BEFORE THE 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 (Filed June 26, 2025)

SONOMA CLEAN POWER AUTHORITY'S 2026 INTEGRATED RESOURCE PLAN [PUBLIC VERSION]

Justin Wynne
Braun Blaising & Wynne, P.C.
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
Telephone: (916) 326-5812
E-mail: wynne@braunlegal.com

August 10, 2026

Attorney for Sonoma Clean Power Authority

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In compliance with the requirements of California Public Utilities Code Sections 454.51 and 454.52, California Public Utilities Commission ("Commission") Decision ("D.") 22-02-004 and *Assigned Commissioner and Assigned Administrative Law Judges' Ruling Identifying Issues and Schedule of Review for 2026 Renewables Portfolio Standard Procurement Plans* ("ACR"), issued on January 16, 2026, the *Email Ruling Granting Joint Request for Extension of Load Serving Entity ('LSE') Integrated Resource Plan ('IRP') Filings*, issued on March 9, 2026, and other rulings and guidance in the above-captioned proceeding, Sonoma Clean Power Authority ("SCPA") hereby provides its 2026 Integrated Resource Plan ("IRP") to the Commission for certification.

I. IRP DOCUMENTS INCLUDED AS ATTACHMENTS TO THIS FILING

SCPA is e-filing this document in the instant Rulemaking and serving it to all parties identified in this Rulemaking's service list. Attached to this Filing are the following IRP related documents:

- *Attachment A* – SCPA's IRP Verification
- *Attachment B* – SCPA's IRP Narrative Template (Public Version)

- *Attachment C* – SCPA's Resource Data Template Version 3 (Public Version)
- *Attachment D* – Clean Power System Calculator
- *SCPA's Notice of Availability* – SCPA's Notice of Availability of public versions of its IRP documents

II. REQUEST FOR CONFIDENTIAL TREATMENT OF NON-PUBLIC DOCUMENTS

SCPA has developed both public (redacted) and confidential (unredacted) versions of its IRP Narrative and its 8 MMT RDTv3. SCPA has attached the public version of its IRP Narrative to this IRP filing and has posted the public version its 8 MMT RDTv3 on its website. SCPA is submitting the confidential version of these documents to the Energy Division through the Commission's file transfer protocol ("FTP") site. Concurrently with the submission of this NOA, SCPA is filing a Confidentiality Motion setting forth the basis for protecting the confidential information redacted from the public version of this document.

III. CONCLUSION

SCPA thanks the Commission for its time and effort in the 2024-2027 IRP cycle and for its review of SCPA's IRP. SCPA respectfully requests that the Commission certify its IRP.

Dated: August 10, 2026

Respectfully submitted,

/s/ Justin Wynne

Justin Wynne
Braun Blaising & Wynne, P.C.
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
Telephone: (916) 326-5812
E-mail: wynne@braunlegal.com

On behalf of Sonoma Clean Power Authority

Attachment A
Verification

VERIFICATION

I am the Chief Financial Officer of Sonoma Clean Power Authority and am authorized to make this verification on Sonoma Clean Power Authority's behalf. I declare under penalty of perjury that the statement in the foregoing Sonoma Clean Power Authority August 10, 2026, Integrated Resource Plan and all attachments thereto are true and accurate 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.

Executed on August 10, 2026, at Santa Rosa, California.



Garth Salisbury
Chief Financial Officer
For: Sonoma Clean Power Authority

Attachment B
SCPA's IRP Narrative Template

(PUBLIC VERSION)

Standard LSE Plan

Sonoma Clean Power Authority

2025 INTEGRATED RESOURCE PLAN

August 10, 2026

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I. Executive Summary

Sonoma Clean Power Authority (SCPA) is submitting a Preferred Conforming Portfolio (or "preferred portfolio") that represents its expected long-term resource development needs to meet its obligations as a load-serving entity (LSE), support California's climate goals, and deliver on objectives of SCPA's Board of Directors. SCPA developed a preferred portfolio using decision-making under uncertainty modeling techniques, which identify robust near-term portfolio decisions that can be made even when there is significant uncertainty about future load growth and market conditions. SCPA has advocated a similar approach be used by the CPUC for statewide resource planning[1].

The preferred portfolio was approved by the SCPA Board of Directors in their June 4, 2026 meeting. The preferred portfolio meets SCPA's emissions target of 0.088 million metric tonnes (MMT) by 2045 and demonstrates reliability with a reduced reliance on capacity from fossil-fueled resources. As with its 2022 Integrated Resource Plan (IRP), SCPA's long-term IRP identifies a growing need for resource diversity, with significant capacity growth needed from geothermal and wind resources.

The selection of SCPA's preferred portfolio was guided by several clear objectives from the SCPA Board of Directors including:

- **Environmental Leadership:** SCPA holds itself to a higher standard than industry in that it sets an hourly emissions planning target, rather than relying on targets with annual netting. The preferred portfolio reflects modeling that values hourly emissions mitigation and leads to a diverse portfolio that can facilitate the retirement of natural gas capacity. SCPA recognizes that a portfolio that relies on gas is not only a bad climate outcome, but also unjustly burdens disadvantaged communities with local air pollution.

- **Minimizing Infrastructure Burden:** An outsized driver of high electric bills today is associated with fixed infrastructure costs. A significant infrastructure build-out is necessary to facilitate clean energy development and electrification, but SCPA also wants to do its part in procuring resources that minimize their burden on infrastructure. As such, SCPA's preferred portfolio reflects a local preference – including 100 MW of solar paired with storage development, significant local geothermal capacity, and a phase-out of reliance on out-of-state resources. SCPA has also adopted internal IRP goals to facilitate 400 MWh of daily load shifting with customer-sited resources and 20 MW of demand response capacity to complement the preferred portfolio.

- **Support Electrification:** SCPA is vested in achieving the state's climate goals and sees the importance in both decarbonizing the electric sector directly and facilitating electrification to support climate progress across all sectors. An important consideration in supporting

[1] See *Joint Comments of Sonoma Clean Power Authority and Peninsula Clean Energy Authority on the Order Instituting Rulemaking available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M574/K980/574980356.PDF*.

electrification is not just planning sufficient resources but managing costs to make electrification not only more climate friendly, but also friendly to customers' pocketbooks. The preferred portfolio accomplishes this objective: it builds resources needed to accommodate load growth, including in the harder-to-decarbonize winter, and does so while keeping long-term power costs from escalating more than 2% annually.

SCPA's narrative includes details on the assumptions and modeling methodology underpinning the preferred portfolio. The preferred portfolio was selected after comparing the cost, risk, reliability, and environmental results to alternatives. The analysis demonstrated that SCPA could adopt a portfolio that accomplishes the objectives described above while still managing costs. The preferred portfolio also demonstrates robustness to key risks identified by the CPUC, including dependency on hydropower and existing resource availability.

SCPA has a strong track record of taking proactive steps to support achievement of IRP objectives. SCPA started the Geothermal Opportunity Zone (GeoZone) in October 2021 to use public-private partnerships to scale clean firm resources SCPA sees as critical to its long-term portfolio needs. SCPA is currently evaluating new partnership opportunities for the GeoZone and recently expanded its efforts statewide through participation in California Community Power's Geothermal Exploration, Offtake, and Development Engagement (GEODE) agreements with industry to catalyze geothermal development statewide. In SCPA's Action Plan, both activities to support near-term procurement needs and additional strategic initiatives are described.

II. Study Design

a. Objectives

SCPA's IRP analysis is used to evaluate long-term strategic decisions for the agency with consideration of financial, environmental, and regulatory impacts. The analysis not only serves to demonstrate to the CPUC that SCPA is planning a portfolio that can meet its compliance obligations as a load-serving entity, but also as the strategic guide for SCPA's procurement priorities. Indeed, most of the resources SCPA has procured over the last three years directly align with SCPA's 2022 preferred portfolio. Importantly, SCPA recognizes the IRP as one of its best opportunities to identify transmission planning needs for its future portfolio to the CPUC—and accordingly focuses on identifying a preferred portfolio that is as representative as possible of its future procurement strategy.

SCPA used Resilient Transition's *Raven* power portfolio optimization platform in developing its IRP, which is described in greater detail in the Modeling Tools section below. *Raven* has been used in conjunction with market forecasts from both Aurora Energy Research and Ascend Analytics to identify a portfolio that can meet SCPA's objectives across a range of uncertainty in future market dynamics and load growth. In utilizing *Raven*, SCPA has identified a preferred portfolio that is optimized to achieve the following objectives:

- **Compliance:** The optimization requires candidate portfolios to meet SCPA's compliance obligations, including Renewable Portfolio Standard (RPS), SB 100 (including interim targets from SB 1020), and resource adequacy (RA) requirements. SCPA has leveraged calibrated heuristics to reproduce "slice-of-day" treatment of RA requirements.

- **Realistic:** SCPA has taken careful consideration in framing the inputs of the analysis to reflect realistic resource portfolios. This includes reflecting resource availability dates to be consistent with CPUC guidance, or reflective of SCPA's direct engagement with industry and calibrating resource constraints to represent what SCPA can realistically procure in the market. SCPA has also enforced import constraints that reflect its total allotted import capability and the availability of short-term contracts for meeting compliance targets.

- **Supports Gas Retirement:** The preferred portfolio enforces a 100% hourly carbon emissions mitigation target throughout the modeling horizon to encourage the development of a portfolio that enables retirement of natural gas capacity. By evaluating emissions mitigation on an hourly basis, SCPA is appropriately recognizing the relative value of a megawatt-hour (MWh) of firm winter power versus a MWh of spring solar. If the model is unable to achieve its target, it is penalized with the cost of procuring short-term carbon-free energy (although that carbon-free is only included in the IRP if needed for compliance). Including this target in SCPA's IRP allows it to achieve its 2045 CSP target over five years early without reliance on short-term contracts.

- **Cost-Effective:** The objective function in modeling candidate portfolios for SCPA's IRP is to minimize unitized power costs. This means that SCPA's preferred portfolio delivers the lowest cost per MWh by demonstrating compliance, meeting SCPA's hourly carbon emissions goals, honoring resource constraints, and local preference. Building a cost-effective portfolio is especially important given SCPA's interest in supporting electrification, which is not economically viable if power costs dramatically increase. In evaluating portfolio cost, SCPA does apply a discount factor to more heavily weigh near-term cost impacts.

- **Local:** SCPA has adopted a preferred portfolio that prefers more local resource development. This is both consistent with SCPA's adopted Project Selection Criteria Policy C.6[2] and the Board's stated objective of minimizing the burden SCPA's portfolio places on infrastructure. The preferred portfolio does not rely on out-of-state resource development beyond near-term expected procurement of wind in Baja California, includes 100 MW of solar paired with storage development within SCPA's territory by 2040, and contracts with both local biogas and geothermal. Although SCPA's analysis demonstrated a local preference entails a 1.7% cost premium, SCPA believes that the value of local economic benefits and opportunity to reduce fixed infrastructure costs to ratepayers is more than worth the extra investment. SCPA has also

[2] See page 70 of https://sonomacleanpower.org/uploads/documents/00-SCPA-BOD-Policies-Effective-2025.07.10.pdf

adopted internal targets of developing 20 MW of demand response capacity by 2034 through its SCP Rewards program and facilitating 400 MWh of daily load shifting by 2045.

- **Robust:** SCPA's use of Resilient Transition's *Raven* platform allowed for the identification of a portfolio that is robust across a range of uncertainty in load growth and market conditions. Near-term resource decisions in the preferred portfolio (through 2032) were optimized to deliver optimal costs and minimum downside risks when stress-tested across 21 future scenarios (3 load scenarios x 7 market scenarios). Resource decisions after 2032 are optimized for a middle-of-the-road market scenario and SCPA's assigned IRP load forecast. In practice, SCPA is likely to re-evaluate resource decisions as additional insight into future conditions becomes available.

SCPA's IRP submission, including this narrative, the Clean System Power (CSP) calculator, and the Resource Data Template (RDT), all follow the requirements for this filing which include using the assigned load forecast, reliability procurement requirement, and behind-the-meter (BTM) solar forecast for all calculations. SCPA is submitting one portfolio that outperforms its assigned GHG target. The inputs and GHG targets for SCPA are documented in Table 1 below.

Table 1. SCPA IRP Inputs & Targets

Year	Sales Forecast (GWh)	Reliability Procurement Requirement (MW)	BTM PV Capacity (MW)	BTM PV Generation (GWh)	GHG Benchmark (MMT)
2028	2,332	[redacted]	231	339	
2030	2,608		245	358	0.210
2035	3,486		299	434	0.180
2040	4,192		341	483	0.164
2045	4,662		382	530	0.088

b. Methodology

i. Modeling Tool(s)

SCPA used Resilient Transition's *Raven* power portfolio optimization platform in developing its IRP. Like *RESOLVE*, *Raven* develops an optimal portfolio of resources based on inputs on resource characteristics, compliance needs, and constraints. A key differentiator with *Raven* is that it is not just a deterministic tool but allows uncertainty to be characterized and used to inform the tool's optimization decision. For SCPA's IRP, both load uncertainty and market uncertainty have been characterized and used to identify near-term resource decisions (through 2032) that are robust across a range of 21 future scenarios (3 load scenarios x 7 market scenarios).

SCPA sources the seven market scenarios used in *Raven* from two third-party providers: Aurora Energy Research and Ascend Analytics. Six Aurora Energy Research scenarios are from their Q1 2026 CAISO release, and represent different trajectories for statewide load growth, commodity prices, technology costs, and climate policy. The seventh scenario is from Ascend Analytics' CAISO v5.3 release from February 2026 and represents Ascend's long-term forecast for market dynamics. These market scenarios provide *Raven* with coupled assumptions on hourly hub pricing and annual forecasts for market pricing for RA (both firm and battery storage) and RPS. SCPA sources nodal basis from Aurora Energy Research's Q1 2026 CAISO release as well, which benefits from a methodical approach to not only representing current market dynamics but also characterizing the expected impact from localized resource development and expected transmission upgrades.

SCPA sees its utilization of seven market scenarios and *Raven* as a significant step forward from its 2022 IRP. Although SCPA's 2022 IRP benefited from the use of stochastics, the uncertainty SCPA modeled was limited to short-term weather and commodity variability. Short-term weather and commodity variability are important for stress-testing reliability and informing operational market decisions but is not the main driver in assessing the value and risk of long-term contracts that are the focus of SCPA's IRP. SCPA's focus on utilizing datasets that characterize more macro-level market uncertainties and *Raven* provides SCPA with confidence that its near-term decisions are robust to uncertainty.

RESOLVE and *SERVM* model the performance of CAISO as a whole and select a resource portfolio and transmission upgrades that deliver reliability and GHG reductions at the lowest cost, for a deterministic set of assumptions. In SCPA's IRP analysis, the CAISO supply stack is instead based on the capacity expansion modeling performed by expert staff at Aurora Energy Research[3] and Ascend Analytics. *Raven* is then used to model the performance of candidate SCPA portfolios by evaluating market revenues, wholesale power costs, and short-term contracting needs. SCPA is continuing to build internal capacity to model CAISO as a whole to inform advocacy but settled on this approach to better reflect considerations for its own portfolio.

Another important distinction between SCPA's IRP modeling and *RESOLVE / SERVM* is that SCPA's modeling reflects a slice-of-day approach to characterizing RA needs, rather than taking an ELCC approach. Although SCPA's submitted preferred portfolio, as represented in the RDT, provides sufficient capacity from an ELCC approach, the optimization process is based on slice-of-day accounting. It's important that SCPA selects a portfolio that is optimized to slice-of-day, because it better reflects the cost impacts of different resource portfolios. However, because of its structure, slice-of-day is likely to understate the reliability

[3] Although SCPA optimizes its portfolio selection across seven future scenarios, one of Aurora Energy Research's scenarios is built to be reflective of the supply stack in the IRP.

contribution of storage (especially longer-duration storage) and wind (due to low exceedance factors) and overstate the reliability contribution of solar compared to the ELCC approach.

It's also important to consider how *Raven's* decision-making under uncertainty capabilities differ from the deterministic approach represented in *RESOLVE / SERVM*. Whereas *RESOLVE / SERVM* assumes perfect foresight of load growth and market conditions (resource costs, commodity prices, resource availability, and policy), *Raven* optimizes near-term resource decisions (through 2032) across the range of uncertainty in load and market conditions. Whereas *RESOLVE/SERVM* may decide to build resources aggressively to meet the load forecast, SCPA's IRP is careful not to over-procure long-term contracts, in case load growth and favorable market conditions do not materialize. In other situations, *Raven* will seek to proactively procure resources beyond what might be selected in a deterministic optimization. This is the case with solar, which has a short window where tax credit availability provides a cost-effective opportunity for procurement that the model does not have access to later. The model selects significant amounts of that resource even if load growth is low, because it is an important source of value and risk reduction for higher load growth scenarios. SCPA will continue to advocate for a similar approach to statewide planning – where proactive opportunities such as transmission expansion may make sense, but resource procurement that is only needed for high load growth may make sense to delay until more information is available.

ii. Modeling Approach

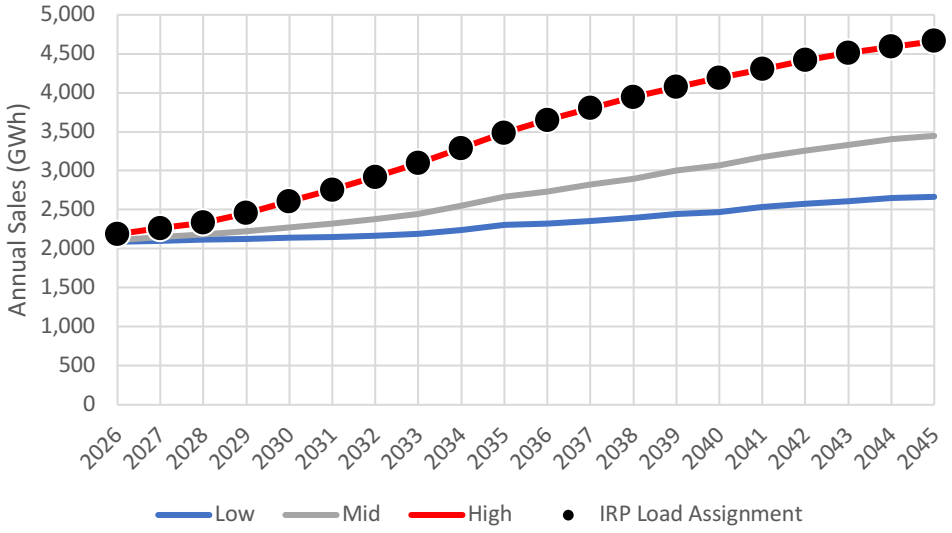
SCPA's modeling approach for selecting the preferred portfolio was designed to evaluate trade-offs between cost, environmental performance, risk, and resource location while ensuring compliance with SCPA's obligations as an LSE. Although many different candidate portfolios were evaluated, SCPA discusses three candidate portfolios below in detail to demonstrate the trade-offs that were evaluated in selecting a single preferred portfolio. Additionally, SCPA describes any steps taken to ensure the modeled preferred portfolio meets the CPUC's requirements for a conforming IRP portfolio.

