natural gas, geothermal, hydro, wind and solar facilities, providing about 10% of the nation's clean energy and delivering the around-the-clock reliability needed to power America's growing economy.

Calpine Solutions analyzed one Preferred Conforming Portfolio ("Conforming Portfolio") as part of its integrated resource plan ("IRP"). The Conforming Portfolio of generation resources assumes forecasted 2028, 2030, 2035, 2040, and 2045 demand levels as assigned by the Commission's staff, which assumed no customer demand growth. The conforming portfolio uses a load shape as provided by the Commission's model; the conforming portfolio achieves emissions that are equal to or less than Calpine Solutions' proportional share of the 30 MMT by 2030, 25 MMT by 2035, 16.8 MMT by 2040, and 8.68 MMT by 2045.

The Conforming Portfolio includes:

- Amount of annual wholesale demand
- Commission provided commercial/industrial load shape
- Renewable energy targets based on the current renewable portfolio standard ("RPS") requirements

[1] Calpine Energy Solutions, LLC is a Constellation Company.

[2] Calpine LLC is a Constellation Company.

- Total supply-side renewable energy in the portfolio, for year 2030 through year 2045 additional greenhouse gas (GHG) free energy is forecasted—assumed to be procured from carbon capture and sequestration resources ("CCS") and large hydroelectric generation—to meet GHG emissions targets
- RPS PCC 1 renewable resource mix of existing biogas, geothermal, wind, and solar PV (including solar PV with storage) based on procurement under contract as of 2027 extended to 2045
- Addition of new geothermal generation and new battery storage based on allocations required by Commission Decision ("D.") 26-02-057
- Cost Allocation Mechanism (CAM) resource allocations as provided by Commission Staff and proportioned to Solutions' 2026 load ratio share by investor-owned utility area and 2026 demand resource allocation including AB 1373 resources
- GHG-free energy associated with Pacific Gas & Electric and Southern California Edison allocations based on power cost indifference adjustment3 excluding Pacific Gas & Electric's Diablo Canyon nuclear facility

Calpine Solutions commits to the following:

- Meeting all Commission promulgated Resource Adequacy ("RA") requirements and any future multi-year RA requirements
- Procuring adequate renewable energy and renewable energy credits (RECs) from contracts of ten years or greater duration (long-term) in order to meet Senate Bill 350 (De Leon) requirements and Commission promulgated RPS rules
- Considering the impact to disadvantaged communities in its decision process prior to procuring energy directly from non-renewable energy resources responsible for local air pollution should any such unforeseen need arise

II. Study Design

The main objectives of Calpine Solutions' integrated resource planning process were to:

- Analyze the Conforming Portfolio of generation resources, assuming forecasted load levels provided by the Commission's Staff and the default commercial and industrial load shape as provided by the Commission;
- Estimate GHG emissions for the Conforming Portfolio using the Commission-approved Clean System Power ("CSP") calculator;

[3] Pursuant to Advice Letter 7295-E/7295-E-A and the Sales Agreements for 2026 GHG-Free Energy

- Show the Conforming Portfolio meets all requirements of Public Utilities Code Section 454.52(a)(1); and
- Incorporate the results of the IRP and the resource make-up of the Conforming Portfolio as a guidepost for future renewables procurement.

Load Assignments for Each LSE

For this IRP, Calpine Solutions used the finalized energy and peak demand load forecasts, and behind-the-meter photovoltaic (BTM PV) information that had been developed pursuant to an ALJ January 16th, 2026 Ruling and provided by Commission Staff. The load assignment assumed no customer demand growth through 2045 to reflect the fact that the Direct Access program is fully subscribed and will require legislative action to increase the customer participation cap. Calpine Solutions declined to provide its own load or load modifier shapes for the CSP, instead accepting the Commission provided commercial & industrial hourly shapes in the CSP calculator.

Required and Optional Portfolios

Calpine Solutions analyzed one Conforming Portfolio ("Conforming Portfolio") as part of its integrated resource plan ("IRP"). The Conforming Portfolio achieves emissions that are equal to or less than Calpine Solutions' proportional share of an 8 MMT by 2045 GHG target. The assumed generation resources forecasted 2028, 2030, 2035, 2040, and 2045 demand levels as assigned by the Commission's Staff. The load assignment assumed no customer demand growth through 2045 to reflect the fact that the Direct Access program is fully subscribed and will require legislative action to increase the customer participation cap. The Conforming Portfolio uses a load shape as provided by the Commission's model; the Conforming Portfolio achieves emissions that are equal to or less than Calpine Solutions' proportional share of the 30 MMT by 2030, 25 MMT by 2035, 16.8 MMT by 2040, and 8.68 MMT by 2045.

The Conforming Portfolio includes:

- Amount of annual wholesale demand based on Calpine Solutions' individual load assignment
- Commission provided commercial/industrial load shape
- Renewable energy targets based on the current RPS requirements
- Total supply-side renewable energy in the portfolio, for year 2030 through year 2045 additional greenhouse gas (GHG) free energy is forecasted—assumed to be procured from both large hydroelectric generation and CCS resources—to meet GHG emissions targets

- RPS Portfolio Content Category 1 ("PCC 1") renewable resource mix of existing biogas, geothermal, wind, and solar PV (including solar PV with storage) based on procurement as of 2027 extended to 2045
- Addition of new geothermal and battery storage based on forecasted procurement allocations required by Commission D.26-02-057
- Cost Allocation Mechanism (CAM) resource allocations as provided by Commission staff and proportioned to Solutions' 2026 load ratio share by investor-owned utility area and 2026 demand resource allocation as well as Commission Staff provided AB 1373 resource allocations

To determine a mix of resources in 2030, 2035, 2040 and 2045 that will meet Calpine Solutions' GHG emissions targets for the Conforming Portfolio, Calpine Solutions first forecasted its RPS procurement by extending any existing Portfolio Content Category 1 ("PCC 1") RPS contracts that expire before 2035 to 2045. This assumption has Calpine Solutions meeting its 60% RPS by 2030 compliance obligation for PCC 1. The remaining GHG-free emissions procurement shortfall to meet the 2030, 2035, 2040, and 2045 GHG-emissions targets for the Conforming Portfolio was calculated and, in this IRP as in Calpine Solutions' previous IRPs, Calpine Solutions is forecasting procurement from natural gas generation plants that employ CCS technologies for 2035 and the years beyond. For 2030, Calpine Solutions is relying on existing large hydroelectric generation. More analysis is provided below under Additional Resources and Section III.h. of this IRP.

To meet Calpine Solutions' reliability obligation for years 2026 through 2045, Calpine Solutions extended all existing 2026 RA capacity contracts through 2045 and included forecasted capacity procurement associated with Commission D. 26-02-057. In addition, Calpine Solutions forecasted its CAM, DR and AB 1373 allocations from Commission Staff. Any shortfall in capacity remaining is assumed to be procured from existing natural gas generation on an annual basis.

The final 2030, 2035, 2040, and 2045 generation resource mix selected for the Conforming Portfolio is discussed further below.

a. Objectives

Calpine Solutions procures energy, renewable energy, new GHG-free capacity and resource adequacy capacity on behalf of direct access customers throughout California. The objectives for its IRP are to:

- Analyze the Conforming Portfolio of generation resources assuming forecasted load levels provided by the Commission's staff and the default commercial/industrial load shape as provided by the Commission's model;
- Estimate GHG emissions for the Conforming Portfolio using the Commission's CSP calculator;
- Show the preferred Conforming Portfolio meets all requirements of Public Utility Code Section 454.52(a)(1); and
- Incorporate the results of the IRP and the resource make-up of the Conforming Portfolio as a guidepost for future renewables and GHG-free energy procurement.

b. Methodology

i. Modeling Tool(s)

Calpine Solutions relied exclusively on the Commission's CSP calculator spreadsheet tool to estimate GHG emissions and local criteria pollutants. It did not conduct any production cost modeling or portfolio optimization studies. The GHG calculator and resource portfolio are attached.

ii. Modeling Approach

To determine a mix of resources in 2030, 2035, 2040, and 2045 that will meet Calpine Solutions' GHG emissions targets for Conforming Portfolio, Calpine Solutions first forecasted its RPS procurement by extending any existing PCC 1 RPS contracts that expire before 2035 to 2045. Calpine Solutions' forecast does not indicate a PCC 1 RPS compliance shortfall. The remaining GHG-emissions free energy procurement shortfall to meet the 2030, 2035, 2040, and 2045 GHG-emissions targets for the Conforming Portfolio was calculated and, in this IRP, Calpine Solutions is forecasting procurement from natural gas generation plants that employ CCS technologies starting in 2035. Year 2030 GHG-free emissions targets are forecasted to be met with procurement of large hydroelectric generation. More analysis is provided below under Additional Resources and Section III.h. of this IRP.