1. Load Forecast & Market Assumptions

Although SCPA's preferred portfolio uses a load forecast that matches SCPA's assigned load, the model used to select a preferred portfolio optimizes near-term procurement decisions (through 2032) across three projected load scenarios. SCPA's "High" load forecast scenario exactly matches SCPA's load assignment for the IRP and includes both its share of statewide electrification and a share of data center growth. SCPA sees this as a likely unrealistic upper bound on its load, given it does not expect its territory to be attractive to significant data center growth. This view is confirmed by conversations with local planning officials and by reviewing PG&E large load interconnection applications, which have demonstrated no data center development activity to date.

SCPA's "Mid" load forecast represents its internal "best guess" of load growth by projecting customer transactions, mapping statewide trends for electrification and BTM using territory-specific data, and using a weather-normalized model on a forecast that includes the expected impacts of climate change. SCPA's "Low" load forecast assumes that electrification modifiers happen at half their projected pace as the "Mid" scenario.

Figure 1. SCPA Load Forecasting Scenarios vs. IRP Load Assignment



As discussed above, SCPA's preferred portfolio is the output of an optimization tested against seven market scenarios. Each market scenario provides an estimate of portfolio costs by netting expected resource revenues, as calculated by hourly hub and monthly nodal price forecasts against load cost, contract costs, and short-term procurement costs. Each market scenario has its own scenario-specific forecast for the short-term procurement cost of RA (firm and battery storage), RPS, and carbon-free energy. If the model has insufficient RA, RPS, or carbon-free energy from its contracted fleet to meet compliance or voluntary targets, the costs of short-term purchases are captured. In evaluating portfolio performance, SCPA looks at both minimizing the expected value and "worst case" unit portfolio costs across all 21 tested scenarios.

2. Candidate Resources

Estimates for resource availability and pricing inputs were developed by a cross-discipline team at SCPA. The starting point for SCPA's resource assumptions were the 2026-2027 TPP RESOLVE inputs, which reflected the impacts of the One Big Beautiful Bill Act (OBBA) and tariffs better than the LSE filing RESOLVE case. Specifically, SCPA used the nominal Power Purchase Agreement (PPA) cost estimates by technology from RECOST Vintage 2025Q3v1 (CPUC Vintage 2026-27 TPP). Adjustments to the 2026-27 TPP data were then made by SCPA staff to better reflect observed market conditions are discussed in section iii below. An

inventory of the different candidate resources considered in SCPA's portfolio development, along with brief modeling notes, is shown in Table 2 below.

Table 2. Candidate Resources Evaluated in SCPA IRP Portfolio Development

Tech	Location	Modeling Notes
Solar	Central Valley Solar + Storage	Large-scale (100+ MW) development with 1:1 ratio of solar to storage, available in 2030
	Local Solar + Storage	Smaller-scale (~10 MW) development with 1:1 ratio of solar to storage and local development cost premium, slow ramp-up build constraint
Wind	Baja California Wind	Energy-only (due to Cluster 15 status) with winter-peaking profile; 50 MW available in 2030
	SoCal Wind	Identified opportunities to recontract vintage wind (likely high degradation rate)
	NorCal Wind	Identified opportunities to recontract vintage wind incremental repowering opportunities
	[redacted]	75 MW available in 2032, new transmission built to directly connect to CAISO by 2035 allowing 200 MW, winter-peaking profile
	New Mexico Wind	SunZia profile and evaluate both with RA (subject to import constraint) and energy-only, available in 2035
	Wyoming Wind	Wyoming-specific profile, evaluate both with RA and energy-only, SoCal intertie (SP15)
	Offshore Wind	Humboldt profile
Geothermal	NorCal Geothermal	Seasonal binary profile, includes known 2030 opportunity and 2031+ scale-up, both in CAISO, EGS price competitive with conv.
	Nevada Geothermal	Seasonal binary profile, subject to import constraint, EGS price competitive with conv., SoCal intertie (SP15), available in 2032
Biogas	Local Biogas	Limited up to 8 MW baseload opportunity in 2027
Storage	4-hr Li-on	85% round-trip efficiency, Central Valley
	6-hr Li-on	85% round-trip efficiency, Central Valley
	8-hr Li-on	85% round-trip efficiency, Central Valley
	12-hr Pumped Hydro	60% round-trip efficiency, NorCal
	100-hr Iron-air	45% round-trip efficiency, NorCal
	Methanol Seasonal Storage	240-hour duration, 35% round-trip efficiency
Load Flexibility	SCP Rewards Demand Response	Strategic goal of growing to 20 MW by 2035; modeled as event-based demand response
	Daily Load Shift	Strategic goal of growing to 400 MWh of daily load shift per day

Unless stated otherwise in Table 2, SCPA did not allow any construction of candidate resources until 2030. This is due to the current supply chain, competitive demand, and transmission constraints SCPA is encountering in soliciting new resources in the current market. SCPA's preferred portfolio does include several new development projects that are under contract. Unlike the candidate resources in Table 2, candidate portfolios are required to include these resources in all output portfolios. Those resources include:

- **Fish Lake Geothermal:** 1.96 MW of a 16.8 MW geothermal project procured by California Community Power (CC Power) in Nevada with a COD in 2027.
- **Dogwood Geothermal:** 2.8 MW of a 25 MW geothermal project procured by CC Power in Imperial Irrigation District (IID) with a COD in 2027.

[redacted]

- **Ukiah Superfund Solar + Storage:** A 1.5 MW solar paired with storage project being developed directly by SCP with an expected COD in 2030.

SCPA's modeling also assumed current contracts with existing resources were retained. As with new resources, *Raven* enabled precise modeling of generation profiles and market revenues based on location. SCPA also accounted for carbon-free power from its share of PG&E's hydropower fleet through the modeling period and the Diablo Canyon nuclear power plant through 2030 in evaluating internal emissions performance, although Diablo Canyon was excluded from its evaluation of emissions and reliability performance in the CSP and RDT.

3. Portfolio Optimization & Constraints

Portfolio optimization for SCPA's 2026 IRP is performed using *Raven's* robust optimization capability. As described in the *Objectives* section above, *Raven* evaluates two stages of portfolio decisions: a set of decisions requiring near-term action (by 2032) that are stress-tested against a range of uncertainty, and a second stage of decisions after 2032 that are dependent on realized market conditions and load growth. The portfolios are optimized to deliver the least discounted unit supply cost with equal weighting for the expected value and worst-case outcome. In representing second stage decisions for the IRP, SCPA is showing the expected portfolio for middle-of-the-road market conditions and the "High" load growth represented in Figure 1. Importantly, while the second stage decisions are expected to change based on actual market conditions and load growth, the first stage decisions are optimized across all evaluated futures.

In developing optimized portfolios in *Raven* the following constraints are enforced in all candidate portfolios:

- **Annual Energy Constraint:** The total supply of energy in candidate portfolios is capped at 120% of SCPA's load (this does not include spot purchases). SCPA enforces this constraint to avoid representing a speculative position that would be misaligned with its role to procure energy appropriately sized to meet its load.

- **Slice-of-Day Resource Adequacy Constraint:** Although the reliability of SCPA's portfolio in the RDT is evaluated using the CPUC-provided ELCCs, SCPA's portfolio evaluation was based on slice-of-day accounting. SCPA developed a heuristic for representing slice-of-day by developing both "firm" and "shaping" contributions. Portfolios were required to meet SCPA's slice-of-day obligation with supply resources or supplemental short-term firm or battery RA.

- **RPS Constraint:** The selected supply resources were required to provide sufficient RPS to comply with SCPA's annual RPS obligation or be supplemented by short-term RPS.

- **SB 100 Constraint:** Starting in 2035, selected supply resources were required to provide sufficient renewable or carbon-free energy to server 90% of retailsales, increasing to 100% by 2045 or supplemented by short-term carbon-free energy.

- **Import Constraint:** Import resources contributing to SCPA's resource adequacy needs are capped at 75% of SCPA's allocated maximum import capability, which is forecasted based on its 2026 allocation scaling with expected increases in California's imports. SCPA uses a 75% constraint to align with the CAISO's limit to the amount of capacity that can be reserved for long-term contracts.

- **Short-term Contract Availability Constraint:** The ability of the model to rely on short-term contracts for RA, RPS, and carbon-free energy were capped based on SCPA's historic experience in procuring short-term products.

4. Hourly Marginal Carbon Emissions

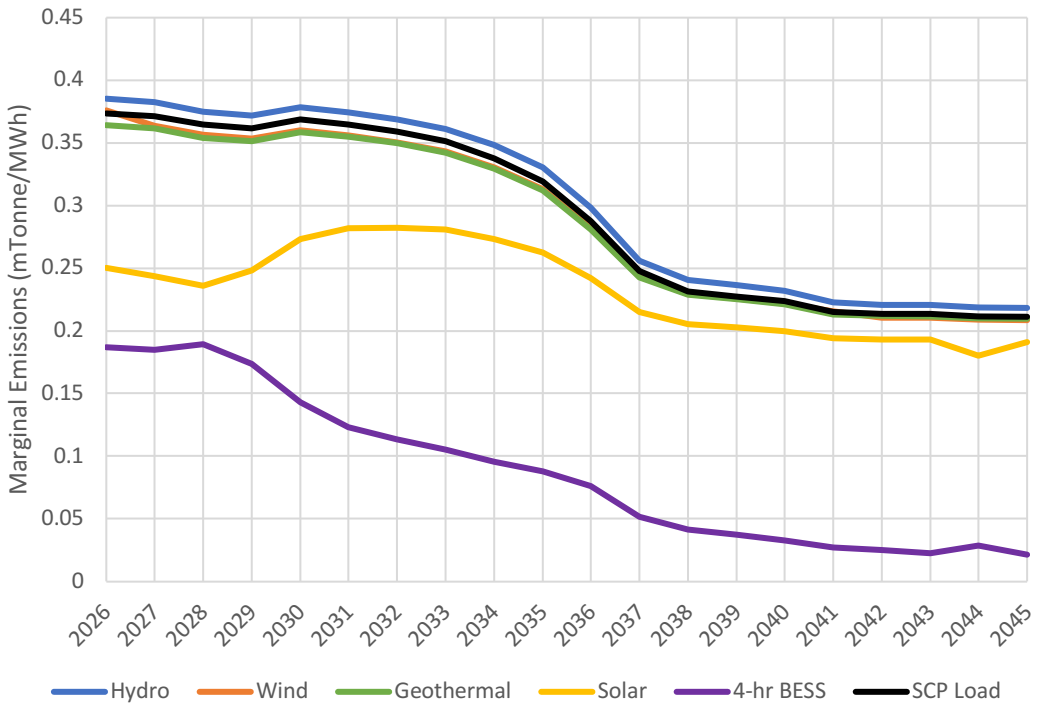
SCPA evaluates the environmental performance of candidate portfolios using hourly marginal emissions. SCPA introduced this approach in its 2022 IRP to better reflect the ability of different resource types to displace natural gas capacity. SCPA's approach to using hourly marginal emissions is well aligned with the mechanics of the CPUC's CSP Calculator.

SCPA forecasts a marginal emissions rate by calibrating a long-term hourly forecast from Ascend Analytics to actual calculations from the California Self Generation Incentive Program

(SGIP) marginal emissions signal provided by WattTime[4]. The marginal emissions rate is applied to the hourly generation profile of candidate resources to determine annual tonnes of carbon mitigation. Figure 2 below demonstrates the carbon mitigation capability of different generation technologies compared to SCPA's load. Whereas a MWh of geothermal, wind, and hydro are fairly effective at offsetting marginal emissions for each MWh of load, solar needs more than a 1:1 MWh of generation to MWh of load ratio to meet SCPA's hourly emissions target. Also, unlike annual RPS accounting, an hourly emissions calculation recognizes emissions benefits from battery storage.

SCPA totals the annual carbon mitigation performance of resources in candidate portfolios and normalizes the result against a marginal emissions calculation for its load. As discussed below, SCPA's more ambitious candidate portfolios for climate performance included an objective of achieving annual carbon mitigation equivalent to 100% of the marginal emissions of SCPA's load.

Figure 2. Hourly Marginal Carbon Emissions Mitigated by Supply Technology vs. Load Emissions Incurred per MWh



5. *Portfolio Alternatives & Preferred Portfolio Selection*

SCPA evaluated three portfolio alternatives before selecting the scenario to submit as its preferred portfolio for the 2026 IRP. SCPA started by creating a "compliance" portfolio optimized for unit supply cost constrained by only the universal constraints listed in Section 3

[4] See https://content.sgipsignal.com/

above. SCPA then layered on hourly marginal emissions constraints followed by local preference constraints. This approach enabled SCPA to sequentially evaluate the cost and benefits of both climate and local focus goals for its portfolio. Table 3 below summarizes the configuration of the three portfolio alternatives. Ultimately, SCPA's Board approved selection of the portfolio that includes both hourly emissions and local preference constraints as its preferred portfolio after considering the analysis results and trade-offs described below.

Table 3. Configuration of SCPA Portfolio Alternatives Considered for Preferred Portfolio

Portfolio Alternative	**Compliance Constraints**	**Marginal Emissions Constraints**	**Local Preference Constraints**
Compliance	• Annual Energy Constraint • Slice-of-Day Resource Adequacy Constraint • RPS Constraint • SB 100 Constraint • Import Constraint • Short-term Contract Availability Constraint	None	None
100% Hourly Emissions		Supply portfolio provides sufficient hourly marginal emissions mitigation to offset 100% marginal emissions of SCPA load	
100% Hourly Emissions + Local Preference **(Preferred)**			100 MW minimum of in-territory solar + storage by 2040, 8 MW of biogas, and no new uncontracted import resources

SCPA leveraged *Raven's* robust optimization capabilities in evaluating all three portfolio alternatives. Accordingly, *Raven* selected a set of robust resource build decisions in the near-term planning stage (defined as by 2032) that minimize SCPA's unit supply cost across 21 future scenarios. Table 4 compares the robust resource build decisions between the 3 alternatives. Whereas the compliance portfolio relies solely on Central Valley Solar + Storage, the 100% hourly emissions and 100% hourly emission + local preference portfolio also select wind resources to more cost-effectively meet SCPA's emissions target. In the local portfolio, local geothermal, biogas, and local solar and storage are also selected.

The resource selection in *Raven* past 2032 is allowed to be re-optimized to match the given load and market conditions for each future scenario. Accordingly, each portfolio alternative has 21 different sets of resource build decisions between 2033 and 2045. Below are several important observations in reviewing themes across those 21 future scenarios and 3 portfolio alternatives:

Table 4. Robust Resource Build Decisions (by 2032) for SCPA Portfolio Alternatives

Portfolio Alternative	Solar Resources	Wind Resources	Local Resources
Compliance	180 MW Central Valley Solar + Storage	None	None
100% Hourly Emissions	160 MW Central Valley Solar + Storage	• 50 MW Baja CA Wind • 90 MW NorCal Wind • 65 MW SoCal Wind	
100% Hourly Emissions + Local Preference **(Preferred)**	130 MW Central Valley Solar + Storage	• 50 MW Baja CA Wind • 90 MW NorCal Wind • 65 MW SoCal Wind	• 5.4 MW NorCal Geothermal • 8 MW Local Biogas • 10 MW Local Solar + Storage

- [redacted] **Consistently Maxed-out:** Across all 3 portfolio alternatives and nearly all future scenarios, [redacted] is consistently selected near its total potential in the model. [redacted] ability to deliver power to Northern California and contribute slice-of-day winter resource adequacy are identified as valuable.

- **Geothermal Need Scales with Load:** SCPA sees a modest 20 MW need for geothermal in the low load growth scenario across all 3 portfolios, but observed geothermal to be the main flexing resource as load grows: with as much as 280 MW in high load growth scenarios. This is because there are few other options for the model to provide winter resource adequacy as SCPA's load grows. In the two portfolio alternatives without local preference constraints, the model also selects additional Baja California and New Mexico wind to meet increased load.

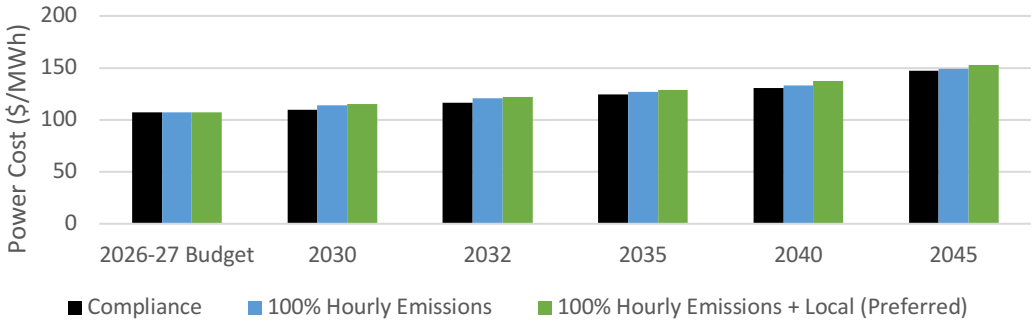
- **Limited Solar:** Only 1 of the 7 market scenarios SCPA evaluated identified a large solar and storage scale-up as cost-effective in meeting SCPA's portfolio needs. Otherwise, *Raven* was largely satisfied with the solar capacity selected in its robust build decision, plus a modest amount to backfill expiration of SCPA's existing solar contracts.

In the two portfolios with an hourly emissions mitigation target, SCPA enforced the 100% requirement through the entire modeling period. Across most future scenarios, SCPA cannot meet this target in the near-term through its long-term resource fleet alone. This is because of the resource availability constraints calibrated in the model which reflect the realistic timing for SCPA's ability to contract new resources. Accordingly, the model procures short-term hydropower to meet the 100% hourly target. The model incorporates the cost of short-term hydropower procurement in its optimization. Importantly, while SCPA includes short-term hydropower procurement in the optimization model, this does not imply SCPA procures short-term hydropower in practice. This is reflected in SCPA's RDT and CSP, which does not

include any short-term hydropower unless that power is required to meet compliance or emissions targets. This approach is similar to the concept of applying a social cost of carbon—effectively weighting decisions with their expected emissions impact. SCPA's Board approved this strategy given concerns that short-term hydropower procurement may not have as direct climate benefits as it has in the past[5]. Foregoing short-term hydropower procurement also frees up financial resources that SCPA can use to both improve affordability of SCPA's service and strategically invest in opportunities that directly support development of SCPA's long-term portfolio. This strategy was just approved in June 2026, and diverges from SCPA's past practice of buying short-term hydropower to meet voluntary targets.

A key criterion in evaluating portfolio alternatives was cost. Figure 3 compares the average nominal unit cost (across all 21 future scenarios) for the three portfolio alternatives. Although the optimization model assessed the cost of short-term hydropower procurement, the costs shown in Figure 3 reflect SCPA's strategy of foregoing short-term procurement unless required for compliance. SCPA forecasts power costs will increase in nominal terms across all three scenarios, but at a rate that is lower than inflation. Due to the additional constraints, the preferred portfolio results in a cost premium. Whereas the compliance alternative has an average cost of $123.60/MWh across the 2026-2045 modeling horizon, the preferred portfolio with 100% hourly emissions mitigations and local constraints costs $128.20/MWh (3.7% more). The highest single year cost premium occurs in 2040, when the preferred portfolio has an additional cost of around $7/MWh. By 2045, the preferred portfolio is estimated to increase power costs to $153.50/MWh, which reflects a 1.9% per year average escalation rate. In evaluating tradeoffs with the Board, SCPA determined the cost premium of the preferred portfolio was manageable given the potential benefits of a portfolio that both targets natural gas retirement and prioritizes local development. Additionally, SCPA has identified advocacy priorities that will seek to monetize the larger system benefits of the preferred portfolio such as its reduced dependency on transmission infrastructure.

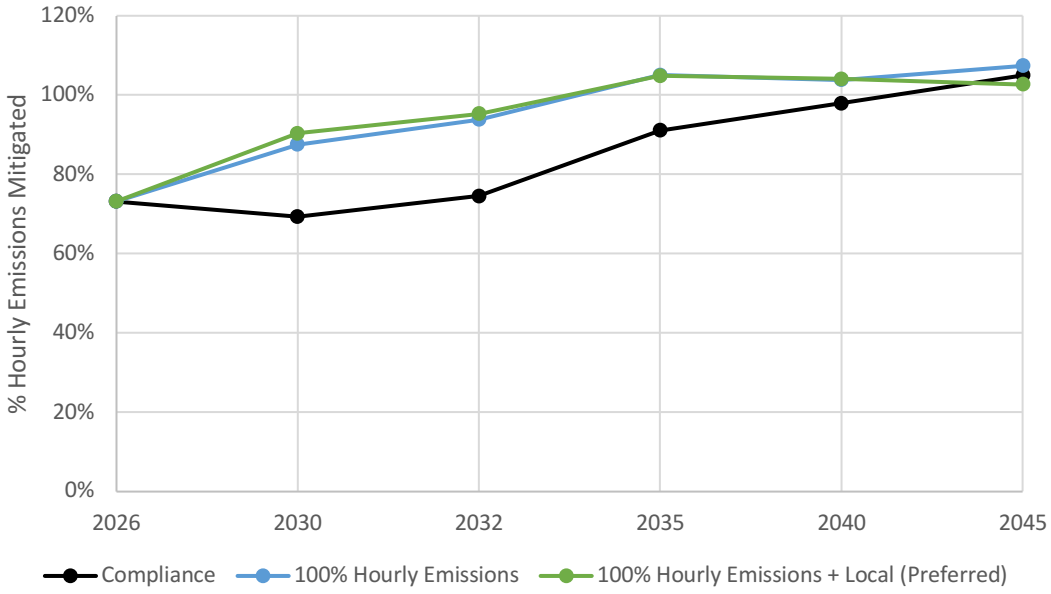
Figure 3. Average Unit Supply Cost ($/MWh) for SCPA Portfolio Alternatives (Nominal)



[5] In the existing energy market, SCPA in increasingly seeing supply-side constraints, such as interconnection capacity, limiting clean energy development rather than lack of demand.

Figure 4 compares the hourly emissions mitigation performance (across all 21 future scenarios) for the three portfolio alternatives. The performance does not include the short-term hydropower procurement that the optimization model uses to assess the cost and benefit of varying emissions performance. Both the 100% hourly emissions alternative and the preferred alternative exceed the target of 100% mitigation by 2034 without short-term procurement, whereas the compliance alternative does not achieve that target until 2043. Emissions mitigation in the near-term is below 100% for two primary reasons: 1) near-term resource availability is limited and 2) under robust optimization, the model avoids overcommitting contracted capacity until SCPA's load uncertainty is resolved after 2032. Even with these limitations, the near-term climate benefit of the preferred portfolio is substantial: in 2032, the preferred portfolio is estimated to emit over 193,000 less tonnes CO2e and 51 tonnes NOx less than the compliance alternative. That's the carbon emissions equivalent to removing over 40,000 gasoline vehicles from the road and the NOx equivalent of eliminating 20,000 vehicles of pollution concentrated at a single point source. The climate and pollution benefits of the preferred portfolio were important in the SCPA Board's final portfolio selection.

Figure 4. Average Hourly Emissions Mitigation for SCPA Portfolio Alternatives



iii. Alternative Assumptions

As described above, SCPA's starting point for cost assumptions in its 2026 IRP was the 2026-2027 TPP RESOLVE inputs. The 2026-2027 RESOLVE inputs reflected the impacts of the One Big Beautiful Bill Act (OBBA) and tariffs better than the LSE filing RESOLVE case. Although these assumptions largely align with SCPA's experience, the following additional adjustments were made from the CPUC's assumptions to better reflect current market conditions:

- **Wind Scarcity:** There is limited onshore wind development, especially in-state. SCPA added an 8% cost premium to the RESOLVE cost assumptions for in-state and out-of-sate wind calibrated to observed market conditions to reflect market scarcity and improve alignment with observed market pricing. SCPA added an additional premium for Wyoming to better reflect observed market pricing.

- **Solar Scalability:** SCPA is seeing significant efficiencies in the gigawatt-scale solar projects under development in the Central Valley for Cluster 15 and beyond. SCPA has applied a 16% discount on the RESOLVE cost assumptions for solar to improve alignment with its modeling and pricing that has been observed for these large-scale projects in the market.

- **Geothermal Next-gen:** Given its comparable performance characteristics, SCPA is seeing next-generation geothermal resources having to compete on costs with conventional geothermal. Even with the demand induced by the CPUC's procurement orders and data centers, the 2026-2027 cost assumptions for conventional geothermal are reflective of what SCPA is seeing for both conventional and next-gen technologies.

- **Local Premium:** The RESOLVE cost assumptions do not reflect the smaller scale and higher cost of development in SCPA's territory. Accordingly, a 20% premium is applied to RESOLVE's PG&E North of Greater Bay Area cost forecast in SCPA's modeling for local solar and storage development. This premium is calibrated based on SCPA's market experience and is an important factor in determining the additional cost of the preferred portfolio with a local build preference.

SCPA also takes care to calibrate its assumptions on resource availability. Assuming the CPUC's statewide capacity assumption is available for SCPA to procure is too generous; but conversely assuming resource availability is capped at SCPA's load share is too conservative. Information on resource availability assumptions is included in Table 2. At a higher-level, SCPA has accordingly taken the following approach to capping resource availability in its modeling:

- **Near-term Certainty:** SCPA's estimate of resource availability through 2032 is based on resources which it has a high degree of confidence in based on project-specific commercial discussions.

- **Strategic Support:** SCPA assumes it can secure an outsized share of capacity (compared to its load share) for resources it strategically supports through advocacy and early commercial support, such as SCPA's GeoZone initiative. Given its similar strategic need for the portfolio, SCPA plans to take similar steps to support [redacted]

- **Import Limitations:** As described in Section 3 above, SCPA applies an import constraint to its portfolio to reflect the expected availability of MIC. This limitation, in addition to the local preference in SCPA's preferred portfolio, lead to less out-of-state development than its load share of the preferred portfolio.

In evaluating market revenues and slice-of-day resource adequacy contribution, SCPA used its own hourly generation forecasts. These forecasts were either derived from nearby resources already in SCPA's fleet or developer-provided forecasts based on project-specific modeling. In general, these align well with the resource profiles used in the CSP. One key distinction is that both Baja California wind and [redacted] have winter-peaking profiles that aren't represented in the more generalized CSP CAISO forecasts. Reflecting the winter-peaking capability of these resources is very important in SCPA's modeling, given one of the key challenges in future portfolio needs is serving winter energy and capacity needs that cannot be easily met with solar and storage.

The alternative assumptions described above enabled SCPA to model candidate portfolios that are realistic and deliver the resource diversity needed to support California's climate goals. By relying on multiple resource types, SCPA's portfolios both include resources that provide complimentary benefits for grid operations and avoid over-dependency on a single resource type.

III. Study Results

a. Conforming and Alternative Portfolios

SCPA is submitting a single conforming portfolio that outperforms its assigned GHG target and demonstrates reliability in the RDT. This portfolio was selected after completing an internal evaluation of three optimized portfolio alternatives described in Section II. Specifically, SCPA is submitting a conforming portfolio that is optimized with a 100% hourly emissions target and a preference for local resource development. This portfolio meets compliance requirements, achieves 100% hourly marginal emissions mitigation with only long-term contracts by the mid-2030s, does not rely on future contracting with import resources, and maintains affordable bills for SCPA customers.

i. Existing Resources Under Contract

Since starting service in 2014, SCPA has provided a diverse set of resources to serve its load and meet SCPA's objectives for de-carbonization. The submitted preferred portfolio contains the existing resources that are under PPA or Energy Storage Services Agreement (ESSA) contract described in Table 5 below.

Table 5. Existing Resources Under PPA or ESSA in SCPA Conforming Portfolio

Name	Resource Type	Nameplate	Contract End Year
Geysers	Geothermal	20 MW	2036
Mustang Solar	Solar PV	70 MW	2036
Golden Hills Wind	Wind	46 MW	2037
Lavio Solar	Solar PV	1 MW	2038
Stage Gulch Solar	Solar PV	1 MW	2038
Cloverdale Solar	Solar PV	1 MW	2039
IP Malbec Solar	Solar PV	1 MW	2039
Bodega West Solar	Solar PV	1 MW	2040
Petaluma East Solar	Solar PV	1 MW	2040
Mustang Storage (RA-Only)	4-hr Li-on (RA Only)	75 MW	2031
Proxima Solar	Solar PV	70 MW	2044
Proxima Storage	Battery Storage	32 MW	2044
Sagebrush Storage	Battery Storage	59 MW	2039
Azalea Solar	Solar PV	60 MW	2035
Azalea Storage	4-hr Li-on	38 MW	2035
POME Storage	4-hr Li-on	100 MW	2035
Tumbleweed Storage	8-hr Li-on	9.7 MW	2041
Forks of Butte	Small Hydro	14 MW	2033
Redemeyer Solar	Solar PV	4 MW	2046
Redemeyer Storage	4-hr Li-on	4 MW	2046
Montgomery Creek	Small Hydro	2.6 MW	2035
SunZia	Wind	125 MW	2041

SCPA also executes contracts with existing resources to provide resource adequacy, and renewable or carbon-free energy to meet SCPA environmental objectives. The RDT includes these additional contracts for the conforming portfolio that are in the scope of this filing:

- Various multi-year RA-only purchase contracts from existing gas capacity to meet RA obligations through 2031
- Short-term carbon-free purchase contracts from existing hydropower resources through 2027
- Various multi-year RA-only sale contracts from SCPA's battery storage fleet to monetize excess slice-of-day and procurement order compliance capacity
- A long-term swap of firm RA for 8-hour storage RA from a mid-term reliability (MTR) LLT-eligible resource to meet SCPA's compliance needs
- Various short-term RA purchase and sale contracts to optimize SCPA's compliance position for meeting RA

ii. Existing Resources Identified for Future Contracting

SCPA's conforming portfolio also includes existing resources that are not yet under contract. Those resources include:

- Expected in-state hydro generation from SCPA's GHG-free Power Charge Indifference Adjustment (PCIA) allocation
- Capacity from CAM and Central Procurement Entity (CPE) allocations as part of the annual resource adequacy process from existing peaker units, batteries, and combined cycle units



- Short-term carbon-free purchases from existing hydropower resources between 2030 and 2032 and from 2041 to 2045 to meet SCPA's emissions target (note: these would be much more limited if Diablo Canyon is extended and allowed to count in IRP).
- Short-term 24/7 RA, likely to be sourced from existing gas capacity, needed to meet SCPA's RA compliance in 2031 through 2034.
- Short-term battery RA from 2040 through 2045, likely to be sourced from battery storage capacity rolling-off initial contract terms, needed to fulfill SCPA's reliability contributions in 2040 through 2045; could also be met with available generation resources.
- Re-contracting of existing renewable resources, including solar, wind, biogas, and small hydropower in 2040 and 2041 to replace SCPA PPAs that are rolling-off their initial terms.

iii. New Resources

The new resources included in SCPA's conforming portfolio are either specific projects SCPA has contracted for but not yet built, currently pursuing, or were selected based on supply cost optimization with the environmental, risk, reliability and local preference constraints of the preferred portfolio alternative. SCPA considered all candidate resources described in Table 2 of the Methodology section of this narrative. Table 7 below provides a comprehensive inventory of all new resources in SCPA's conforming portfolio, ordered by expected COD. SCPA has a significant number of projects under negotiation that are redacted related to early commercial relationships through its geothermal partnerships, Cluster 15 exclusivity arrangements, and other opportunities. As discussed in section II(b), resources with online dates through 2032 represent robust decisions that SCPA expects to procure regardless of future load growth and market conditions. Resources with online dates after 2032 are reflective of SCPA's need in a "high" growth scenario that matches its IRP load assignment and

middle-of-the-road market conditions. Should SCPA's load diverge from its "high" forecast or market conditions change, SCPA's procurement needs and preferences will adapt.

Table 6. New Resources in SCPA's Conforming Portfolio

Name	Status	Resource Type	Contracted Nameplate	COD
SCP Rewards	Developing SCPA Program	Demand Response	7.5 MW by 2026; 20 MW by 2035	2026
Fish Lake	Under Contract	Geothermal	1.97 MW	2027
Dogwood	Under Contract	Geothermal	2.8 MW	2027
[redacted]				
Ukiah Superfund	Self-build (Site control secured)	Solar + Storage	1.5 MW	2030
[redacted]				
Local Self-build	Planned	Solar + Storage	8.5 MW	2032
[redacted]				
[redacted]	Planned	Wind	70 MW	2033
NorCal Geothermal	Planned	Geothermal	53.7 MW	2033
NorCal Wind Repower	Planned	Wind	40 MW	2034
Local Self-build	Planned	Solar + Storage	10 MW	2034
NorCal Geothermal	Planned	Geothermal	53.7 MW	2035
[redacted]	Planned	Wind	130 MW	2035
NorCal Geothermal	Planned	Geothermal	71.5 MW	2036
CAISO 8-hr Storage	Planned	8-hr Storage	230 MW	2036
Local Self-build	Planned	Solar + Storage	20 MW	2037
Central Valley Solar	Planned	Solar	100 MW	2038
NorCal Wind Repower	Planned	Wind	30 MW	2039
Local Self-build	Planned	Solar + Storage	60 MW	2039
Central Valley Solar	Planned	Solar	20 MW	2039
CAISO 8-hr Storage	Planned	8-hr Storage	50 MW	2041
CAISO 8-hr Storage	Planned	8-hr Storage	40 MW	2044
Central Valley Solar	Planned	Solar	20 MW	2045

SCPA's near-term priorities for new resource procurement for the preferred portfolio, as represented in Table 6, include:

- **Satisfying Clean Firm Mandate:** SCPA has fully satisfied its MTR obligations, outside the clean firm mandate. A key focus in SCPA's preferred portfolio is satisfying its remaining

obligation through geothermal resources that are under contract or negotiation by 2031.

- **Initiate Local Self-build:** SCPA has formed a Capital Projects team tasked with building SCPA-owned projects. SCPA's preferred portfolio includes the Ukiah Superfund project, which has site control secured and is entering the interconnection process. The preferred portfolio expands on the Ukiah Superfund site to deliver 100 MW of total local solar + storage capacity.