To meet Calpine Solutions' reliability obligations for years 2026 through 2045, Calpine Solutions extended all existing 2026 RA capacity contracts through 2045 and included forecasted capacity procurement associated with Commission D. 19-11-006, D.21-06-035 and D.26-02-057. In addition, per Commission Staff direction, Calpine Solutions forecasted its CAM, DR and AB 1373 allocations. Any shortfall in capacity remaining is assumed to be procured by existing natural gas generation.

The final 2030, 2035, 2040, and 2045 generation resource mix selected for the Conforming Portfolio is discussed further below.

Renewable Resources

The Conforming Portfolio includes the current contracts for RPS PCC 1 renewable resources Calpine Solutions has procured to serve its retail customers as of 2027. In comparison to the 2022 IRP, Calpine Solutions has significantly increased reliance on long-term (10-years or longer in duration) RPS contracts. This change in contracting term was driven exclusively by the RPS compliance requirements as established by SB 350 and implemented by Commission decisions. Thus, the years modeled assumes renewal of existing long-term RPS contracts. All years incorporate a mix of renewable resource technology types as actually procured for 2027. These contracts indicate Calpine Solutions will meet the 2030 RPS compliance percentage of 60% for the PCC 1 content category. The level of RPS PCC 1 energy and RECs in each portfolio is the minimum needed to satisfy RPS portfolio content (i.e. minimum 75%) and portfolio quantity requirements for 2028 and for years beyond. No new RPS PCC 1 procurement was estimated as current RPS procurement levels, which comports with analysis included in Calpine Solutions' 2026 Draft Renewable Procurement Standard Procurement Plan filed with the Commission on June 12, 2026, that indicated Calpine Solutions is on-track to meet the Compliance Period 5 and Compliance Period 6 RPS compliance percentages. Per the direction offered by Commission Staff in its IRP Q&A, no modeling of Calpine Solutions' procurement of RPS PCC 2 and RPS PCC 3 RECs are included in this IRP.

Additional Resources

Currently, Calpine Solutions procures unspecified system power to meet customer energy demand above that demand met with RPS PCC 1 renewable resources as required to comply with the California RPS Program. This is forecast to continue through year 2045. However, in order to meet the 2030 GHG emissions targets assigned to Calpine Solutions and once the RPS compliance is forecasted to be met, the portfolio requires additional procurement of GHG-free energy in order to meet the GHG emissions targets the Commission has set for Calpine Solutions. That procurement, currently forecasted to come large hydroelectric generation and from in-state natural gas generation utilizing CCS technologies, are added as additional GHG-emissions free resources. If, as Calpine Solutions approaches year 2035 GHG-emissions free generations resources employing CCS technologies are not available in procurement quantities sufficient to meet the GHG emissions target, Calpine Solutions will add other additional GHG-free generation resources to the portfolio. Calpine Solutions declines to speculate what these other GHG-free generation resources may be at this time. In this IRP, Calpine Solutions also declines to speculate on what additional GHG-emissions free energy procurement it would undertake if, in the unlikely event forecasted AB 1373 resources fail to materialize.

A note on Calpine Solutions' 2035 forecasted GHG-emissions free generation resources: the passage by the California State Legislature of Senate Bill 905 (Caballero and Skinner), which was

part of Governor Newsom's "Five Pillars" climate legislation, directs the Air Resources Board to develop and implement a regulatory framework that enables a streamlined and safe deployment of CCS technologies in California recognizing CCS as a technology for meeting the State's 2045 net zero goals. The Air Resources Board is expected to release a regulatory framework by the end of 2026. Additionally, the Air Resources Board's 2022 Scoping Plan emphasized the need for significant deployment of CCS on electricity generation facilities to maintain critical grid reliability. In 2025, California's Cap-and-Invest program was extended through year 2045 by Assembly Bill 1207 and Senate Bill 840 further supporting the construction of CCS projects essential to reliably meet the state's climate goals. In 2025, SB 614 lifted the CO^2 pipeline moratorium for CCS technologies. It tasked the Office of the State Fire Marshal ("OSFM") with drafting safety regulations for CO^2 transport to support the State's CCS initiatives. The Office of Administrative Law approved OSFM's emergency regulations for CO^2 pipelines on June 30, 2026.

Additionally, California's energy planning agencies have also increasingly incorporated CCS into long-term resource planning. The California Energy Commission has identified CCS as a commercially available firm, low-carbon resource in long-term planning analysis as California evaluates the portfolio of resources needed to maintain reliability while achieving its climate goals. The California Public Utilities Commission is also considering the role of CCS in future resource planning. Commission Decision 26-02-057 directs staff to prioritize modeling CCS as a candidate resource for the next Transmission Planning Process cycle. Additionally, Commissioner Baker highlighted California's CCS regulatory framework as maturing with the advancements of commercial projects in the state and expressed support for future consideration of CCS retrofits in the proceeding.

In conjunction with legislative actions in Sacramento, the Federal government passed The Inflation Reduction Act of 2022 which, among other things, provides critical updates to the 45Q tax credit, which incentivizes the use of CCS technologies – a climate solution that the Intergovernmental Panel on Climate Change and International Energy Agency have found is likely to play a vital role in efforts to address climate change.

Additionally, Calpine Solutions' parent company, Calpine, LLC, states the following, "Calpine is actively advancing the development of new carbon capture facilities as well as progressing the deployment of carbon capture technology at existing sites." More on Calpine's CCS efforts and projects may be found here: https://www.calpine.com/carbon-capture-and-sequestration-ccs/.

As part of Calpine Solutions' Mid-Term Reliability[4] procurement obligations and procurement mandates, Calpine Solutions has entered into long-term contracts with renewable generation

[4] D. 19-11-006, D.21-06-035 and D.26-02-057.

facilities that have or will incorporate battery storage as part of the project, therefore Calpine Solutions has added significant battery storage to the State's diversity of generation resources.

In this IRP, Calpine Solutions declines to speculate on what additional GHG-emissions free energy procurement it would undertake if, in the unlikely event, forecasted AB 1373 resources fail to materialize.

GHG Emissions

Calpine Solutions relied upon the Commission-approved GHG calculator spreadsheet tool (i.e., CSP calculator) to estimate GHG emissions for the Conforming Portfolio. Of all renewable energy resource contracts, only RPS PCC 1 resources are considered GHG-emissions free by the Commission.

Resource Adequacy

RA capacity is procured separately from energy with the exception of capacity procurement related to the replacement of the Diablo Canyon Nuclear Power Plant.[5] Because of Commission decisions there have been tangible amounts of new GHG-emissions free RA capacity acquired by Calpine Solutions, generally in the form of 4-hour battery storage, along with a small amount of geothermal generation. These quantities are reported in the resource data template. Also forecasted for future years is continuing procurement of RA capacity from existing resources, specifically natural gas generation facilities as well as procurement associated with Commission D.26-02-057. In addition, Calpine Solutions, and all ESPs, also receive an RA allocation for a portion of RA procured by the IOUs for reliability purposes when the cost of the procurement is borne by all customers; this allocation of RA is part of the Cost Allocation Mechanism (CAM) resource allocations as provided by Commission staff and proportioned to Solutions' 2026 load ratio share by investor owned utility area and 2026 demand resource allocation ") as well as AB 1373 long-duration energy storage and offshore wind capacity and are included in the resource data template.

Load Shape

Calpine Solutions, an ESP, does not serve residential customers. Therefore, Calpine Solutions elected to adopt the Commission provided commercial/industrial load shape as provided in the CSP calculator as the default profile to represent Calpine Solutions' expected load shape in this IRP. The commercial/industrial load shape is the sum of baseline net energy for load, electric vehicle load, building electrification, energy efficiency, data center load, climate change load increases, climate change load decreases, behind-the-meter ("BTM") photovoltaics, BTM

[5] D.21-06-035.

storage losses and BTM storage capacity. These default load profiles are unaltered by Calpine Solutions.

iii. Alternative Assumptions

Calpine Solutions elected to analyze only one Conforming Portfolio and no alternative portfolios in this IRP cycle and therefore has no alternative assumptions to describe.

III. Study Results

Calpine Solutions elected to analyze one Conforming Portfolio and no alternative portfolios. The Conforming Portfolio is targeted to meet Calpine Solutions' proportional share of the 30 MMT by 2030, 25 MMT by 2035, 16.8 MMT by 2040 and 8.68 MMT by 2045. Per direction by Commission Staff, Calpine Solutions used the 2028, 2030, 2035, 2040, and 2045 forecasted energy demand for Calpine Solutions as provided by Commission Staff. The load assignment assumed no customer demand growth through 2045 to reflect the fact that the Direct Access program is fully subscribed and will require legislative action to increase the customer participation cap.

a. Conforming and Alternative Portfolios

Calpine Solutions' Conforming Portfolio of generation resources assumes forecasted 2028, 2030, 2035, 2040, and 2045 demand levels as assigned by the Commission's staff. The Conforming Portfolio uses a load shape as provided by the Commission's model; the Conforming Portfolio achieves emissions that are equal to or less than Calpine Solutions' proportional share of the 30 MMT by 2030, 25 MMT by 2035, 16.8 MMT by 2040, and 8.68 MMT by 2045.

The accompanying Resource Data Template ("RDT") lists all contracted and planned new or existing resources associated with the Conforming Portfolio to achieve the Commission directed GHG-emissions targets.

At a summary level, the RDT lists the GHG-free emission capacity resources Calpine Solutions has procured or will procure via a contract of at least 10-years duration per Commission D.19-11-006, D.21-06-035 and D.26-02-057, existing RA capacity resources contracted in 2026 assumed through 2045 with additional procurement of existing capacity resources to meet system reliability requirements. The RDT lists existing RPS generation resources contracted in 2027 assumed through 2045, with additional non-RPS GHG-free emission resources included in the Conforming Portfolio which includes procurement of existing large hydroelectric generation starting in 2030 and, beginning in 2035, new CCS generation resources associated with existing

natural gas power generation. The RDT lists GHG-emission free energy allocations associated with customers of Calpine Solutions and their payment of the Power Cost Indifference Charge, based on 2025 actual allocations. Finally, the RDT lists Commission allocated AB 1373 new resources using long-duration battery storage, geothermal and offshore wind energy generation technologies. For specific generation unit details, please refer to Calpine Solutions RDT associated with this IRP.

The new resources listed in Calpine Solutions' RDT conform to the mix of new resources identified in the 2025-2026 TPP Portfolio, battery storage, long-duration battery storage and geothermal energy generation. The only variances, as has been noted throughout this Narrative, is the inclusion, starting in 2035 of GHG-emissions free energy from existing natural gas generation using CCS technologies and Commission Staff allocated AB 1373 resources (i.e., long-duration battery storage and offshore wind).

		TPP With Updates		Calpine Solutions		TPP With Updates		Calpine Solutions	
		2035	2035	2035	2035	2045	2045	2045	2045
Biomass	MW	12	0.0%	-	0.0%	12	0.0%	-	0.0%
Geothermal (Includes Enhanced Geo.)	MW	3,199	3.5%	[redacted]	41.9%	3,904	2.6%	-	0.0%
Wind	MW	6,250	6.8%	-	0.0%	10,949	7.2%	-	0.0%
Wind OOS New Tx	MW	7,036	7.6%	-	0.0%	19,036	12.4%	-	0.0%
Offshore Wind	MW	-	0.0%	-	0.0%	-	0.0%	[redacted]	69.2%
Solar	MW	53,429	57.9%	-	0.0%	82,732	54.1%	-	0.0%
Li-ion Battery (4-hr)	MW	4,418	4.8%	[redacted]	46.7%	6,758	4.4%	[redacted]	30.8%
Li-ion Battery (8-hr)	MW	14,030	15.2%	[redacted]	11.3%	21,102	13.8%	-	0.0%
Location Constrained Storage (12-hr)	MW	3,940	4.3%	-	0.0%	8,499	5.6%	-	0.0%
Generic Storage (24-hr)	MW	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Generic Storage (100-hr)	MW	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Carbon Capture and Sequestration	MW	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Total New Resources	MW	92,314	100.0%	[redacted]	100.0%	152,991	100.0%	[redacted]	100.0%

b. Preferred Conforming Portfolio

Calpine Solutions accepted the Commission's default commercial/industrial assumptions used to construct the load shape for the Conforming Portfolio based on the inputs in the CSP calculator. Impacting the forecasts are the average historical transmission and distribution losses. Calpine Solutions, which serves commercial and industrial customers solely, by-and-large take power deliveries at higher voltages than residential customers and therefore incur less distribution losses. Calpine Solutions' historical distribution loss percentage is

approximately 4.5%. This historical loss percentage is substantially lower than system average losses input into the CSP calculator, which is 7.9%.

The dramatic drop in Calpine Solutions' reliance on system power in years 2030 and beyond is attributable to the procurement of additional GHG-emissions free energy resources needed to bring the Conforming Portfolio's GHG emissions target at or under the Commission's GHG emissions benchmarks of 19.498 MMT in 2030, 15.653 MMT in 2035, 12.952 MMT in 2040 and 6.676 MMT in 2045 (See Table 1). To achieve Calpine Solutions' proportional share of these GHG emissions benchmarks, Calpine Solutions is forecasting the need to procure an additional GHG-emissions free energy in an amount that equals approximately [redacted] of Calpine Solutions' retail energy demand (approximately [redacted] GWh depending on the year modeled). These GHG-emissions free procurements are in addition to the PCC 1 RPS procurements that account for [redacted] of Calpine Solutions' retail energy demand.

Calpine Solutions' selection of resources in its 30 MMT and 25 MMT conforming portfolios is consistent with all of the goals in Public Utilities Code Section 454.52(a)(1), as described in detail below.

GHG Reduction Targets

Based on the output of the CSP calculator, the 2030, 2035, 2040 and 2045 GHG emissions associated with Calpine Solutions' Conforming Portfolio are at the Commission's assigned GHG reduction benchmarks as shown demonstrated in Table 1 below. Thus, Calpine Solutions' Conforming Portfolio meets the Section 454.52(a)(1)(A) goal of reducing GHG emissions to meet state GHG reduction targets.

Renewable Energy

Section 454.52(a)(1)(B) states that load-serving entities must procure at least 60% renewable energy resources by December 31, 2030. The resources in Calpine Solutions' Conforming Portfolio are forecasted to meet current renewable portfolio standard requirements for PCC 1, including the long-term contracting requirement, as well as future renewable procurement requirements, including the requirement that at least 45% of all PCC 1 energy is from eligible renewable generation by 2030. This is demonstrated in the CSP as well as Calpine Solutions' 2026 Draft RPS Procurement Plan[6].

[6] Filed with the Commission, June 12, 2026.

Just and Reasonable Rates and Minimizing Bill Impact

Calpine Solutions recognizes the importance of the Section 454.52(a)(1)(D) goal of minimizing the impact of planned procurement on customers' bills. As an ESP, Calpine Solutions operates in a competitive market with customers free to choose their electricity supplier from among a plethora of ESPs and, if applicable, their Community Choice Aggregator or their incumbent utility. These commercial, industrial, municipal, and institutional customers demand the products and services that best meet or exceed their sustainability goals and needs within their corporate energy budgets. Thus, maintaining a competitive price offering is critical for Calpine Solutions to maintain its customers' high-level of satisfaction. Unsatisfied customers will inevitably choose to receive their electricity from one of Calpine Solutions' competitors.