[redacted]

- **Large-scale Central Valley Solar:** SCPA is optimistic that the economies of scale with gigawatt-scale solar development in the Central Valley will provide important near-term contributions to SCPA's portfolio—especially if tax credits are secured. [redacted]

After satisfying near-term needs, SCPA's longer term priorities for new resource procurement for the preferred portfolio include:

- **Northern California Geothermal Scale-up:** SCPA's preferred portfolio includes over 220 MW of geothermal scale-up between 2033 and 2036. SCPA sees geothermal in Northern California, which is not subject to import constraints or Path 15/26 congestion, as especially valuable in fully decarbonizing SCPA's energy and reliability needs. SCPA is strategically working to establish early commercial relationships, proactively address regulatory bottlenecks, and leverage new technologies to unlock geothermal at this scale.

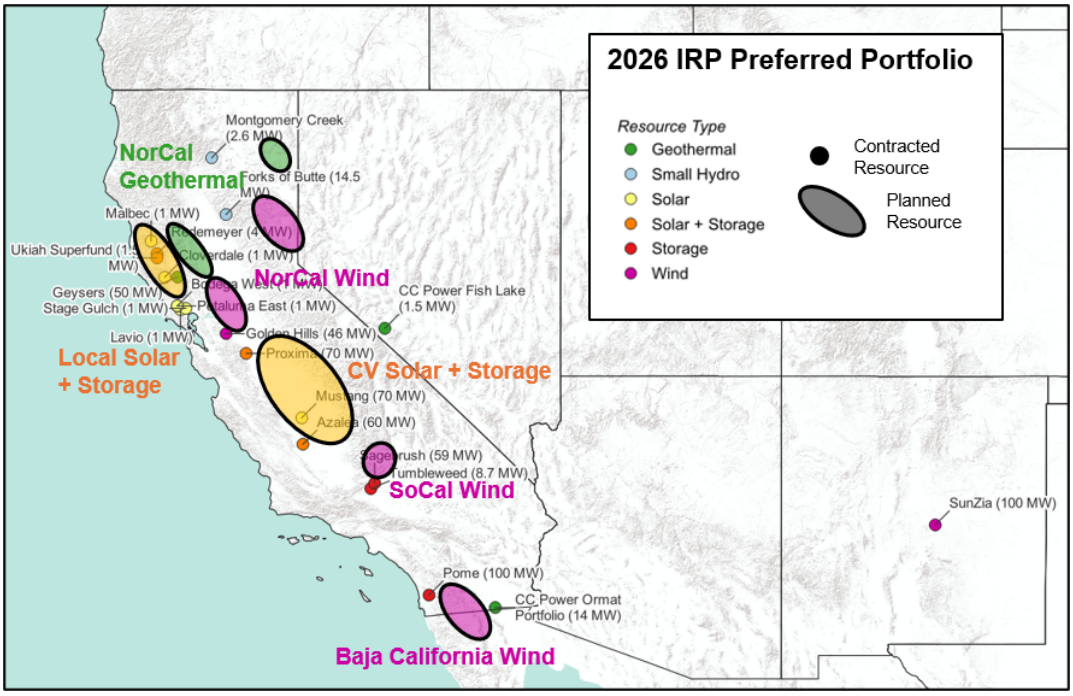
- [redacted] As with Northern California geothermal, [redacted] is valuable in SCPA's modeling given its winter-peaking profile and ability to deliver directly to California (assuming CAISO transmission is built). The preferred portfolio includes 70 MW in 2033 and 130 MW in 2035. SCPA has already prioritized advocacy for addressing transmission constraints for [redacted] and has had preliminary commercial conversations with developers.

- **8-hour Storage:** SCPA's modeling indicates that 8-hour duration storage will be more cost-effective to meet reliability and supply flexibility needs. SCPA's preferred portfolio includes new 8-hour storage that scales up after SCPA's existing 4-hour storage contracts roll-off. SCPA does not have near-term need for storage due to slice-of-day

account rules, which leave SCPA's fleet with capacity that is unable to charge and contribute RA in non-summer months.

A map of SCPA's 2026 preferred portfolio, including both new resources (indicated with ovals) and under contract resources (indicated with points) is included below as Figure 5.

Figure 5. Map of SCPA's Conforming Portfolio (contracted and planned resources)



iv. Comparison to 2025-2026 TPP Portfolio

Table 7 provides a comparison of cumulative new resource capacity build-out in SCPA's preferred portfolio relative to its load share of new resources in the 2025-2026 TPP portfolio. The table includes all resources online by 2024 and later. This table reflects the capacity SCPA expects to be built as a result of its long-term contracting (note: this table is cumulative not online, and some contracts may roll-off and be recontracted by others).

SCPA's portfolio, as represented in Table 7, shows significantly more emphasis on geothermal and in-state wind than the 2025-26 TPP—with resultantly less dependency on solar, 4-hour storage, and out-of-state wind. This is likely due to SCPA's approach to explicitly modeling hourly emissions constraints and slice-of-day resource adequacy. Clean firm resources, such as geothermal, and winter-peaking resources such as [redacted], prove more cost-effective at meeting SCPA's needs than solar and storage. The comparison in Table 7 also clearly demonstrates SCPA's proactive leadership in decarbonizing its portfolio – by 2035 it has built over 1,200 MW of new clean capacity, much greater than its 717 MW load share of the TPP.

Table 7. Comparison of Cumulative New Capacity (MW) by Technology vs. Load Share of 2025-2026 TPP

Year	2035		2040		2045	
Load Share of TPP	**1.14%**		**1.19%**		**1.26%**	
Resource Type	**TPP Load Share**	**SCPA IRP**	**TPP Load Share**	**SCP IRP**	**TPP Load Share**	**SCPA IRP**
Geothermal	18.3	171.9	19.1	243.4	20.1	243.4
Biomass	2.3	0.0	2.4	0.0	2.5	0.0
In-State Wind	90.3	290.0	94.3	320.0	113.1	320.0
Out-of-State Wind	102.8	125.0	127.8	125.0	197.3	125.0
Offshore Wind	51.4	0.0	53.7	0.0	56.6	0.0
Solar	226.2	257.5	536.2	457.5	776.8	477.5
Li-ion Battery (4 hr)	179.4	371.5	187.5	391.5	197.3	391.5
Li-ion Battery (8 hr)	32.0	9.7	143.3	299.7	265.2	389.7
Pumped Hydro	9.1	0.0	9.6	0.0	10.1	0.0
Other LDES	5.7	0.0	6.0	0.0	6.3	0.0
Demand Response	0.0	20.5	0.0	20.5	0.0	20.5
Total	**717.6**	**1246.1**	**1180.0**	**1857.6**	**1645.4**	**1967.6**

b. Preferred Conforming Portfolio

SCPA is submitting a single preferred conforming portfolio that outperforms its greenhouse gas emission benchmarks. In fact, SCPA's preferred portfolio achieves its 2045 emissions intensity target ten years early—by the year 2035. This is accomplished predominantly by new resources under long-term contracts and represents much less reliance on short-term carbon-free contracting compared to SCPA's historical resource procurement. SCPA's preferred portfolio also far exceeds the 60% minimum for RPS, with 72% by 2030 and over 100% by 2035 and similarly meets the state's requirements for RPS or carbon-free energy by 2035. In most years, SCPA's RPS compliance is completely met with long-term contracts.

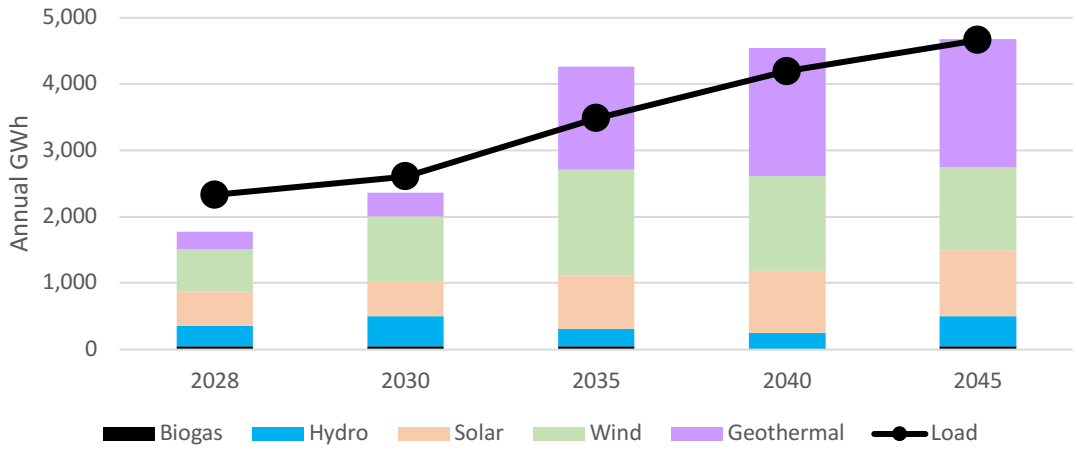
As described in Section II, the submitted portfolio is expected to carry a small cost premium relative to a portfolio focused solely on compliance (around 3.7%). However, that cost is not significant enough to inhibit electrification and does not fully capture the value of potential opportunities and risks mitigated in the selected portfolio. SCPA will pursue advocacy opportunities to monetize these benefits to minimize impacts on ratepayer bills.

The preceding section provides a detailed description of the resources in SCPA's preferred conforming portfolio. Figure 6 below provides an illustration of the generation mix in the preferred portfolio breakdown by resource type. Whereas SCPA's reliance on hydropower is relatively flat—reflecting the expected limited opportunity for growth—SCPA's portfolio sees a significant increase in power from both wind and geothermal resources. SCPA's portfolio also includes modest increases in generation from solar. SCPA's dependency on unspecified power, which is assumed to be natural gas and indicated by the gap between the supply stack and load, is eliminated by the year 2035. SCPA in fact shows an excess in clean energy generation relative to load, which is required on an annual basis to achieve SCPA's hourly emissions targets. A

similar graph breaking down capacity by technology through time is provided in the System Reliability Analysis section.

Section II provides detail on why the preferred portfolio SCPA submitted for its 2026 IRP is preferrable to alternatives considered in SCPA's internal modeling. SCPA believes selection of this portfolio is well aligned with the following statutory and administrative requirements:

Figure 6. Annual Generation by Resource Type in SCPA IRP Conforming Preferred Portfolio



- **Meets Emission Reduction Targets:** As described above, the preferred portfolio achieves its 2045 emissions rate by 2035 – ten years early. It maintains that low emissions rate through 2045 even with significant load growth, and does not rely significantly on short-term hydropower resources.

- **Meets 60% RPS and 65% Long-term Contracting:** The preferred portfolio far exceeds RPS requirements throughout the study period, and does so almost completely with long-term contracts.

- **Just and Reasonable Rates / Minimize Impacts on Bills:** SCPA's portfolio evaluation suggests that the preferred portfolio carries a 3.7% power cost premium versus a minimally compliant portfolio. Given SCPA represents only a quarter of customers' bills, that's less than a 1% premium on total customer bills. SCPA's analysis also shows that power supply costs escalate at less than expected inflation, and SCPA is also exploring advocacy opportunities to monetize system benefits from its portfolio to offset ratepayer costs. SCPA believes the preferred portfolio is sufficiently low in cost to enable electrification.

- **Ensure System & Local Reliability:** The preferred portfolio is built with system resource adequacy as a primary constraint and SCPA expects a decreased dependency on short-term resource adequacy in the preferred portfolio. The focus on building local capacity in the preferred portfolio will directly benefit local and system reliability. In order to

accomplish both objectives in parallel, SCPA will need to see transmission investments that provide deliverability in the local region.

- **Strengthen Diversity, Sustainability, and Resiliency:** SCPA's preferred portfolio replaces hydropower and unspecified power with geothermal, wind, solar, and storage resources that complement each other and create a more diverse and sustainable portfolio. Although the preferred portfolio focuses on local resources, SCPA's existing contract with SunZia, existing Southern California battery resources, and plan to procure wind in Southern California provide geographic diversity. SCPA's focus on building local resources, including the self-build projects and geothermal capacity, delivers the promise of providing direct economic and reliability benefits to SCPA customers.

- **Enhance Distribution Systems and Demand Side Management:** The preferred portfolio includes an objective to grow SCPA's existing demand response program to 20 MW by 2035. Although not represented in SCPA's RDT or CSP, the SCPA Board has adopted a daily load shift goal of 400 MWh as part of the IRP[6], which SCPA is seeking to support through behind-the-meter battery programs and workplace charging.

- **Minimize Localized Air Pollutants:** SCPA's preferred portfolio is specifically designed to accelerate the retirement of natural gas resources that contribute air pollution with a particular burden on disadvantaged communities. It does this by using an hourly marginal emissions factor target to identify resources that can effectively replace natural gas. Although dry steam geothermal resources in SCPA's portfolio have geologic emissions that can burden local communities, SCPA is working through its GeoZone initiative to build new resources in a closed-loop configuration with no operational emissions.

- **Maintain Resource Diversity:** SCPA is maintaining resource diversity in its preferred portfolio by re-contracting existing wind resources, supporting strategic initiatives like the GeoZone to scale geothermal capacity, and targeting procurement of wind with a winter-peaking profiles. SCPA does not plan on relying on the Department of Water Resources to meet its resource diversity needs.

SCPA achieves its strong performance in meeting its GHG targets early while also contributing reliability. Because SCPA's portfolio selection used slice-of-day resource adequacy as a constraint, SCPA's fleet includes resources that can meet capacity needs considering grid conditions every hour of every month. This requires both a large increase in clean firm capacity

[6] SCPA sees its load shift goal as necessary to support the amount of load flexibility already represented in the assigned hourly load shape, and accordingly did not report its goal as a discrete resource. However, SCPA sees direct support of load shifting as critical to delivering the assumed load shape profile.

and a focus on procurement of winter-peaking generation resources, such as [redacted] SCPA's preferred portfolio not only achieves slice-of-day capacity needs, but also demonstrates reliability through the RDT analysis described in the System Reliability Analysis section.

SCPA's preferred portfolio does not include new natural gas resources. In the RDT, SCPA represents short-term RA contracts with natural gas resources through 2034, at which point SCPA is able to meet its reliability requirements, as calculated by the RDT, with its clean resource fleet. In SCPA's portfolio modeling, it sees a likely need for additional natural gas capacity to meet slice-of-day RA requirements that is not represented in the summer-focused RDT reliability need calculations. SCPA's preferred portfolio is seeking to minimize that need to the extent possible with its large share of clean firm and winter-peaking resources.

Table 8 compares SCPA's 2026 preferred conforming portfolio against its 2022 IRP portfolio (25 MMT GHG target) for the year 2035. As with Table 7, the table compares cumulative new capacity built starting from the year 2024. SCPA's assigned 2035 load forecast for the 2026 IRP is 3,486 GWh, which is 42% higher than its 2022 IRP load forecast assignment of 2,458 GWh for the same year. SCPA's 2026 IRP meets this additional load through large increases in geothermal, in-state wind, and paired solar and storage capacity. The mix of technologies is very similar—with only 8-hour storage showing a decrease. SCPA's 2026 IRP does include 8-hour storage, but not until after 2035 when SCPA's 4-hour contracts roll-off and market conditions clearly support longer duration storage.

Table 8. Cumulative New Capacity (MW) by Technology Comparison in 2035: 2026 IRP vs. 2022 IRP

Resource Type	2026 SCPA IRP	2022 SCPA IRP	Delta
Geothermal	171.9	85.5	+86.3
Biomass	0.0	0.0	0.0
In-State Wind	290.0	150.0	+140.0
Out-of-State Wind	125.0	100.0	+25.0
Offshore Wind	0.0	0.0	0.0
Solar	257.5	161.6	+95.9
Li-ion Battery (4 hr)	371.5	263.5	+108.0
Li-ion Battery (8 hr)	9.7	47.6	-37.9
Pumped Hydro	0.0	0.0	0.0
Other LDES	0.0	0.0	0.0
Demand Response	20.5	10.0	+10.5
Total	**1246.1**	**818.2**	**+427.9**

c. GHG Emissions Results

The GHG emissions calculated by the CSP calculator for the preferred conforming portfolio are shown in Table 9 relative to SCPA's assigned benchmark. SCPA's preferred conforming portfolio is consistently lower than its assigned benchmark. Although SCPA uses its own load forecast and generation assumptions in modeling, the CSP calculations use the CPUC provided profiles to ensure consistency in weather normalization and battery dispatch calculations.

Table 9. GHG Emissions of 2026 Preferred Portfolio vs. Benchmark (Million Tonnes COe per Year)

Year	2026 SCPA IRP	8 MMT Benchmark	Delta
2030	0.205	0.210	**0.005 Below**
2035	0.031	0.180	**0.140 Below**
2040	0.024	0.164	**0.140 Below**
2045	0.087	0.088	**0.001 Below**

The preferred portfolio emissions are just below SCPA's benchmark in the year 2030. This is because SCPA's 2026 IRP reflects a strategy to achieve emissions directions through long-term PPAs rather than short-term hydropower purchases. The opportunities to achieve emissions reductions through PPAs by 2030 are limited due to interconnection capacity scarcity and SCPA's desire to make robust resource planning decisions that prioritize diverse resource procurement (adding additional scarcity). SCPA is in fact unable to meet its 2030 target through PPAs alone and has included 150 GWh of projected short-term hydropower procurement to meet the assigned target. Although SCPA's Board has adopted a strategy of phasing-out short-term hydropower procurement, that strategy is limited to voluntary commitments and SCPA will continue to use short-term contracts as needed to meet compliance. It's important to note that SCPA's 2030 performance in the IRP evaluation does not include its share of nuclear output from Diablo Canyon due to statutory requirements—but should that change, SCPA's preferred portfolio would achieve the 2030 target without short-term procurement.