Calpine Solutions attempts to remain price competitive (i.e., lower costs) by relying on competitive RPS and capacity procurement solicitations. In this year's IRP, Calpine Solutions selected procurement of natural gas generation that employs CCS technologies to help it achieve its GHG emissions targets in 2035 and beyond, please see Additional Resources in Section B.ii of this IRP. Based on federal legislation entitled "The Inflation Reduction Act" certain CCS technologies will receive a federal production tax credit, thus the installation of CCS technologies will likely be cost competitive to other renewable generation technologies.

Calpine Solutions continues to execute long-term RPS procurement contracts and relies on the use of RPS PCC 2 and PCC 3 to the extent the RPS program and Commission RPS compliance decisions allow as these are prudent ways to manage RPS procurement costs. Additional price competitive actions being taken by Calpine Solutions may be found discussed in Calpine Solutions' 2026 Draft RPS Procurement Plan Section X and Appendix C.

Ensuring System and Local Reliability

To meet Section 454.52(a)(1)(E) goal of ensuring system and local reliability Calpine Solutions has prepared a forecast of how it plans to meet the Commission's system RA requirements as detailed in Section III.f of this IRP. As discussed in more detail in that section, Calpine Solutions' system RA portfolio is forecast to consist of a combination of short-term RA capacity contracts, long-term RA capacity contracts to meet IRP procurement requirements (e.g., Commission D.19-11-006, D.21-06-035 and D.26-02-057), which presumably are being procured not only to meet system reliability but also to meet the impact of climate change and electrification of the California economy, and Commission Staff allocated CAM RA capacity, DR allocations and AB 1373 (which includes long-duration energy storage and offshore wind). Calpine Solutions also commits to meeting all local RA requirements, except for those local RA requirements that must be contracted for by the central procurement entities. As part of Commission D.19-11-006 and D.21-06-035, Calpine Solutions has procured long-term capacity and GHG-free energy

to meet its share of the Minimum Zero-Emitting Capacity (i.e., Diablo Canyon Replacement) obligation.

In the San Diego Local Capacity Requirement area ("LCR"), Calpine Solutions continues to procure local RA at a minimum of 3-years forward until such time as the Commission establishes a central procurement entity for that LCR and relieves Calpine Solutions of the local RA procurement obligation.

Additionally, the resources in Calpine Solutions' Conforming Portfolio will contribute to grid reliability by providing 24-hour energy (in the case of geothermal) and providing the ability to shift production into other hours (in the case of co-located battery storage). Additionally, solar and geothermal all have different production profiles that help smooth out the generation associated with Calpine Solutions' RPS over any given 24-hour period.

To ensure both system and local capacity reliability, and to fulfill its RA capacity obligations under the Commission RA program, Calpine Solutions uses a combination of public RFO processes, participation in utility RFO processes, self-supply, purchases from corporate affiliates, and direct bilateral procurement from counterparties that control RA capacity. To date, Calpine Solutions has not incurred any penalties for non-compliance in the Commission's RA program.

RPS Long-Term Procurement Requirement

Section 399.13(b)(1) requires that at least 65% of a retail sellers' RPS procurement come from contracts of 10 years or more ("long-term") in duration or in its ownership or ownership agreements for eligible renewable energy resources. As extensively detailed in Calpine Solutions' 2026 draft RPS Procurement Plan, Calpine Solutions has executed twenty-four (24) long-term contracts to meet the minimum long-term contract requirement for RPS compliance purposes. The twenty-four (24) long-term contracts supply greater than 65% of Calpine Solutions' expected RPS compliance procurement in the near-term RPS compliance periods based on expected customer electricity demand.

While future customer electricity demand is uncertain, due to the fact that customers of Calpine Solutions are free to migrate to other load serving entities at the conclusion of their retail purchase contract, Calpine Solutions continues to pursue long-term RPS procurement contracts in order to meet the requirement of Section 399.13(b)(1) and to achieve RPS compliance in the latter part of this decade. Additional uncertainty is created as the Direct Access program is fully subscribed and will require legislative action to increase the customer participation cap.

Diversity, Sustainability, and Resilience of Transmission, Distribution, and Local Communities

Consistent with the goals in Section 454.52(a)(1)(G), Calpine Solutions has selected a diverse set of renewable technological resources for its Conforming Portfolio, including solar PV, biogas, small hydroelectric generation, large hydroelectric generation, geothermal generation, and natural gas generation coupled with CCS technologies. Calpine Solutions is not constrained by a preferred geographic location in its current, nor in its expected future renewable electricity procurement. Thus, Calpine Solutions is free to weigh-in its procurement decisions locations best suited to the needs of the grid, while balancing other statutory goals such as cost minimization and enhancement of local communities.

Calpine Solutions also works with a select group of its customers that are large electricity users with behind-the-meter solutions. Calpine Solutions facilitates, for some of its customers that have the ability to adjust their manufacturing processes real-time, or if applicable, on-site generation, to respond to day-ahead and real-time CAISO prices. These efforts should have the effect of accreting resilience to the transmission and distribution grid.

Demand-Side Energy Management

Section 454.52(a)(1)(H) states portfolios must have a goal of enhancing distribution systems and demand-side energy management. Calpine Solutions works with a select group of its customers that are large electricity users to facilitate those customers' abilities to adjust their manufacturing processes, or if applicable, on-site generation which is behind-the-meter to respond to day-ahead and real-time CAISO prices. Additionally, Calpine Solutions permits its customers to participate in investor-owned utility-run demand response programs or third-party demand response offerings.

Localized Air Pollutants

Calpine Solutions' Conforming Portfolio complies with the Section 352(a)(1)(I) goal of minimizing localized air pollutants and other GHG emissions, with early priority on disadvantaged communities. The table located in Section 3(d)(i) Table 4 of this IRP summarizes the expected NOx, PM2.5, and SO_2 emissions from gas-fired generation associated with Calpine Solutions' Conforming Portfolio. Calpine Solutions does not directly contract with any fossil fuel-fired generation to meet its energy needs and has no plans to in the future. All gas generation associated with the Conforming Portfolio is from CAISO system power. The emissions are estimated directly within the CSP calculator.

Given that Calpine Solutions does not have a defined service territory and only provides service to commercial, industrial, and institutional customers, Calpine Solutions as a stand-alone corporate entity does not have residential programs related to activities and programs in disadvantaged communities such as demand response programs, affordability programs, solar programs, or outreach to disadvantaged customers. However, Calpine Solutions customers' support such investor-owned utility programs for DACs through non-bypassable charges, including through distribution rates and Public Purposes Program charges. Further, given commercial penetration rates, Calpine Solutions customers located in DACs are likely to undertake self-generation with the use of roof-top solar to support local emissions reductions.

Diverse Portfolio of Energy Resources

Calpine Solutions is obligated to procure certain GHG emissions-free resources in support of system reliability, per Commission D. 19-11-006, D.21-06-035 and D.26-02-057. This includes capacity associated with solar PV, 4-hour and 8-hour duration battery storage and geothermal energy. Calpine Solutions has procured new solar PV, 4-hour and 8-hour duration battery storage, and geothermal generation capacity in compliance with the aforementioned Commission decisions. The battery storage and geothermal generation capacity is procurement that Calpine Solutions is unlikely to have undertaken without Commission direction but adds to the State's diversity of GHG-emissions free generation resources. At the time of this IRP, Calpine Solutions does not expect and has not modeled new natural gas resources or re-contracting with existing natural gas resources for any term in which the natural gas resource does not employ CCS and therefore will be a GHG lower-emitting or GHG zero-emitting resource. Additionally, as provided by Commission Staff, Calpine Solutions modeled its proportional share of forecasted AB 1373 procurement which assumes Department of Water Resources long-duration battery storage and offshore wind generation procurement.

Comparison of 2045 Energy Resources with 2035 Energy Resources from Calpine Solutions' 2022 IRP

In its 2026 IRP Calpine Solutions' Retail Sales Forecast increased 30% from its 2022 IRP, therefore, the sheer quantity of supply from energy resources grew proportionally. However, the selected technologies needed to meet its GHG-emissions target shifted to a much greater reliance on large hydroelectric generation to supplement its continued reliance on natural gas generation utilizing CCS technologies. There is also a greater reliance on geothermal generation, not because Calpine LLC (parent company of Calpine Solutions) is the largest geothermal generator in California, but because Calpine Solutions has entered into geothermal capacity contracts in support of Commission D.21-06-035, forecasted geothermal capacity procurement in support of Commission D.26-02-057 as well as the inclusion of the forecasted AB 1373 allocations provided by Commission Staff.

c. GHG Emissions Results

Calpine Solutions adopted the Commission-approved GHG emissions benchmarks for direct access customers in each California IOU service territory. To translate these benchmarks into an appropriate benchmark for Calpine Solutions specifically, Solutions used a load ratio share allocation, as built directly into the CSP calculator tool and as shown in the tables below. Load ratio share is calculated separately for each service territory.

CONFIDENTIAL Table 1. Calpine Solutions' Load Ratio Share for Years 2030

Portfolio	LSEs within Utility Territory	2030 DA GHG Emissions Benchmark (MMT)	2030 DA Load (GWh)	Calpine Solutions' 2030 Load (GWh)	Calpine Solutions' Benchmark (MMT)
30 MMT	Pacific Gas and Electric Company (Direct Access)	*0.9185*	*11,393*		
	Southern California Edison Company (Direct Access)	*1.1123*	*12,230*		
	San Diego Gas and Electric Company (Direct Access)	*0.4392*	*3,942*		
	TOTAL		**27,565**		

CONFIDENTIAL Table 2. Calpine Solutions' Load Ratio Share for Years 2035

Portfolio	LSEs within Utility Territory	2035 DA GHG Emissions Benchmark (MMT)	2035 DA Load (GWh)	Calpine Solutions' 2035 Load (GWh)	Calpine Solutions' Benchmark (MMT)
25 MMT	Pacific Gas and Electric Company (Direct Access)	*0.5888*	*11,393*		
	Southern California Edison Company (Direct Access)	*0.7540*	*12,230*		
	San Diego Gas and Electric Company (Direct Access)	*0.2852*	*3,942*		
	TOTAL		**27,565**		

The table below shows Calpine Solutions' GHG emissions results from the CSP calculator. For all modeled years the emissions levels fall just below the benchmarks listed in the table above for each scenario.

Table 3. CO_2 Emissions for Years 2030, 2034, 2040, and 2045

	Emissions Total	*Unit*	2030	2035	2040	2045
	CO_2	*MMt/yr*	*0.68*	*0.45*	*0.33*	*0.16*

d. Local Air Pollutant Minimization and Disadvantaged Communities

i. Local Air Pollutants

Section 454.52(A)(1)(I) of the Public Utilities Code requires load serving entities to "[m]inimize 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."

The table below summarizes expected NOx, PM2.5, and SO_2 emissions from gas-fired generation associated with Calpine Solutions' Conforming Portfolio. Calpine Solutions does not directly contract with any fossil-fired generation to meet its energy needs and has no future plans unless these resources are equipped with CCS technologies. All gas generation associated with the Conforming Portfolio is from CAISO system power and does not include the emissions associated with natural gas generation utilizing CCS technologies (which is ostensibly GHG-emissions free) for years 2035 and beyond. The emissions are estimated directly within the CSP calculator.

As the table below indicates, emissions decrease over time. This is largely due to the addition of GHG-free emissions generation.

Table 4. Calpine Solutions estimated NO_x, SO_2, and PM2.5 emissions for the conforming portfolio.

Emissions Total	*Unit*	2030	2035	2040	2045
PM2.5	*tonnes/yr*	*48*	*36*	*28*	*19*
SO_2	*tonnes/yr*	*10*	*9*	*9*	*8*
NOx	*tonnes/yr*	*79*	*66*	*44*	*34*

ii. Focus on Disadvantaged Communities

Calpine Solutions' specific activities are targeted to support DACs, minimize criteria air pollutants, and reduce system reliance on fossil-fueled power plants involve supporting procurement from, and new development of, renewable energy facilities. As detailed in Calpine Solutions' 2025 Draft RPS Procurement Plan, Appendix D, Calpine Solutions executed five contracts for renewable solar generation projects located within DACs in Riverside, San Bernardino, Maricopa, and Kern County.

Of the generation facilities located in California in communities that scored in the highest 25% of overall scores in the CalEnviroScreen 4.0, that Calpine Solutions has under contract for this IRP, the following DAC communities and associated renewable energy facilities are identified

below. Calpine Solutions elected to use zip codes as Calpine Solutions is a contractual off taker and not the developer:

Zip Code: 90745 – Carson, LACSD Carson Total Energy Facility
Zip Code: 92225 – Unincorporated Riverside, Arlington Solar 1
Zip Code: 92243 – El Centro, Big Rock Energy Storage
Zip Code: 92347 – Unincorporated San Bernardino, Lockhart Solar 1
Zip Code: 92703 – Santa Ana, Johanna Energy Storage
Zip Code: 92705 – Santa Ana, McFadden Energy Storage
Zip Code: 93245 – Unincorporated Kings County area, Westlands Almond Solar
Zip Code: 93501 – Mojave, Edward Sanborn Solar and Energy Storage
Zip Code: 95215 - Unincorporated San Joaquin County area, Cascade Energy Storage

Carson and Santa Ana are urban industrialized communities, while the remaining list of DAC communities identified above are rural and agricultural.

Based on future GHG emissions targets for Calpine Solutions, it is anticipated that additional future procurement and future development of renewable energy facilities will occur and be documented in future Calpine Solutions IRPs. Such zero pollutant emitting projects will support state-wide emission reductions as well as provide for the potential reduction of air pollutants through the displacement of fossil fuel generation that are located in DACs. These projects will also reduce Calpine Solutions' reliance on fossil fuel derived system power. Furthermore, Calpine Solutions does not plan to execute any contracts with any new criteria air polluting emitting resources in DACs. Calpine Solutions also does not dispatch specific fossil fuel resources. Additionally, as outlined in previous sections, Calpine Solutions' procurement activities are forecasted to meet 2030 through 2045 GHG-emission reduction and renewable energy targets. That procurement is forecasted to come from RPS renewable resources and GHG-emissions free resources utilizing CCS technologies. In addition to the procurement of the above GHG-emissions free energy, Calpine Solutions anticipates procuring other GHG-emissions free generation resources, as needed, to support future GHG emission reductions.

Moreover, Calpine Solutions through its parent company Calpine LLC ("Calpine"), supports the reduction of GHG emissions and reliance of fossil fuels through the development and/or procurement of large-scale energy storage and CCS in-state natural gas generation utilizing CCS technologies.[7] For example, Calpine's Nova Power Bank, a battery energy storage system project located in Southern California, repurposed a decommissioned natural gas-fired power plant and provides 680 megawatts of storage and discharge capabilities. Calpine has also received funding from the Department of Energy to actively pursue the deployment of CCS

[7] See, Calpine 2023 Sustainability Report, Pages 10-12.

technology at their gas-fired facilities, which in California includes Sutter Energy Center and Los Medanos Energy Center.

Calpine conducts targeted outreach directed toward disadvantaged communities and the communities in which it serves. To that end, Calpine engages with and supports its communities throughout the lifetime of all projects, and through local charitable undertakings tailored to each community. For example, at The Geysers, Calpine supports the youth of Lake County's Future Farmers for America by buying their raised animals, then donating the meat and other animal products to the county's food banks. This practice goes beyond traditional charity by empowering young farmers while simultaneously benefiting the wider community.