The preferred portfolio emissions in 2035 and 2040 are far below SCPA's assigned benchmark. This is because SCPA expects the availability of diverse resources to significantly improve in the early 2030s. Additionally, SCPA will benefit from reduced uncertainty on its projected load and market conditions—enabling more aggressive procurement. This is the period in SCPA's modeling that PPA procurement is able to provide 100% hourly emissions mitigation. This is consistent with the CSP, which shows de minimis emissions, especially after removing SCPA's assigned share of combined heat-and-power emissions.

By 2045, SCPA's preferred portfolio emissions are just below its assigned benchmark. SCPA's IRP portfolio seeks to maximize its build-out in the 2030s of a fleet that enables it to maintain low emissions through 2045. Although SCPA's internal forecast for hourly emissions used in modeling indicates SCPA maintains 100% hourly marginal emissions, the CSP forecast shows a slight increase in emissions accompanying the last five years of load growth. SCPA's preferred portfolio leverages opportunities to re-contract existing resources rolling-off their initial terms and procuring a modest amount of short-term hydropower (150 GWh) to meet its 2045 benchmark. This is in addition to SCPA's expectation that its PCIA allocation of PG&E hydropower resources continues throught the modeling period. However, the load and emissions characteristics of the 2045 model year are very uncertain, and SCPA will continue to refine its long-term plan to play a leading role in meeting the state's climate goals.

d. Local Air Pollutant Minimization and Disadvantaged Communities

i. Local Air Pollutants

The local air pollutant emissions associated with SCPA's preferred portfolio are tabulated in Table 10 below as calculated by the CSP calculator. A significant share of SCPA's local air pollution is associated with its planned contract (not yet executed) with a biogas facility. This is particularly true for sulfur dioxide, where the biogas contract consistently contributes over 80% of SCPA's expected emissions. The remaining pollution is associated with SCPA's dependency on system power or its allocation of combined heat and power generation.

Table 10. Local Air Pollutant Emissions of 2026 Preferred Portfolio

Pollutant	2028	2030	2035	2040	2045
NOx	26	20	9	2	15
PM2.5	11	10	9	0	9
SO2	52	45	32	7	33

The CSP calculator does not attribute local air pollution with geothermal generation. However, there are geologic emissions of nitrous oxide and sulfur dioxide associated with generation at the existing plants at the Geysers. A particular pollutant of concern for local residents is hydrogen sulfide, although the operators have taken considerable steps to mitigate these emissions. Although SCPA expects local geothermal power to comprise a large part of its portfolio, SCPA is exploring closed-loop technologies that can be deployed to nearly eliminate operational emissions for new development.

ii. Focus on Disadvantaged Communities

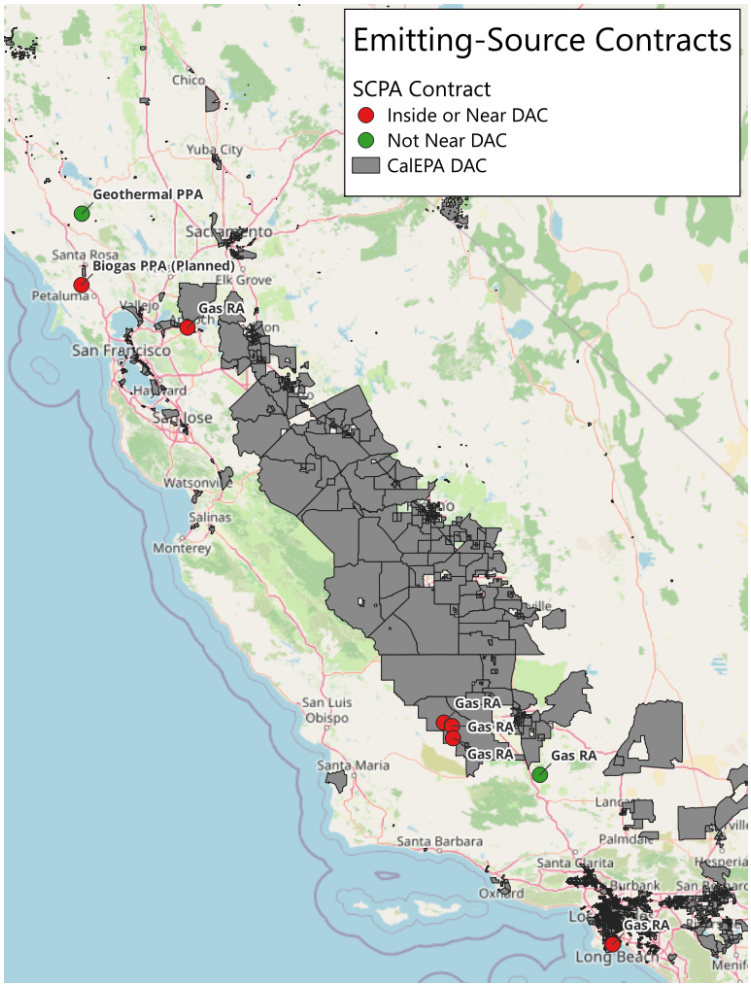
SCPA's preferred portfolio only includes two energy contracts with local air emissions: a contracted PPA for geothermal at the Geysers and a plan to contract energy from a local biogas facility. The local biogas facility is located around 4.25 miles from one of two census tracts designated as disadvantaged in SCPA's territory (Tract # 06097153200). The local biogas facility is also located around 3.5 miles from the Graton Rancheria. The geothermal PPA at the Geysers, which has emissions not represented in the CSP calculator, is not located within 5 miles of a disadvantaged community.

SCPA recognizes that its local air pollutant impacts go beyond just its energy contracts that are reported in the CSP. SCPA relies on gas resources for both system power and RA. Figure 7 maps both the emitting biogas and geothermal energy contracts and RA-only contracts SCPA is under with emitting gas resources. All but one of SCPA's gas RA contracts is within a DAC. Tract # 06013305000 in Contra Costa County, Tract # 06029003304 in Kern County, and Tract # 06037980033 in Los Angeles County are all disadvantaged communities that are burdened with local air pollution from natural gas facilities providing RA capacity to SCPA. This map does not include natural gas resources providing system power for SCPA, or RA that is needed in the preferred portfolio not yet contracted.

However, given the high proportion of natural gas facilities in disadvantaged communities, the adverse impacts implied by Figure 7 are very likely emblematic of the broader portfolio.

Reducing local air pollution impacts on disadvantaged communities is a primary motivator of SCPA's adoption of an hourly emissions mitigation target underlying its selection of a preferred portfolio. It is also a key driver of SCPA's GeoZone, which promotes local siting of clean no-emission geothermal resources as an alternative to gas capacity burdening disadvantaged communities outside SCPA's territory. SCPA's Chief Executive Officer penned an op-ed in *The Press Democrat* acknowledging the privilege SCPA's customers enjoy by living in a region without natural gas power plants and asking for support in building local clean generation and transmission to reduce this dependency[7]. SCPA sees building clean firm capacity, such as local geothermal, as the most effective strategy for phasing-out reliance on natural gas capacity and its associated local air pollution.

Figure 7. Map of SCPA Emitting-Source Contracts vs. CalEPA DACs



[7] "North Coast's dirty little energy secret" available at https://www.pressdemocrat.com/2023/08/13/close-to-home-north-coasts-dirty-little-energy-secret/

SCPA's adopted Board policy Project Selection Criteria C.6 prioritizes projects that align with its objective of promoting environmental stewardship[8]. SCPA's criteria explicitly mention prioritizing projects that enable the retirement of natural gas power plants. The policy also prioritizes projects that limit impacts and provide benefits to underserved communities. Although beyond short-term RA, SCPA's procurement generally does not include emitting resources, local pollution impact is a serious consideration in any new relevant resource procurement. In the context of SCPA's interest in local biogas procurement adjacent disadvantaged communities, SCPA has considered the counterfactual of flaring landfill emissions and determined renewable power generation to be a preferrable alternative.

e. Cost and Rate Analysis

Cost and customer rate impacts were primary considerations in the development of SCPA's preferred conforming portfolio. As described in the Modeling Approach section and illustrated in Figure 3, SCPA evaluated the unit supply cost of three alternative portfolios before selecting a preferred portfolio including a minimum compliance baseline. The selected portfolio, which meets compliance and achieves 100% marginal emission mitigation and includes a preference for local resources, was estimated to cost $4.60/MWh more than the minimally compliant portfolio through 2045. This difference is estimated to represent approximately a 1% premium in total customer bills assuming current transmission and distribution rates, the PCIA, and non-supply components of SCPA's costs (programs, overhead, etc.).

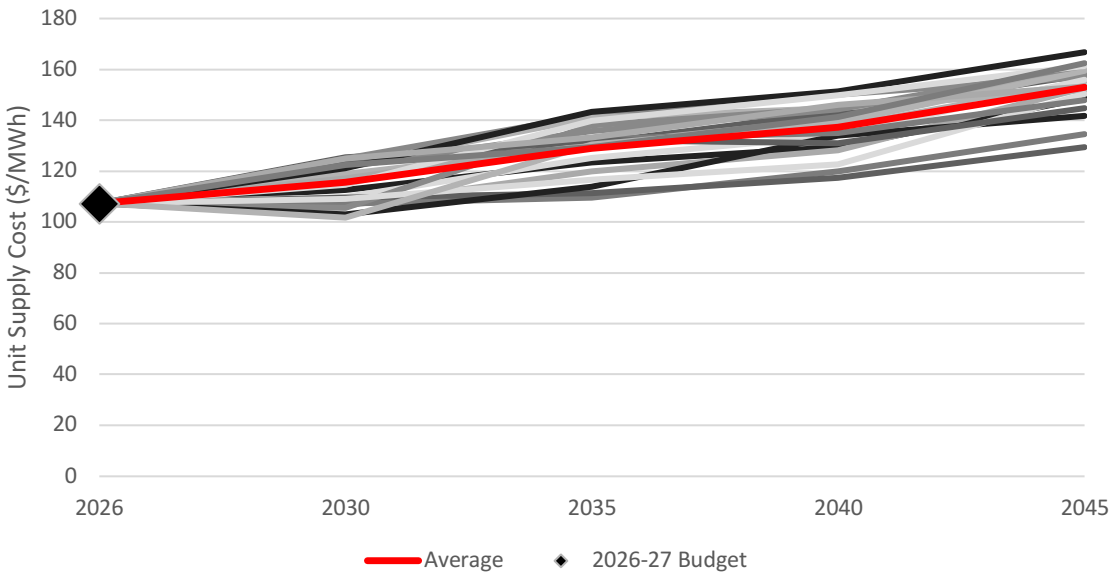
The cost of the portfolio was assessed using the *Raven* platform, which is described thoroughly in the Modeling Tools section. The market forecasts used as input to *Raven* assume other LSEs procure a supply stack matching the results of a CAISO-wide capacity expansion model relevant to each scenario. The market scenario forecasts consider the trade-offs of revenues from energy arbitrage and capacity markets, the cost of bringing new capacity to market, as well as the impact of renewable portfolio standards and SB 100. One of the market scenarios used in SCPA's evaluation is specifically calibrated to represent the supply stack represented in the CPUC IRP portfolio.

A key challenge in managing cost and rate impacts in resource planning today is the large amount of uncertainty in market conditions and future load growth. Figure 8 shows the range of expected unit supply cost for SCPA's preferred portfolio across the 21 future scenarios evaluated in SCPA's 2026 IRP. Although on average, SCPA expects the preferred portfolio nominal unit supply costs to grow at a 1.9% per year rate to $153/MWh in 2045, scenarios range from a 2045 nominal unit supply cost of $129/MWh (0.9% per year growth) to $167/MWh (2.3% per year growth). Even at the high end, the growth in costs SCPA's preferred portfolio experiences compares favorably with inflation.

[8] See page 74 of https://sonomacleanpower.org/uploads/documents/00-SCPA-BOD-Policies-Effective-2025.07.10.pdf

By leveraging robust optimization, SCPA's preferred portfolio avoids near-term decisions that could have long-term adverse consequences for ratepayers. Because the model is optimizing decisions through 2032 that can perform across all 21 scenarios, SCPA is mitigating the risk of building a set of resources that is only valuable under a single set of assumptions. Without this robust framework, SCPA could overbuild resources in the near-term that are not needed in the market or its load and be forced to amortize high net resource costs over a smaller amount of load. SCPA is applying this decision framework not just for its resource modeling in IRP, but also in considering discrete contracting opportunities. SCPA is also advocating the state take a similar approach to IRP, both in considering resource decisions but also in the timing and scope of transmission investments.

Figure 8. SCPA Preferred Portfolio Unit Cost (Nominal $/MWh) – Average vs. 21 Future Scenarios



The increase in cost in SCPA's preferred portfolio is driven by underlying inflation, which counteracts cost reductions from technology improvement, expiration of tax credits (solar and wind almost immediately; storage and geothermal after 2034), and the scarcity of diverse resources needed to fully decarbonize SCPA's portfolio. Restoration of tax credits and an increase in the accessibility and supply of diverse resources could counteract SCPA's forecasted increase in supply costs.

A risk to customer rates not captured in the analysis above is that the preferred portfolio builds in a long-term physical hedge for SCPA ratepayers that SCPA will need to manage through downturns in the market alongside PCIA. In market downturns, increases in PCIA require SCPA to reduce rates to maintain competitive rates compared to bundled customers. If SCPA has a large resource portfolio, as represented in the preferred conforming portfolio, downturns in the market will result in substantially reduced revenues that will stress SCPA's margin. SCPA does not want this risk to detract from its ambitions to build the resources needed to drive decarbonization. Accordingly, SCPA is managing its financial position and leveraging available tools to monitor markets, PCIA and its portfolio to be prepared to weather market downturns.

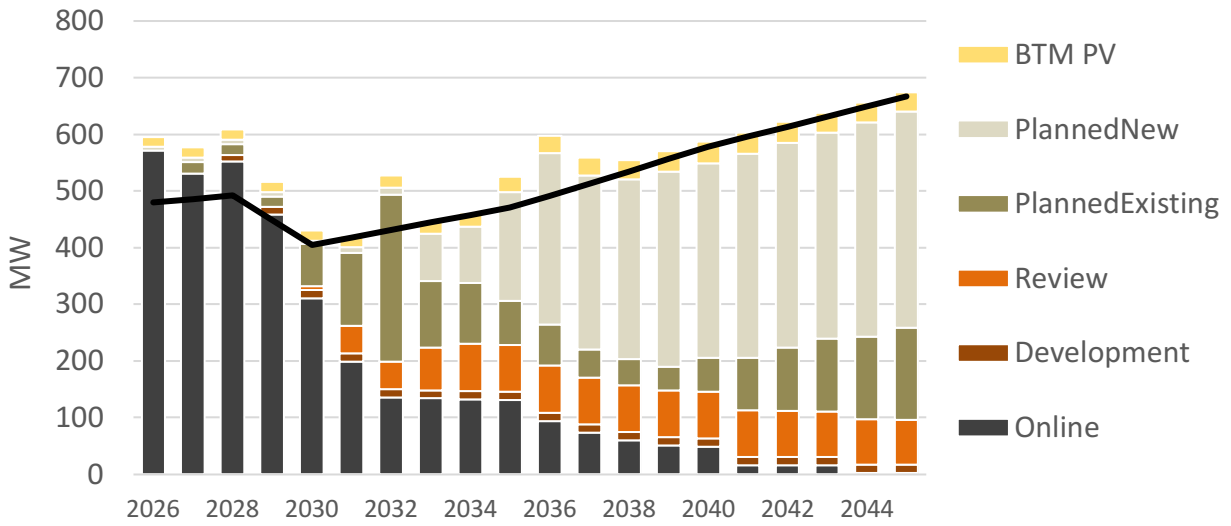
f. System Reliability Analysis

SCPA's preferred portfolio supports system reliability, as demonstrated in Table 11 and Figure 9. The RDT includes existing contracts, SCPA's CAM allocation, candidate resources selected through portfolio optimization, and short-term contracts that represent the required short-term capacity SCPA will need to procure to meet its total reliability need. These short-term capacity contracts are assumed to come from combined-cycle gas units through 2034 and from battery storage thereafter, although SCPA will likely find short-term capacity from a diversity of resources.

Table 11. Load and Resource Table by Contract Status for Preferred Conforming Portfolio

Year	Need	ELCC by Contract Status							Net
		Online	Develop	Review	Planned Existing	Planned New	BTM PV	Total Supply	
2026	479	571	0	0	0	7	17	595	+115
2027	486	531	0	0	20	8	18	577	+91
2028	492	552	12	0	18	8	18	608	+116
2029	448	458	14	0	18	7	18	516	+67
2030	405	310	14	8	75	6	18	431	+26
2031	418	199	14	49	129	10	20	421	+3
2032	431	136	14	48	295	13	22	528	+96
2033	445	134	14	75	118	83	24	448	+4
2034	458	133	14	84	107	99	26	462	+5
2035	471	131	14	83	78	191	28	525	+54
2036	492	94	14	83	73	303	30	597	+105
2037	513	74	14	83	50	307	32	559	+46
2038	534	60	14	83	46	317	34	554	+20
2039	556	51	15	83	42	344	36	571	+15
2040	579	49	15	83	59	343	38	587	+9
2041	596	16	15	82	93	360	38	603	+8
2042	613	16	15	82	112	362	37	622	+9
2043	631	15	15	81	128	363	36	639	+8
2044	649	2	15	80	146	378	35	656	+7
2045	667	2	15	80	162	382	34	674	+7

Figure 9. Capacity by Contract Status for Preferred Conforming Portfolio



An additional reliability check SCPA performed on its preferred conforming portfolio was to compare the RA it expects to receive from natural gas capacity relative to its peak share of the statewide PSP capacity from natural gas units. That comparison is illustrated in Table 12. Through 2029, the natural gas RA in SCPA's preferred portfolio exceeds its peak share – although that RA is already completely under contract. Thereafter, SCPA's portfolio gradually reduces its need for natural gas RA until it is completely phased out in 2035. This check demonstrates that SCPA is not overly reliant on existing natural gas to maintain reliability of its preferred portfolio. Importantly, this evaluation is based on the RDT's approach to calculation reliability, and it is likely SCPA will have some supplement need for natural gas RA to meet slice-of-day compliance that is not represented in these calculations.

Table 12. SCPA Preferred Conforming Portfolio Natural Gas RA vs. Peak Share of PSP Natural Gas Capacity

	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
PSP Natural Gas Capacity (GW)	25.06	25.06	24.72	24.72	24.72	24.72	24.72	24.72	24.72
SCPA Peak Share	0.90%	0.89%	0.89%	0.89%	0.89%	0.88%	0.88%	0.88%	0.88%
SCP Share of Natural Gas (MW)	225	224	219	219	219	219	218	217	217
SCPA IRP Natural Gas RA (MW)	246	254	300	291	220	135	261	45	30

g. Existing Resource Planning

Existing resources play a significant role in SCPA's preferred portfolio. This includes resources that SCPA originally contracted to construct with long contract terms, plans to recontract resources rolling off their initial contract term and SCPA's PCIA allocation of output from PG&E's hydropower fleet. SCPA also expects a need to contract for RA from existing natural gas capacity to meet slice-of-day capacity beyond what's indicated in the RDT and represented in the preferred portfolio, due to differences in accounting methodologies.

A comparison of capacity and generation in SCPA's preferred portfolio from existing resources to its 2022 IRP for the year 2035 is included in Table 13[9] and Table 14 below. The most significant driver of growth is the new resources that SCPA has brought online since the 2022 IRP. Since the 2022 IRP, SCPA has brought 519 MW of new clean resources online (134 MW solar, 260 MW battery, 125 MW of out-of-state wind). Most of these resources will still be under contract in 2035.

Another driver of growth in existing resources is SCPA's forecasted procurement of capacity from existing wind projects. SCPA's 2026 preferred portfolio includes 229 MW of planned existing wind procurement through 2030. Importantly, all this capacity is associated with project-specific commercial discussions SCPA has initiated with counterparties. Although SCPA has seen limited wind capacity in the market historically, a significant number of wind projects are rolling off their initial terms and market availability is greatly increased.

SCPA's reliance on existing geothermal capacity has decreased in its 2026 IRP. SCPA was only able to contract half the 40 MW of existing geothermal capacity identified in its 2022 IRP due to increased market demand. Implementation of slice-of-day and an increasing premium for winter energy triggered significant procurement of existing geothermal capacity over the past few years. The 20 MW of existing capacity are under contract—and SCPA is assuming any incremental geothermal capacity will need to be new build.

Table 13. Capacity (MW) from Existing Resources by Technology Comparison in 2035: 2026 IRP vs. 2022 IRP

Category	2026 IRP	2022 IRP	Delta
Solar	204	76	+128
Li-ion Battery (4 hr)	251	12	+239
Li-ion Battery (8 hr)	10	0	+10
In-State Wind	275	46	+229
Small Hydro	3	0	3
Out-of-State Wind	125	0	+125
Geothermal	20	40	-20
Biogas	8	0	+8
Natural Gas	0	48	-48
Total	**895**	**222**	**+674**

[9] Table 13 includes resources that are expected to contribute RA; resources such as SCPA's allocation of PG&E's hydro are only included in Table 14

Table 14. Generation (GWh) from Existing Resources by Technology Comparison in 2035: 2026 IRP vs. 2022 IRP

Category	2026 IRP	2022 IRP	Delta
Solar	446.2	173.4	+272.8
In-State Wind	466.5	170.4	+296.1
Small Hydro	1.2	0.0	+1.2
Large Hydro	252.7	268.6	-15.9
Out-of-State Wind	395.4	0.0	+395.4
Geothermal	175.2	350.4	-175.2
Biogas	52.4	0.0	+52.4
Total	**1789.5**	**962.8**	**826.7**

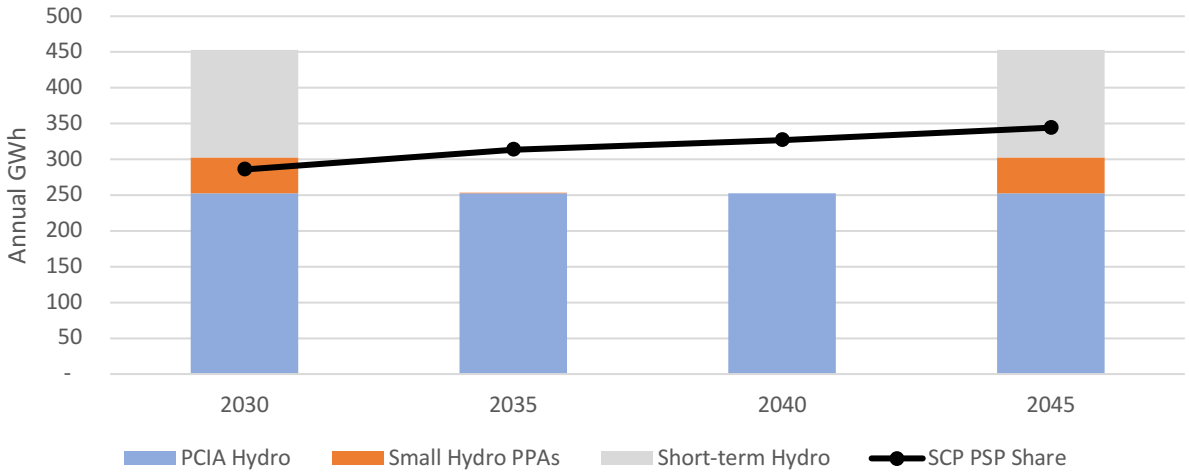
h. Hydro Generation Risk Management

SCPA has traditionally relied on a significant amount of hydropower from in-state resources and the Pacific Northwest to supply customers with clean power. These resources are generally contracted as index-plus contracts. SCPA also receives an allocation of PG&E's hydropower as compensation for PCIA and has two long-term contracts for offtake from small hydropower facilities.

SCPA's 2022 IRP recognized that increasing drought severity and competing demand in the Pacific Northwest risked SCPA's ability to continue sourcing hydropower at historic levels. Accordingly, the 2022 IRP included a significant decrease in hydropower's role in SCPA's portfolio between 2030 and 2032.

SCPA's 2026 IRP accelerated the phase-out of hydropower with the Board's decision to no longer contract short-term hydropower for voluntary environmental metrics. For 2028 and beyond, SCPA expects the role for hydropower to be limited to its PCIA allocation and two RPS-eligible small hydropower contracts, which are around 303 GWh in a median weather year. In the scenario Diablo Canyon is not extended and no longer counts for emissions mitigation (which is consistent with the CSP and RDT), SCPA projects a supplemental need of 150 GWh in the 2030 and 2045 study years to meet its emissions target. Without the supplemental need, SCPA's representation of hydropower in its preferred portfolio is well-aligned with its load share of all hydropower in the PSP—which ranges from 285 GWh in 2028 to 344 GWh in 2045.

Figure 10. Hydropower in SCPA Preferred Portfolio vs. PSP Share



SCPA's preferred portfolio only relies on energy from hydropower (not capacity) – and accordingly does not incur reliability risk during drought years. However, SCPA's emissions performance would be at risk during a drought year. SCPA has developed experience with managing large volatility in annual hydropower output from in-state resources and established a robust operational process for monitoring and updating hydropower forecasts using information provided by the Department of Water Resources. If SCPA identifies a risk of falling short of its environmental targets mid-year, SCPA will look for short-term alternative resources. Procuring resources in this manner, especially if SCPA opts to procure renewable resources as a replacement, can result in cost impacts to customers. However, these costs are negligeable as a percentage of overall supply costs.

i. Long-Duration Storage Planning

Through a contract with CC Power, SCPA is an off-taker of Tumbleweed—the nation's first 8-hour lithium-ion storage project that was brought online this year. SCPA contracted with Tumbleweed to meet its MTR obligation for long-duration storage. SCPA's preferred portfolio does not contain any additional long-duration storage until 2036. By that time, SCPA sees additional room for battery storage as the initial term on its current fleet of 4-hour storage roll-off. SCPA's modeling determines that 8-hour duration storage is more cost-effective than 4-hour in the late 2030s—due to both a narrowed cost premium for adding duration and flatter price arbitrage curves. SCPA's need for 8-hour storage in the preferred portfolio includes 230 MW in 2036 growing to 340 MW cumulatively in 2045. Given the rapid advancements in lithium-ion technology, ability to locate battery energy storage in areas with existing grid capacity, and existence of 8-hour batteries in the market today, SCPA sees limited risk in meeting this need.

The 2022 IRP did not include any long-duration storage beyond SCPA's need for MTR—but also only assessed needs through 2035. The expanded need for long-duration storage is driven by the

extended period of study, which now covers years beyond the initial terms of SCPA's battery fleet and flatter arbitrage curves.

As described in the Study Design section, SCPA evaluated longer-duration technologies in its analysis, including pumped hydro, iron-air, and methanol storage. However, these longer durations were not identified as cost-effective either due to their assumed cost or limited compliance value. Under the slice-of-day capacity framework used for SCPA's portfolio evaluation, the capacity value of longer-duration resources scales with the MWh of load shift ability. This calculation is done over the span of a typical day and does not appropriately recognize the value longer duration resources could play in bridging reliability across multi-day or even seasonal events. The CPUC is actively considering new approaches to more fairly recognizing the reliability value of long-duration in slice-of-day. Should these changes occur, SCPA could see a role for longer-duration technologies in future updates to its IRP.

j. Clean Firm Power Planning

i. Geothermal in SCPA's Preferred Portfolio

SCPA's preferred portfolio contains a significant amount of clean firm power from geothermal resources. SCPA's original contract for 50 MW of existing geothermal from the Geysers ends in 2026 and has been replaced with a contract extension with 9 MW in 2027 and 20 MW through 2036. Through CC Power, SCPA has also contracted for 16 MW (SCPA's share) of new geothermal power to meet its MTR obligation, including offtake from one project in Nevada and two projects in the Imperial Irrigation District. [redacted]

Beyond the geothermal capacity that SCPA has under contract, the preferred portfolio quickly scales-up new geothermal capacity with 70 MW of capacity in 2033 building to 220 MW cumulatively by 2036. The early stage of this build-out is consistent with SCPA's 2022 IRP, which included 70 MW of new geothermal capacity by 2035. The extended planning horizon and expanded load growth are key drivers in the additional capacity selected in the 2026 IRP.

SCPA's modeling selected geothermal as cost-optimal due to its unique capabilities to serve hard-to-decarbonize hours and firm contribution to slice-of-day resource adequacy needs throughout the year. Geothermal's access to the investment tax credit, high utilization of scarce interconnection capacity, high quality in-state resource potential, and rapid technological progress also position it well as a candidate resource for meeting SCPA's portfolio needs. Geothermal also has a favorable regulatory risk profile compared to competing clean firm technologies, such as nuclear, carbon capture and storage, and biomass.

SCPA has a strong preference to build geothermal capacity locally. Local geothermal creates economic opportunities for SCPA's ratepayers, avoids import constraints, improves local reliability, and provides a more direct hedge against SCPA's load costs. SCPA has taken a very proactive

approach to supporting local geothermal development through the GeoZone initiative. The GeoZone has resulted in early project investments in SCPA's territory, grant funding, proactive transmission planning, and legislative and regulatory reforms that are supportive of in-state geothermal development. SCPA is currently expanding its public-private partnerships to leverage new industry leaders and technologies to unlock capacity. Additionally, SCPA has been collaborating with other members of CC Power in proactive industry partnerships and geothermal planning as described below. These initiatives are key steps SCPA sees as necessary to achieving the needed scale-up identified in its IRP.

ii. California Community Power Geothermal Coordination

SCPA is a member of California Community Power (CC Power), a joint procurement agency comprised of nine CCAs. CC Power has played a pivotal role in driving procurement of geothermal capacity to meet the state's future clean firm energy needs, demonstrated by its leadership in contracting the first new geothermal resources following release of the MTR clean firm requirement. CC Power recognizes that the long-term need for clean firm power for its members goes well beyond the needs of MTR, and recently announced Geothermal Exploration, Offtake and Development Engagement (GEODE) agreements with three geothermal developers with innovative approaches to development targeted at unlocking scale-up of in-state geothermal capacity[10]. CC Power sees these proactive relationships between offtakers and industry as pivotal in overcoming commercial and infrastructure challenges geothermal opportunities face. Additionally, as a joint procurement entity representing 30,000 GWh of collective annual load, CC Power is able to engage with a larger diversity of developers and opportunities with different risk profiles than what could be pursued by an individual load serving entity.

CC Power GEODE Agreement Capacity

SCPA's IRP includes its participation in CC Power's GEODE agreements, which are expected to deliver [redacted] of total capacity in the early 2030s. The GEODE agreements are principally focused on development opportunities in Northern California that both avoid import constraints and directly offset power costs for CC Power's members. CC Power has coordinated with its GEODE partners in representing expected development opportunities in the IRP. [redacted] Atlantica and XGS are planning to deploy advanced closed-loop technology, which both enables development beyond the geologic constraints of conventional hydrothermal development and minimizes water requirements. Closed-loop technology has been

[10] See "CC Power Signs 3 GEODE Agreements to Incentivize California Geothermal Development" (April 13, 2026) at https://cacommunitypower.org/cc-power-signs-3-geode-agreements-to-incentivize-california-geothermal-development/

demonstrated in the field and recently through commercial development in Germany[11]. Through its GEODE agreement, Zanskar is applying its unique capabilities leveraging artificial intelligence and modeling to discover new hydrothermal systems. [redacted] The GEODE projects are represented with online dates in the early 2030s but could be accelerated if transmission is readily available. GEODE projects are reported as "Review" status in the RDT to reflect the active commercial discussions between CC Power and developers on specific project opportunities.

CC Power Enhanced Geothermal System (EGS) Capacity

SCPA's IRP also includes its participation in CC Power's engagement with [redacted], a developer of a near-field [redacted] enhanced geothermal system (EGS) project [redacted]. CC Power is currently under exclusivity for this project, which has site control and is planning to build upon Fervo Energy's success in applying EGS technology to development in Nevada and Utah. This project is represented with an online date in 2033 but could be accelerated if transmission is made readily available. This project is also reported as "Review" status in the RDT given the advanced nature of commercial discussions.

CC Power Strategic Geothermal Capacity Coordination

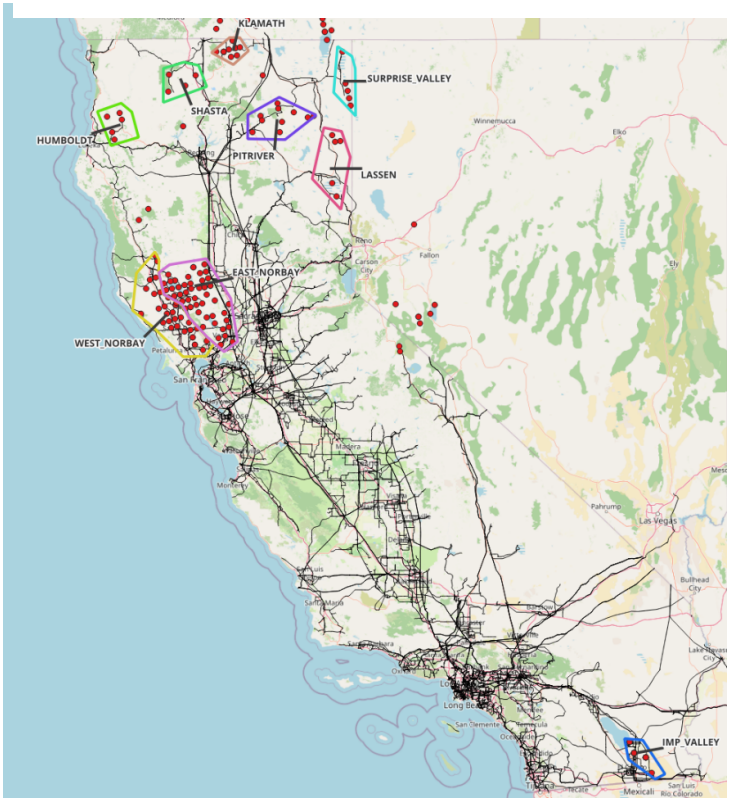
SCPA has coordinated with CC Power on representing geothermal capacity needs beyond the opportunities described above. Collective, CC Power entities are anticipating nearly 500 MW of additional geothermal development need to meet 2045 needs. A key challenge with geothermal development is that even with next-generation technologies, the best opportunities are locationally constrained. Accordingly, it's critical that transmission is proactively planned to areas that are commercially viable for both developers and offtakers. CC Power strongly discourages the Commission from taking the default approach of mapping resource potential to areas with sufficient transmission capacity and instead work to support infrastructure that provides access to high-quality resource areas as recommended by American Clean Power[12].

[11] See "Eavor's First-of-Its-Kind Closed-Loop Geothermal Project Produces Grid Power in Germany" (January 8, 2026) at https://www.powermag.com/eavors-first-of-its-kind-closed-loop-geothermal-project-produces-grid-power-in-germany/

[12] See page 10-11 of "American Clean Power – California Opening Comments on the Proposed Decision Requiring 2029-2032 Electric Resource Procurement and Transmitting Portfolios for the 2026-27 Transmission Planning Process" at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M598/K100/598100948.PDF

In the interest of providing a consistent indication of development areas with both high-quality resources and commercial offtake interest, CC Power members have taken a methodical process to mapping and representing long-term geothermal needs. First, CC Power has leveraged one of the best available datasets on next-generation geothermal potential: supply curves from Wilson Ricks and Jesse Jenkins' May 2025 study on national-scale adoption of EGS[13]. The Ricks & Jenkins study leverages the recent Stanford thermal modeling already used by the Commission, but also specifically characterizes near-field EGS resources—which are likely to be the first and most economical projects to be developed. CC Power applied both technological and economic filters to the supply curve data (depth <= 4.5 km, temperature <= 275C, inferred LCOE <= $100/MWh, project capacity > 50 MW). Data points that met CC Power's filter criteria are represented as the red dots in Figure 11.