To respond to historically disenfranchised communities in which Calpine operates, the company engages with local businesses, particularly those that are owned by minorities, women, and service-disabled veterans. Calpine continues to have ongoing and long-term engagement with organizations and the community in an impactful way. Calpine also works closely with minority serving institutions, particularly community colleges, to offer apprenticeship programs.

In the Pittsburg, California community, Calpine has a long history of supporting various programs aimed at addressing food insecurity in the region. They have provided thousands of turkeys during the Thanksgiving holiday to families across Contra Costa County. Calpine has sponsored and volunteered with the Contra Costa Food Bank. This work has extended to the Loaves and Fishes organization, which provides food pantry items to the unhoused, veteran and senior community through their mobile unit. Calpine has volunteered at their central kitchens, which provide patrons with a warm meal and connect them with partner organizations providing hygienic care, clothing, health and addiction services, and available city programs.

More information on community outreach programs may be found in the Calpine 2023 Sustainability Report: https://www.calpine.com/sustainability/.

Constellation, the corporate parent of Calpine, continues to publish its annual Constellation Sustainability Report[8]. The 2026 Constellation Sustainability Report provided a detailed blueprint of Constellation's overall corporate strategies, goals and initiatives for key environmental, social, workforce and governance topics driving our critical mission to fight the climate crisis and accelerate the nation's transition to a clean energy economy. Constellation works within local communities to make environmental justice and energy equity a central

[8] *See* Constellation 2026 Sustainability Report, *available at* https://www.constellationenergy.com/sustainability/environment/constellation-sustainability-report.html.

focus of its actions and works to build a more equitable future for its employees, customers, business partners and community members.

For example, in 2026 Constellation held a series of volunteer events across the nation. This summer, for the first time, students from the West Coast, including California, are participating in Constellation's Youth Energy Summit – a week-long, in person, experience that brings together young people who are interested in helping to solve America's energy and environmental challenges through clean energy careers.

e. Cost and Rate Analysis

As an ESP, Calpine Solutions operates in a competitive market with customers free to choose among a host of ESPs and their Community Choice Aggregators and these customers demand the products and services that best meet their needs and budgets. Thus, maintaining competitive pricing is critical to maintaining satisfied customers. Calpine Solutions notes that the Commission has a more limited scope of oversight over ESPs. ESPs are not regulated as "public utilities;" the Commission does not regulate retail transactions by ESPs or establish rates for ESP products or services, nor does the Commission directly review and approve of the procurement activities of ESPs undertaken in order to serve an ESP's retail transactions which includes cost quantification information. However, in order to be responsive to the Commission and the IRP process, costs for energy, RPS and RA procurement to meet Calpine Solutions' retail sales in California have increased since the 2022 IRP and are approximately $465 million per year in 2025 and a doubling of costs since the 2022 IRP. Calpine Solutions also provides detailed renewable cost and rate impact, both historical and forecast in Calpine Solutions' 2026 Draft RPS Procurement Plan, Appendix C, filed in Commission Rulemaking 24-01-017[9]. Additional analysis on this topic is covered in this IRP, Section III.b.(D).

f. System Reliability Analysis

Calpine Solutions is committed to meeting all Commission RA requirements. With the continuing changes to the RA construct, including Commission compliance rule changes and the procurement of RA to meet a 24-hour profile, it is difficult to forecast RA procurement in detail. Nonetheless, Calpine Solutions provides below the Load and Resource Table by Contract Status for the Conforming Portfolio. The RA portfolio includes the following resources:

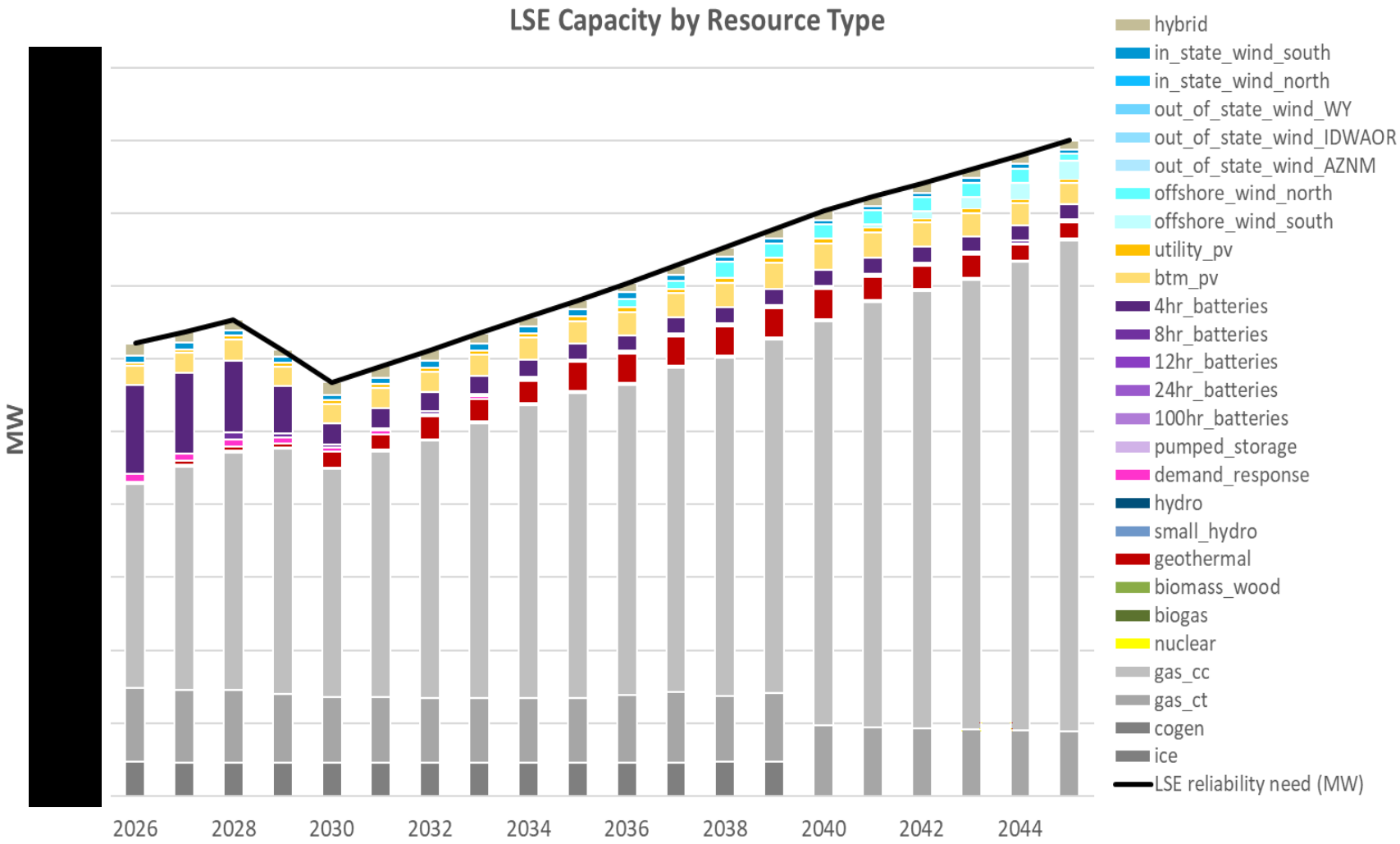
[9] Order Instituting Rulemaking to Continue Implementation and Administration, and Consider Further Development, of California Renewables Portfolio Standard Program

- All executed contracts for RA with deliveries in 2026. Calpine Solutions procures RA capacity with RA capacity only contracts. All such contracts are short-term deals with deliveries between 2026 through 2028 except for contracts entered or forecasted to be entered to meet the capacity obligations assigned to Calpine Solutions in Commission Decisions 19-11-016, D.21-06-035 and D.26-02-057 which requires the purchases to have a term of no less than 10-years.
- Calpine Solutions' allocated share of resources subject to the cost allocation mechanism (CAM). Per the CPUC's IRP filing requirements instructions, Calpine Solutions included its 2026 load ratio share of all CAM resources, demand response and AB 1373 allocations as provided by the Commission's Staff.
- Calpine Solutions' allocated share of demand response resources from each IOU. For purposes of the RA tracking table, the 2026 initial allocation was held constant through 2045.
- To the extent there is still a gap in RA procurement needs, Calpine Solutions assumes it will procure System RA using short-term, RA-only contracts from existing natural gas generation resources. These are planned existing contracts for combined cycle resources in the tracking table.