Figure 11. CC Power Strategic Geothermal Mapping



Using the filtered data, CC Power identified clusters of opportunities with distinct transmission needs: West North Bay, East North Bay, Humboldt, Shasta, Klamath, Pit River, Surprise Valley, Lassen, and Imperial Valley (see colored polygons in Figure 11). CC Power members strongly prefer resources in CAISO due to import capacity constraints, and accordingly did not carry Imperial Valley, Klamath, and Shasta further in the analysis. Although Surprise Valley and Lassen are currently outside the CAISO, CC Power is encouraged by the 2026-27 focus on adding import capacity to the Hilltop substation in Northeastern California and sees a lot of synergies with creating better access to Northern Nevada resources and in-state wind.

Based on the supply curve filtering, the six remaining areas of interest individually represent 0.8 to 13.5 GW each of theoretical capacity. CC Power has represented its interest using two tiers: the East North Bay and West North Bay with 150 MW of total interest (out of 10+ GW theoretical capacity each) and the other four areas with 50 MW of interest (out of 0.8 to 1.6 GW of theoretical

[13] Paper at https://zero.lab.princeton.edu/wp-content/uploads/2025/06/Ricks-Jenkins-2025-Pathways-to-national-scale-adoption-of-enhanced-geothermal-Joule.pdf; leveraged datasets available at https://zenodo.org/records/15485307

capacity each). SCPA's IRP includes its share of these opportunities with a substation designated that is indicative of the resource area's transmission needs. Given their pre-commercial nature, these projects are listed as "PlannedNew" but flagged for retention priority given the need to proactively plan transmission. CC Power will continue developing relationships with industry to further commercialize this capacity.

iii. Maximum Import Capacity for Geothermal

SCPA's under contract geothermal capacity will require Maximum Import Capability (MIC) at both the Eldorado 230 kV intertie (Merchant) and the Imperial Valley intertie (IID-SDGE). SCPA has already secured New Use Import Capability (NUIC) at Eldorado and requested Remaining Import Capability (RIC) at Imperial Valley in anticipation of obtaining NUIC. SCPA's preferred portfolio also includes a small share of capacity from a resource from New Mexico associated with one of CC Power's GEODE agreements with an unknown import pathway. SCPA does not anticipate needing any MIC expansion to accommodate these geothermal opportunities.

Beyond these opportunities, SCPA is targeting procurement of geothermal resources within CAISO. SCPA's assigned MIC as a load serving entity is already heavily utilized for its contract with SunZia. Accordingly, even if MIC were to open at specific interties, SCPA's ability to count import resources would be constrained. This, together with the local preference in SCPA's adopted portfolio, limits SCPA's long-term interest in importing geothermal resources—even though development is currently concentrated out-of-state.

iv. Geothermal Resource Planning Risks

SCPA believes geothermal resources currently provide the best opportunity to support the state's clean firm capacity needs, but it is important to note that they carry several unique risks relative to alternative resources:

- **Subsurface Risk:** Geothermal resources need to be confirmed and characterized by exploration and appraisal wells, which are costly and can create schedule risk. The output of a geothermal field, even with new technologies, is highly uncertain compared to solar, wind, and nuclear. SCPA has lobbied the state for dedicated funding to proactively support geothermal exploration—which resulted in a $10 million allocation in the 2026 budget.

- **Technology:** The scalability of geothermal capacity, which is necessary to create the market availability for SCPA's IRP needs, is dependent on new technologies such as EGS and ACL. Although data on project performance and commerciality for these new technologies is greatly improved since SCPA's 2022 IRP, there is still significant uncertainty on long-term performance and operation costs.

- **Transmission:** Geothermal resources are much more geographically constrained than alternative clean resources such as solar and storage. Accordingly, they cannot necessarily be located where transmission is readily available. Successful scale-up of geothermal will

be dependent on proactive transmission planning that aligns well with the most commercial subsurface opportunities.



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

SCPA's preferred portfolio includes 125 MW of non-CAISO wind capacity from SunZia that is both under contract and online. Although SCPA evaluated other candidate wind resources, the high cost, SCPA's import constraints, and selection of a preferred portfolio with a local development preference prevented additional capacity from being selected. The 125 MW of SunZia capacity is well aligned with SCPA's 2022 IRP, which included 100 MW of out-of-state wind by 2026. SunZia is currently delivered to the CAISO on a subscriber PTO line that starts in CAISO but then relies on firm transmission through Arizona to reach the Palo Verde intertie.

l. Offshore Wind Planning

SCPA's preferred portfolio does not include offshore wind. Offshore wind was included as a candidate resource in its portfolio optimization using cost assumptions directly derived from the CPUC but was not selected. SCPA's model identified geothermal, onshore wind, and paired solar and storage as more cost-effective resources. These results are consistent with SCPA's 2022 IRP, which also did not identify a need for any offshore wind capacity.

m. Transmission Planning

SCPA preferred portfolio contains the following four contracted resources that should be included in the baseline for modeling in the transmission planning process. A description of the transmission status based on information from developers for each of these contracts is included below:

- **Fish Lake Geothermal (COD July 2027):** The Fish Lake geothermal project will connect to the Silver Peak substation in NV Energy territory. The project is expected to initially deliver to the Silver Peak CAISO intertie, until Greenlink West is commissioned (currently expected December 2027) at which point it will deliver to the Eldorado 230 intertie.

- **Dogwood Geothermal (COD July 2027):** The Dogwood geothermal project will connect to the 92 kV HL1 line in IID. The project is dependent on a limited scope of local network upgrades that are already in progress. Dogwood will deliver power to CAISO at the Imperial

Valley 230 intertie. Although not needed for COD, SCPA is expecting the Golden Pacific Powerlink project connecting Imperial Valley with SONGS to enable the project to reduce congestion and provide incremental project value in 2032.



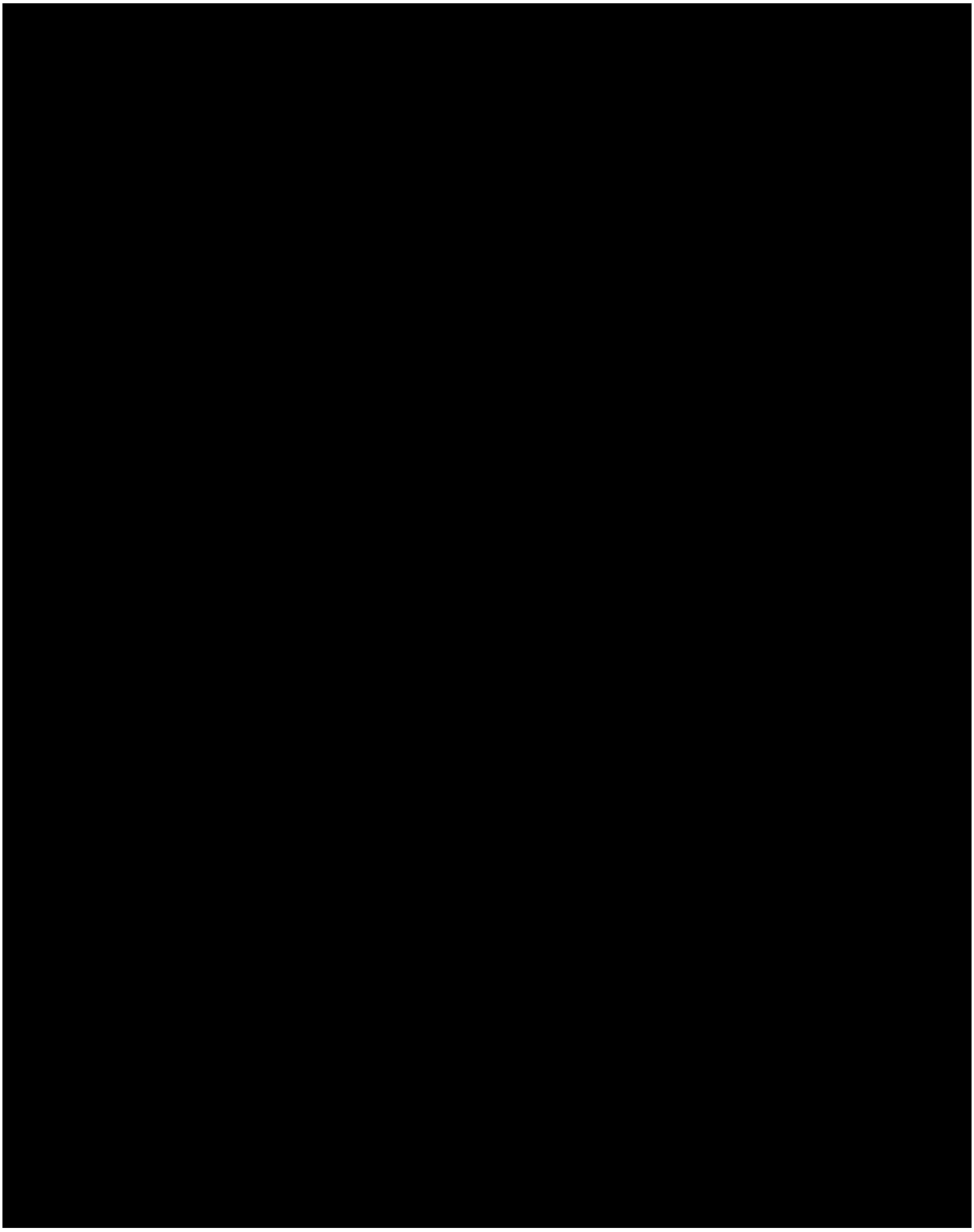
- **Ukiah Superfund Solar + Storage (COD June 2030):** The Ukiah Superfund solar and storage project will connect to PG&E's 12 kV distribution system on a feeder from the Ukiah substation. Although the project is only expected to have a limited scope of nearby upgrades, the CAISO's recently released 2026 transmission capabilities estimates ("CAISO 2026 Capability Estimates")[14] show that transmission plan deliverability is dependent on relief of the Collinsville-Tesla 500 kV area constraint and the Vaca – Contra Costa area constraint. Deliverability is important for SCP to realize sufficient market value to progress project development.

In addition to the transmission dependencies listed above, SCPA sees significant value in the 2022-2023 TPP-approved Southern California upgrades, which will allow SCPA's capacity from SunZia to no longer be subject to MIC limits when complete in 2034. This will allow SCPA to redeploy its MIC to other needed resources.

SCPA's preferred portfolio includes resources designated as "Review" that are not yet under contract but are associated with active commercial discussions. The following projects have site control, represent what SCPA believes is investment-grade information for CAISO, and SCPA accordingly requests the CPUC reflect their location in busbar mapping portfolio capacity:



[14] Available at https://www.caiso.com/library/transmission-capability-estimate-inputs-for-cpuc-integrated-resource-plan-jul-15-2026



SCPA's preferred portfolio also includes location-specific information for the following groups of projects, which are not as mature commercially, but also important to represent with geographic specificity:

- **Zanskar Geothermal (COD early 2030s):** CC Power has a GEODE agreement with Zanskar to explore and develop geothermal resources in California, as well as offtake from their New Mexico project. Unlike the "Review" projects, Zanskar does not have site control. However, CC Power has coordinated with Zanskar on representing opportunities in prospective locations that should be respected in the CPUC's busbar mapping. Given CC Power's commercial relationship with Zanskar, these are labeled as "Review" status in the RDT.

- **Strategic Geothermal:** As discussed in the Clean Firm Planning section above, CC Power has taken a comprehensive approach to mapping out geothermal resources that both meet offtaker preferences (no import, access to Northern California) and reflect best available modeling and technical constraints. It is important that these locations be given emphasis in the CPUC's planning to avoid misrepresenting where geothermal capacity will be developed.

[redacted]

- [redacted], close to the [redacted] plays an important role in meeting SCPA's preferred portfolio requirements. It is a unique resource that is both in-state and winter-peaking. SCPA has provided a developer with site control of [redacted] capacity with a letter of interest and is actively encouraging the CPUC and CAISO to approve transmission to access the area. Given the unique capabilities of this resource, SCPA asks the CPUC to prioritize enabling transmission development.

- **Local Self-build:** SCPA's 2026 IRP included a Board approved target of developing 100 MW of local solar and storage capacity. To comply with this target, the resources must be located in SCP's territory encompassing Sonoma and Mendocino Counties. Based on preliminary prospecting, SCPA has included a representation of a potential portfolio of local resources meeting this objective. At a minimum, SCPA asks the CPUC to plan sufficient transmission to SCPA's territory more broadly, to enable progress towards this goal.

Most of the projects in SCPA's 2022 IRP with location-specific transmission guidance were resources that have since been brought online or resource developments that have since stalled. One notable example is SCPA's 2022 IRP request to map out-of-state wind in Idaho. The permit for the project that motivated that project has since been revoked by the Department of Interior. Following the 2022 IRP, SCPA secured offtake from the SunZia wind project in New Mexico to fit a similar IRP need. SCPA's 2022 IRP also specifically represented 70 MW of future geothermal capacity need in the Solano geothermal resource area, to align with the GeoZone. The 2026 IRP takes a more expansive view of geothermal opportunities, still including significant local capacity (62 MW across 3 projects) but also representing opportunities in Lake County and Northeast California.

IV. Action Plan

SCPA's first priority in procurement is satisfying its compliance obligations. This includes complying with procurement orders, fully meeting its RA obligation, and satisfying RPS. As described below, SCPA is positioned to satisfy these requirements. The next focus is on meeting SCPA's internal goals, such as the 100% hourly mitigation and local procurement focus objectives in the preferred portfolio, while also maintaining financial stability and remaining cost competitive.

a. Proposed Procurement Activities and Potential Barriers

A description of SCPA's completed and planned procurement activities for different resource categories is included below. SCPA has also highlighted a description of any anticipated barriers or risks for successfully completing the proposed activities.

In general, SCPA would like to stress that the demand induced from procurement orders and the current architecture of CAISO's interconnection process have made contracting new resources extremely difficult and costly for our ratepayers. This is especially true for the diverse resources needed in SCPA's preferred portfolio, which are not necessarily available on the timelines dictated by procurement order timelines and are dependent on transmission capacity that has not yet been built. As the CPUC considers future procurement requirements, SCPA asks that it considers opportunities to grow the supply of resources in tandem with demand, through proactive transmission planning, improvements to the interconnection process, and policy that supports addressing key development barriers.

i. Resources to meet IRP mandated procurement requirements, including D.21-06-035 and D.23-02-040:

SCPA has sufficient capacity already online to fully meet the generic capacity requirements of D.21-06-035 and D.23-02-040 ("MTR"), the MTR Diablo Canyon replacement requirement, and the long-duration storage requirement. SCPA is under contract for three geothermal facilities that contribute to its clean firm MTR requirement that are mature and highly likely to COD by the 2031 extended deadline: Fish Lake, Dogwood, and Truckhaven. Although SCPA has a portfolio contract with an option for additional capacity beyond these projects (represented as the "Balance of Supply" in SCPA's RDT), market conditions make it unlikely this will be delivered—requiring SCPA to procure 5 additional MW of NQC to fully meet its clean firm obligation. SCPA is already pursuing several opportunities bilaterally to address this gap, including the Mayacamas project marked as "Review" status in the RDT. SCPA's proactive work through the GeoZone and CC Power GEODE agreements is expected to unlock a significant scale-up in clean firm capacity, but not necessarily by the 2031 deadline for MTR. SCPA sees early partnership between offtakers and developers as especially critical for geothermal development, which due to location constraints is dependent on proactive transmission planning (which LSEs can support through the IRP

process and CAISO interconnection queue) and requirement for financing early project activities to reduce geologic risk. The short-term market for geothermal has been strained by MTR, data center growth, the cancellation of the large Salton Sea projects, and constraints in both interconnection and import capacity. Although these conditions make cost-effective procurement by 2031 extremely difficult, with the right supply-side policy, SCPA is confident that clean firm capacity can scale in the 2030s.

iv. Plans for resources that are currently non-candidate in CPUC's IRPs not described above

SCPA's preferred portfolio represents a subset of the candidate resources in the CPUC IRP. SCPA has no current plans to procure resources that are non-candidate. SCPA is monitoring the regulatory treatment of carbon capture and storage (CCS), which does play a significant role in California Energy Commission modeling. However, SCPA would both have to see regulatory treatment that recognizes CCS eligibility for IRP procurement, cost competitiveness with geothermal, and weigh the trade-offs of CCS versus other technologies with its Board before considering CCS as part of its portfolio.

v. Other renewable and/or zero carbon resources not described above

- **In-State Geothermal:** SCPA's IRP includes 243 MW of geothermal by 2036, which goes far beyond the MTR capacity needs described above. Given intense market demand for geothermal, SCPA does not think solicitations for PPA-ready projects is an effective strategy for procuring capacity. Instead, SCPA has focused on early pre-commercial relationships, such as those in the GeoZone and through CC Power's GEODE agreements. These relationships allow SCPA to support developers through transmission planning, interconnection prioritization, legislative and regulatory support, and financing. In return, SCPA and CC Power receive exclusivity on capacity that is developed. These efforts have been specifically focused on either local or in-CAISO opportunities, which reflect the priorities of CCAs. To drive in-state development, the CPUC and CAISO need to continue improving the process for transmission planning for geothermal. Regional constraints impacting multiple geothermal resource areas, such as the Collinsville – Tesla and Vaca Dixon – Bird Landing projects need to be approved. In order to maintain momentum, several developers working with CC Power are exploring entering the queue as energy-only. The CPUC and CAISO need to support this strategy by working to provide those projects deliverability when available and also recognizing IRP and RA compliance value in the interim. These small steps would allow these projects to be contractable, instead of forcing them to wait out transmission development. Additionally, state policy that relieves unnecessary permit burdens for geothermal projects and public funding for de-risking geothermal exploration and appraisal, such as the $10 million included in the 2026 state budget, are important opportunities to further de-risk in-state geothermal procurement.