CONFIDENTIAL Table 5. Load and Resource by Contract Status

Load and Resource Table by Contract Status																				
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
LSE reliability need (MW)																					
ELCC by contract status (effective MW)																					
Online																					
Development																					
Review																					
PlannedExisting																					
PlannedNew																					
BTM PV																					
LSE total supply (effective MW)																					
Net capacity position (+ve = excess, -ve = shortfall) (effective MW)																					

Chart 1. Capacity by Resource Type



g. Existing Resource Planning

Calpine Solutions' 2026 IRP relies on a total of [redacted] in 2030 and [redacted] in 2035 of "online" and "planned existing" resources (including CAM allocations). Of that total, approximately [redacted] in 2030 and [redacted] in 2035 is forecast to come from existing but unknown resources at the time of this IRP, or only approximately [redacted] of Calpine Solutions' forecasted procurement need. The remaining "online" RPS resources are currently under contract with Calpine Solutions through 2035 and are forecasted to be renewed through 2045. By relying on CCS in this IRP starting in 2035 to meet Calpine Solutions' forecasted GHG-free resource procurement need and the CCS is anticipated to come from existing resources that are anticipated to install and employ CCS technologies, Calpine Solutions will rely on large hydro generation to meet its GHG-emissions targets for 2030.

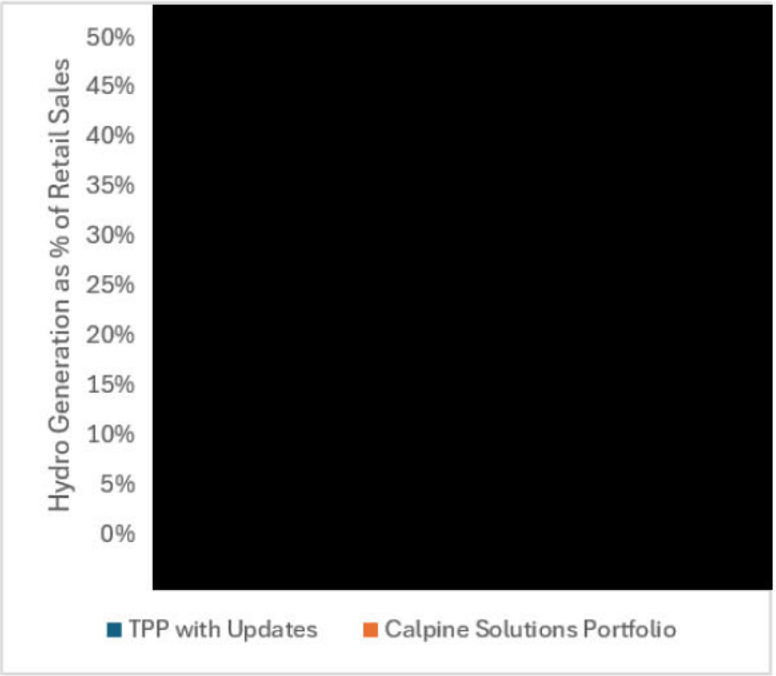
In Calpine Solutions' 2022 IRP 25MMT preferred Conforming Portfolio, the percentage of existing resources that were forecast to come from existing but as of that time were unknown resources was 50%. The main driver for the difference in percentage of "online" resources currently under long-term contract between Calpine Solutions' 2026 IRP and Calpine Solutions 2022 IRP are that Calpine Solutions has undertaken a significant amount of long-term RPS procurement in the intervening IRP reporting years that contractually binds approximately 90% (in terms of MWhs) of existing resources through the year 2035 to Calpine Solutions. Calpine Solutions expects to be able to extend and/or renew these existing contracts into the future years beyond 2035.

h. Hydro Generation Risk Management

In this year's IRP Calpine Solutions relies on large hydroelectric generation to meet its 2030 GHG-free emissions targets with declining reliance on large hydroelectric generation as CCS technologies deploy and therefore in-state drought(s) does not carry a significant risk of exceeding the 2030 GHG emissions targets for Calpine Solutions. Additionally, approximately 3% of Calpine Solutions' 2030 RPS compliance is forecasted to be met by small hydroelectric generation, therefore an in-state drought(s) does not pose a significant RPS compliance risk, procurement cost risk or grid reliability risk with the Conforming Portfolio. Please see Calpine Solutions' Draft 2026 RPS Procurement Plan Section VII for a more in-depth discussion and assessment of how Calpine Solutions manages its overall RPS compliance risks.

A comparison of the amount of hydroelectric generation as a percentage of retail sales in Calpine Solutions' portfolios and the RSP is shown in the Figure below.

CONFIDENTIAL Chart 2. Calpine Solutions' Hydroelectric Generation Comparison



As other renewable technology types become a more cost-effective alternative to in-state hydroelectric generation, Calpine Solutions will not only model that procurement into its future IRPs, but will also undertake procurement of that technology(ies) in order to achieve its GHG emissions targets in 2030 through 2045. In this IRP, small hydroelectric generation for RPS compliance purposes amounts to less than 6% of Calpine Solutions' forecasted RPS procurement.

In the future, the Commission may take a number of actions to reduce hydroelectric generation risk, such as changing the assumptions in its production cost modeling of the Reference System Plan ("RSP") to ensure the RSP meets GHG emissions goals even in low water years or through research into multi-year energy storage technologies. Calpine Solutions will monitor and participate in any future Commission proceeding(s) on this issue and is prepared to meet any future Commission requirements therefrom.

i. Long-Duration Storage Planning

As part of the Commission Decisions 19-11-016, D.21-06-035 and D.26-02-057, Calpine Solutions has a mid-term reliability obligation to procure its share of 1,000 MWs of long-duration storage, which it has achieved. Given the current cost of long-duration storage, it is unlikely that Calpine Solutions will procure more long-duration storage than it is already directed to by D.26-02-057. Calpine Solutions' IRP includes a forecast of procurement of long-

duration storage by 2028 as well as Commission Staff provided AB 1373 allocations which includes 12-hour and 24-hour long-duration energy storage starting in 2032.

j. Clean Firm Power Planning

As part of the Commission Decisions 19-11-016, D.21-06-035 and D.26-02-057, Calpine Solutions has a mid-term reliability obligation to procure its share of 1,000 MWs of clean firm power, which it has essentially achieved. Calpine Solutions' IRP includes its mid-term reliability procurement of geothermal capacity procurement as well as Commission Staff provided AB 1373 allocations which includes geothermal energy starting in 2032.

k. Non-CAISO, including Out-of-State, Wind Planning

In this IRP, Calpine Solutions' wind technology renewable procurement is in-state and delivered to a California balancing authority. However, Calpine Solutions' renewable procurement team is commercially engaged with wind generation developers for development of locations outside of a California balancing authority.

At the time of this IRP, the commercial opportunities available in this technology space are limited. Based on commercial dealings with prominent wind developers, Calpine Solutions ascertains that there is likely not enough incremental transmission available for new out-of-state wind development to rely upon the existing transmission network in order to deliver the electricity into California from Montana, Wyoming and New Mexico. However, there are some wind generation developers with sufficiently strong financial standing to overcome the credit requirement and costs of transmission upgrades. Calpine Solutions works closely, and has an extensive existing commercial relationship, with those wind generation developers in particular, in an effort to help facilitate new out-of-state wind development.

l. Offshore Wind Planning

Calpine Solutions' IRP includes Commission Staff provided AB 1373 allocations which includes offshore wind energy starting in 2036. Excluding those allocations, Calpine Solutions did not model additional offshore wind procurement in this year's IRP. Between the current estimated cost, transmission upgrades needed and the long planning horizon, this type of resource did not make consideration. However, as with other state and Commission procurement directives, if so ordered, Calpine Solutions will procure offshore wind and will include offshore wind planning details in its IRP at that time.

m. Transmission Planning

As detailed in Calpine Solutions' Draft 2026 RPS Procurement Plan, Section VII – Risk Assessment, Calpine Solutions monitors whether the facility(ies) under development either have an interconnection agreement in place or are taking the steps necessary to ensure that the project(s) will have an executed interconnection agreement with the appropriate participating transmission operator and the developer. Also, counterparties are required to post a material amount of financial collateral at the time of contract execution in order to provide a strong financial incentive to the counterparty to meet the project's milestone schedule. Selected sellers generally bear the risk of supply chain delays impacting their ability to meet their financially secured contractual milestones on time, subject to permitted extensions and allowable Force Majeure provisions as stated in the renewable energy agreement which includes transmission development and/or upgrades. Additionally, because Calpine Solutions is relying on existing generation to install and implement CCS technologies to meet its GHG-emissions targets for 2035 and beyond, existing resources are unlikely to require significant transmission development in order to deliver energy to the grid.

Calpine Solutions is not aware of any contracted resources that would require a transmission upgrade to ensure interconnection. Additionally, in this IRP Calpine Solutions assumed that it will be able to extend the duration and procurement quantities of existing renewable energy procurement contracts in order to achieve RPS compliance in 2030 and beyond. Therefore, the geographical location of this procurement is predicated on existing renewable generation facilities by that timeframe.

Calpine Solutions is not constrained by a preferred geographic location in its current nor in its expected future renewable energy procurement and therefore has no planned resources that are location specific.

Calpine Solutions does not have any executed RPS contracts with facilities that are under development.

IV. Action Plan

a. Proposed Procurement Activities and Potential Barriers

In the near term, Calpine Solutions proposes to stay focused on meeting its remaining procurement obligations under Commission D.26-02-057, having met and completed its D.19-11-016 and D.21-06-035 obligations.

- Calpine Solutions will rely on approximately [redacted] MWs of existing natural gas energy resources that have installed CCS technologies in order to meet its 2035 GHG-emissions target and years beyond. Please see Section II.b.ii. Additional Resources in this IRP for additional details.
- Calpine Solutions has no forecasted plans to procure additional storage resources in this year's IRP beyond its obligations associated with Commission Decisions D.19-11-016 and D.21-06-035 obligations, to which the obligations have been material completed. However, Calpine Solutions has included in this IRP is the assumed procurement associated with Commission D.26-02-057, which has a long-lead time energy storage resource component.
- Calpine Solutions has no forecasted plans to procure demand response in this year's IRP.
- Calpine Solutions has no forecasted plans to procure energy efficiency in this year's IRP.
- Calpine Solutions has no forecasted plans to procure distributed generation in this year's IRP.
- Calpine Solutions has no forecasted plans to invest in transportation electrification with its customers.
- Calpine Solutions has no forecasted plans to expand building electrification with its customers.
- Procurement of long-lead time resources as set forth in Commission D.24-08-064 is incorporated into this IRP as provided by Commission Staff's AB 1373 allocations. In this IRP, Calpine Solutions declines to speculate on what additional GHG-emissions free energy procurement it would undertake if, in the unlikely event, forecasted AB 1373 resources fail to materialize.

b. Disadvantaged Communities (DACs)

Both Calpine Solutions and its parent company Calpine, LLC ("Calpine") are conducting targeted outreach directed toward disadvantaged communities and the communities in which it serves. To that end, Calpine engages with and supports its communities throughout the lifetime of all projects, and through local charitable undertakings tailored to each community. For example, at The Geysers, Calpine supports the youth of Lake County's Future Farmers for America by buying their raised animals, then donating the meat and other animal products to the county's food banks. This practice goes beyond traditional charity by empowering young farmers while simultaneously benefiting the wider community. Furthermore, in the communities in which it operates, Calpine has a history of engagement with local businesses, particularly those that are owned by minorities, women, and service-disabled veterans. As a result of this history of community-engagement and commitment to continued, future engagement, Calpine has affirmed its social license to operate in the communities it serves. Calpine also works closely

with minority serving institutions, particularly community colleges, to offer apprenticeship programs.

More information on Calpine Corp's community outreach programs may be found in Calpine's 2023 Sustainability Report found here: https://www.calpine.com/sustainability/, Pages 26 and 27.

Constellation, Calpine's corporate parent, strongly believes in giving back to the communities it serves. In 2025 alone, Constellation contributed a total of $24.5 million, in combined company, foundation, and employee giving, plus Constellation employees logged nearly 130,000 volunteer hours in service to communities, including contributions towards charities in California.

c. LSEs' Tribal Customers

Calpine Solutions engages with Tribal Customers in the same manner as any other potential customer. By offering an energy product at prices less than the Tribal Customer's utility or community choice aggregation, presumably these energy savings go to facilitate the Tribal Customer's other needs.

d. Procurement Products

At the time of this IRP Calpine Solutions is unaware of any physical or financial products it may utilize in its procurement activities associated with its Conforming Portfolio.

e. Commission Direction of Actions

Calpine Solutions has no additional requests for the Commission at the time of this IRP.

V. Lessons Learned

Based on its IRP process, Calpine Solutions is confident that it is on track to satisfy all existing state requirements with respect to RPS (including long-term contracting requirements), RA, and energy storage procurement.

Calpine Solutions continues to be concerned about system reliability in a majority GHG-emissions free resource portfolio. With increasing reliance on variable resources, including hydroelectric generation, wind, and solar PV, that have energy limitations on an annual, seasonal, and hourly basis, the forecasted use of all available generation technologies to reduce GHG emissions should continue to be a goal of the IRP process. In this IRP, Calpine Solutions

relies on CCS technologies applied to existing natural gas generation to help meet its 2035 and beyond GHG emissions targets. It is anticipated that natural gas generation will operate at high-capacity factors in order for CCS to be a cost-effective technology. Therefore, CCS technologies have an opportunity to convert what are currently being dispatched as peaking resources into base load resources, this outcome will accrete to grid stability and system reliability. CCS conversion of efficient natural gas generation plants will also help address grid resilience and reliability during major weather events that could depress solar PV generation for days, if not weeks, and help counteract the impact of extended low water years due to drought conditions impacting hydroelectric generation.

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 forecasted 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 2045 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 2045 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 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)**: process conducted by the California Independent System Operator (CAISO) to identify potential transmission system limitations and areas that need reinforcements over 10-year and 15-year horizons.*

Index of Attachments

Attachment Number	Attachment Name	Confidentiality Status	Explanation
1	LSE Contact Information form	Public	Attached below.
2	Calpine Solutions Clean System Power calculator workbook "nes_csp_8mmt_preferred_ conforming_na_confidential_v1"	Confidential	Omitted from Public Version, provided to CPUC IRP Staff via Secure FTP email.
3	Calpine Solutions Resource Data Template workbook "nes_rdtv3_8mmt_preferred_ conforming_na_confidential_v1"	Confidential	Omitted from Public Version, provided to CPUC IRP Staff via Secure FTP email.

Integrated Resource Planning (R.25-06-019)
2026 IRP Filing Requirements
LSE Contact Information Form

Please provide the following information. CPUC staff will contact the person(s) listed here for questions about LSE's filing.

Name of Load Serving Entity (LSE)	Calpine Energy Solutions, LLC
The LSE's abbreviation, provided in the Resource Data Template's workbook in the "lse_names" tab	NES

Contact Person for Questions about this Filing	
Name	Greg Bass
Title	Regulatory Director
Email	Greg.bass@calpine.com
Telephone	(619) 540-5026

Back-Up Contact Person for Questions about this Filing (Optional)	
Name	Eric Janssen
Title	Paralegal
Email	ejanssen@b2energylaw.com
Telephone	(916) 813-9102

Back-Up Contact Person for Questions about this Filing (Optional)	
Name	
Title	
Email	
Telephone	