- [redacted] SCPA's preferred portfolio includes 200 MW of [redacted], coming online between 2033 and 2035. SCPA sees this resource as providing unique capabilities, with both its winter-peaking profile, in-state location, and potential to connect directly in CAISO. SCPA has engaged developers and identified transmission as the key constraint to bringing this resource to market. The 2026-2027 TPP contains guidance for a significant build-out of geothermal and wind resources in the region, and SCPA is actively advocating for CAISO expansion to the region. This resource will also need improved federal policy—certainly an unfreeze of the current moratorium on wind permitting but ideally also restoration of tax credits. SCPA has provided a developer with a letter of interest and will continue to explore pre-commercial partnerships that enable SCPA to contract this resource after the transmission limitation is resolved.

- **Central Valley Solar:** SCPA's preferred portfolio includes 130 MW of Central Valley solar by 2031. SCPA has advanced commercial conversations with two gigawatt-scale projects in the Central Valley for meeting its near-term solar needs. SCPA is optimistic that these large-scale projects will deliver cost efficiencies and strong ratepayer value. [redacted] SCPA also sees an opportunity to work through CC Power on joint procurement of large projects. SCPA's preferred portfolio does not contain additional solar, beyond what can be served by one or two of the projects described above, until 2038. SCPA does not anticipate any challenges with procuring solar and storage in the late 2030s.

- **Baja California Wind:** SCPA's preferred portfolio includes 50 MW of Baja California wind by 2030. Like [redacted], Baja California wind offers unique advantages: it is winter-peaking and it directly connects to CAISO. However, unlike [redacted] it is not in-state, which limits SCPA's interest to 50 MW given its adopted procurement prioritization and adoption of an IRP with local preference. [redacted] A challenge is that the existing capacity for Baja California wind is energy-only. Similar to the issues described above for geothermal, this capacity may not be contractable if the CPUC and CAISO do not either provide assurances deliverability will be available, or consider granting energy-only eligibility for IRP or RA (such as for providing charging sufficiency). SCPA is pleased to see that recently approved upgrades have created deliverability in the region—but it's important that the deliverability isn't cannibalized by solar and storage resources that are less geographically-limited.

- **Local Biogas:** [redacted] SCPA is specifically interested in local biogas opportunities, given their ability to power SCPA's local 24/7 energy project EverGreen and alignment with the IRP objective of prioritizing local development.
- **Existing Wind and Repowering:** As described in the Existing Resource Planning section above, SCPA has seen a significant amount of existing wind in the market rolling-off its initial term and seeking new offtakers. [redacted] Thus far, SCPA has been very successful identifying these opportunities bilaterally.

vi. Other energy storage not described above

SCPA has very limited demand for energy storage. The MTR procurement mandate has resulted in SCPA having more battery storage capacity than it can leverage in the RA slice-of-day program, and market revenues are very limited due to the effect the state's battery storage build-out has had on suppressing market volatility. Due to curtailment concerns, SCPA does expect to pair energy storage with most of its solar capacity but does not anticipate contracting any additional standalone storage until the terms on its current fleet roll off in the late 2030s. At that time, SCPA sees value in longer-duration 8-hour storage. Given the state's proven track record at deploying energy storage quickly, SCPA has no concerns in its ability to meet energy storage needs in the late 2030s.

vii. Other demand response not described above

SCPA's preferred portfolio includes a ramp-up of its SCP Rewards demand response program from 7.5 MW in 2026 to 20 MW in 2035. The SCP Rewards program is self-administered and currently provides RA value as a load modifier. The fleet for SCP Rewards includes behavioral response and smart thermostats. A grant from the CEC is enabling additional growth in SCP Rewards to include home installs of smart thermostats, commercial and industrial customers, and battery storage. Growing SCP Rewards is a key priority for SCP's Customer Energy Solutions team and both creates valuable local capacity and improves customer engagement in understanding and responding to grid conditions.

viii. Other energy efficiency not described above

SCPA is very invested in promoting energy efficiency to its customers. SCPA is currently offering energy efficiency services through several programs including loaning DIY

energy and water savings toolkits, performing commercial energy audits, and deploying energy efficiency technologies through SCPA's Customer Center.

ix. Other distributed generation not described above

- **Self-Build Solar and Storage:** SCPA's preferred portfolio includes 100 MW of local solar and storage capacity, expected to be largely derived from self-build front-of-the-meter (FTM) projects led by SCPA's Capital Projects and Engineering Team that connect to the distribution grid. SCPA's IRP includes details on the first self-build project for which SCPA has already secured site control and started interconnection, the Ukiah Superfund project. SCPA is optimistic that self-build distributed resources can be proven to be permitted, interconnected, and deployed quickly. However, a key challenge is that SCPA's region currently does not have deliverability. Under existing rules, this means that projects cannot be recognized in IRP or the RA program for their reliability benefits—which makes their scale-up uneconomic. To be able to realize the full scale-up represented in SCPA's IRP, one or ideally more of the following must occur: 1) The CEC recognizes FTM distributed resources are as load modifying resources for the purposes of determining SCPA's RA obligation, as discussed in recent comments by SCPA[15] and the Coalition for Community Solar Access[16] on the relevant CEC docket; 2) deliverability constraints to SCPA's region, such as the the Collinsville – Tesla 500 kV Constraint, are relieved through policy-driven transmission upgrades; 3) the CPUC expands the eligibility of energy-only resources to meet IRP and RA compliance requirements (such as American Clean Power's proposal to provide charging sufficiency[17]).

x. Transportation electrification, including any investments that correspond to different levels than what is included in Integrated Energy Policy Report (IEPR)

SCPA continues to aggressively promote transportation electrification. SCPA first rolled-out its Drive EV incentive program in October 2016, which offered certificates worth up to $4,000 that customers could use to offset the cost of buying or leasing electric vehicles. Following Drive EV, SCPA shifted focus to addressing other barriers for transportation electrification and has implemented programs for providing free level 2 EV chargers, supporting commercial level 2 and DC fast charger deployment through the California Electric Vehicle Infrastructure Project (CALeVIP), and offering incentives for purchasing e-bikes. SCPA is now focused on workplace charging as a major opportunity for supporting transportation electrification. SCPA is actively

[15] See https://efiling.energy.ca.gov/GetDocument.aspx?tn=271712&DocumentContentId=109349

[16] See https://efiling.energy.ca.gov/GetDocument.aspx?tn=271710&DocumentContentId=109347

[17] See https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=596142996

monitoring EV adoption, vehicle miles travelled (VMT), and gasoline sales in its territory and endeavors to outperform the electrification targets embedded in IEPR.

xi. Building electrification, including any investments that correspond to different levels than what is included in Integrated Energy Policy Report (IEPR)

SCPA has implemented many programs targeted at driving building electrification. The first program was the Advanced Energy Rebuild, which offered large incentives for wildfire rebuild projects that included energy efficiency or electrification measures. SCPA then implemented Advanced Energy Build, like Advanced Energy Rebuild, but for new construction residences separate from rebuilt homes. SCPA has opened an Customer Center with a website and storefront in Santa Rosa that focuses on deploying building electrification projects. The Customer Center showcases electric alternatives for customers, trains local contractors, and offers rebates for electric appliances. SCPA is also leading a CEC-funded grant specifically exploring opportunities to enable rural electrification. As with transportation electrification, SCPA measures the impact of building electrification through reduced natural gas usage and aims to achieve at or above the pace of electrification embedded in IEPR.

xii. Potential Centralized Procurement, pursuant to AB-1373

SCPA is submitting a preferred portfolio that does not assume resources from centralized procurement. Given the withdrawal of leases for offshore wind, SCPA's experience in needing to partner with geothermal projects before issuing PPA solicitations, and the lack of market value for long-duration storage, SCPA believes it is not prudent to rely on centralized procurement to meet its portfolio needs.
If centralized procurement is successful, the only resource with sufficient scale to impact SCPA's contracting strategy is offshore wind. An assignment of offshore wind capacity would likely reduce SCPA's stated interest in [redacted] from 200 MW to 100 MW. SCPA would want assurances in project viability, beyond just the solicitation results, before altering its procurement strategy.

xiii. Other

SCPA's IRP also includes short-term resource adequacy and carbon free contracts. Most of these contracts are executed through bi-lateral trades administered by SCPA's experienced Procurement team. These contracts could be executed within the same year as delivery or several years in advance. Allowing some level of flexibility in contracting for energy and capacity has allowed SCPA to quickly react to changes in load, the market, or performance of the generation fleet. Although the preferred portfolio builds a much larger fleet of long-term resources under contract, short-term contracts will still play a role as needed for compliance to enabling SCPA to provide cost-effective, clean, and reliable power to its customers. Managing these positions

with short-term contracts also provides SCPA flexibility to adapt to changing regulations.

b. Disadvantaged Communities (DACs)

SCPA describes its approach to minimizing criteria air pollution in DACs in detail in Section III(d)(ii). In that section, SCPA describes how local biogas procurement within its territory may impact on disadvantages communities. It also describes how SCPA determined contracting the facility for power generation was preferrable to the alternative, which would have required flaring with its own set of local air pollution impacts.

Most of the local air pollution impacts from SCPA's portfolio are felt by DACs outside its territory. Reliance on system power and the capacity contracts shown in Figure 7 burden DACs alongside existing natural gas facilities. This reality has motivated SCPA's adoption of an hourly mitigated carbon emissions target, which drives procurement of resources that are best suited for reducing reliance on polluting resources. It is also what motivates SCPA's interest in the GeoZone, which is targeted at both creating clean firm capacity that enables retirement of natural gas and co-locating the environmental impacts (albeit small) of development alongside the communities that benefit from their output.

In its 2022 IRP, SCPA described the establishment of the Empower program – an effort specifically focused on outreach and meeting the needs of disadvantaged communities. SCPA has not relied on the state definition of DACs to guide Empower but rather calibrated its identification of Empower communities based on the range of local socio-economic conditions[18]. Through Empower, SCPA has facilitated community needs assessments to understand the unique needs of disadvantaged communities within its territory. SCPA is using the output of these assessments to co-design solutions with the community. Thus far, SCPA's engagement through Empower has been principally targeted at improving its service, offers, and incentives for these communities rather than as a forum to collect input on its IRP. However, SCPA has hosted several townhalls in parallel to grow awareness and collect input on local geothermal development that is a central part of its IRP, and with the most significant impacts to the local population.

c. LSEs' Tribal Customers

Over the past two years, SCPA has met with eight Tribes in its service area, including conducting five formal consultations with Tribal Leadership. SCPA launched a Community and Governmental Relations Department at the end of 2025 to prioritize tribal engagement and established a director-level staff position as the agency's tribal liaison. The department's ongoing efforts to deepen

[18] More detail on SCPA's Empower program and its definition of Empower communities is available in the Strategic Action Plan available at https://sonomacleanpower.org/uploads/documents/Programs-Strategic-Action-Plan.pdf

relationships with Tribes have resulted in real partnership opportunities, including the submission of a DOE Grid Resilience grant for a 90 kWh battery storage project at the community farm of the Federated Indians of Graton Rancheria. Additionally, SCPA's tribal customer engagements have led to energy assessments of facilities, increased participation in customer programs, and rate analyses resulting in thousands of dollars of annual bill savings. SCPA has not engaged Tribes on IRP specifically but is working to establish a foundation of trust and credibility for future engagement.

d. Procurement Products

Beyond the PPAs, storage tolling agreements, and self-build opportunities represented in SCPA's IRP preferred portfolio, SCPA will rely on several types of physical and financial products to meet compliance requirements and manage financial risk. A catalog and brief description of those products is included in Table 15 below.

Table 15. Procurement Products Supporting Preferred Conforming Portfolio

Product	Description of Product
Spot Energy	SCPA procures energy to serve hourly load through the CAISO day-ahead market. SCPA seeks to build a resource fleet that provides generation revenues that are well correlated with its spot energy purchase.
Carbon-free	With SCPA Board's adoption of the preferred portfolio, SCPA will be phasing-out short-term carbon-free procurement that it has historically used for meeting voluntary environmental targets. However, SCPA will continue to receive carbon-free energy from its PCIA allocation and may need to procure carbon-free in small amounts to meet its GHG targets if Diablo Canyon is not extended.
Resource Adequacy	SCPA's preferred portfolio includes a representation of short-term RA contracts. SCPA expects to continue contracting RA bilaterally to optimize fulfillment of its slice-of-day RA requirement.
[redacted]	

e. Commission Direction of Actions

SCPA appreciates the opportunity to request direction from the CPUC to support achievement of SCPA's IRP portfolio. SCPA offers the following thoughts:

- **Robust Planning:** In its comments on the Order Instituting Rulemaking (OIR), SCPA requested that the CPUC implement a robust planning framework for IRP[19]. Research by Princeton University has demonstrated that the current deterministic approach to planning used in the IRP

[19] See https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M574/K980/574980356.PDF

can expose ratepayers to significant reliability and affordability risks if future conditions diverge from expectations[20], which is very likely in today's world of significant uncertainty. SCPA is concerned that the current deterministic process is missing opportunities to support resource and transmission investments that are effective at avoiding bad outcomes. As the CPUC reconfigures its process to align with CAISO's new biennial policy TPP, SCPA asks the CPUC to give serious consideration to its proposal. At a minimum, the CPUC should stress test the preferred portfolio for uncertainty and identify any transmission investments that can de-risk the portfolio. SCPA believes a robust planning framework will identify transmission investments that are critical to enabling the resources in SCPA's preferred portfolio, particularly geothermal and wind capacity. SCPA has sought to set an example for the state through its application of robust planning principles in developing its 2026 IRP.

- **Energy-only Compliance Eligibility:** SCPA is concerned that the current IRP and RA programs are overly concentrated on addressing reliability challenges during the summer peak hours. By limiting compliance eligibility to only resources with deliverability, the CPUC is missing an opportunity to incentivize resources that provide other important reliability benefits, such as charging energy storage and meeting the state's future winter peak. SCPA encourages the CPUC to consider offering IRP eligibility for energy-only resources that meet this challenge. This could be particularly valuable for geothermal and wind resources, which are locationally constrained and cannot easily be developed in areas with deliverability. Importantly, their main reliability contribution to the grid is not during the summer peak hour – but in providing intraseasonal energy that can support retirement of natural gas. Energy-only eligibility will specifically enable geothermal projects in SCPA's preferred portfolio the ability to meet online dates in the early 2030s by entering Cluster 16, rather than waiting for deliverability in Northern California.

- **Energy-only Deliverability:** A related opportunity for the CPUC is creating policy guidance that can drive the conversion of resources that enter the queue as energy-only but are later made fully deliverable through policy-driven transmission. The CPUC could even explicitly model this in RESOLVE – allowing energy-only geothermal and wind that can be made deliverable in future years. SCPA sees this as an important opportunity to address both the state's resource diversity and deployment rate challenges. Any deliverability identified as needed by the CPUC to make these resources deliverable should be reserved for its intended purpose, to avoid it being cannibalized by later queued projects. This recommendation is important for improving the contractability of Baja California wind and geothermal projects in SCPA's preferred portfolio.

- **Busbar Mapping Commercial Interest:** SCPA is encouraged to see the CPUC's efforts to expand beyond the interconnection queue by including permitting data in assessing commercial interest. However, completing permitting is a high bar for projects to clear and is far from providing the complete picture of active project development. SCPA recommends CPUC staff explore additional opportunities to supplement commercial interest data, such as reviewing leasing data from the Bureau of Land Management and incorporating direct feedback from industry such as the project-specific details SCPA has provided in past comments. Ultimately, SCPA believes it would be prudent for the CPUC to facilitate an annual project survey, such as

[20] See https://zenodo.org/records/18856351

the process proposed by PG&E in their October 2025 comments[21]. The CPUC could include questions in the survey such as site control, technology readiness, earliest online date, and commercial status to objectively evaluate commercial interest. This is especially important for long-lead time resources, such as geothermal. The CPUC and CAISO's process for reserving deliverability is a key opportunity to proactively plan transmission for long-lead projects, but if those deliverability reservations do not align with commercial interest they are not useful. SCPA is seeing that currently in Cluster 16, where the deliverability reservations from the 2024-25 TPP are in the region of prospective projects, but not close enough to be accessed by active projects. Unlike solar and storage, there are many conditions that constrain the location of the best geothermal and wind projects—so it's not reasonable to simply expect projects to relocate to areas with spare capacity. SCPA sees these improvements as important for facilitating development of geothermal and wind resources in its portfolio.

- **Load Modifiers for FTM Distributed Resources:** As described in Section IV(a)(ix) above, SCPA's preferred portfolio is expected to contain 100 MW of local self-build capacity, much of which will be configured as FTM and connected to the distribution network. Due to deliverability constraints in the region, under existing rules these resources would not receive compliance value for their reliability benefits in either the IRP or RA program. SCPA asks the CPUC to coordinate with the CEC to develop an approach to treating FTM distributed resources as a load modifier for the purposes of the RA program. This treatment is consistent with BTM distributed resources, more appropriately recognizes their reliability value, and enables SCPA to see sufficient market value in FTM distributed resource development to achieve its IRP goal.

- **Export Compensation for BTM Standalone Storage:** SCPA's Board-approved IRP contains a load shifting goal of 400 MWh daily by 2045. This is well aligned with the scale of load shift contemplated in the CSP. SCPA sees BTM standalone storage as an important tool in providing this load flexibility—but a key barrier is the absence of a tariff offering export compensation. By limiting standalone storage to serving onsite load, their grid benefits are significantly limited. In SCPA's own analysis, an export-capable battery is three to eight times more valuable than a non-export battery. The California Community Choice Association (CalCCA) has requested export compensation for standalone storage to be included in the scope of the recently opened rulemaking on Advanced Electric Rate Design[22]. With export compensation, SCPA sees an ability to rapidly deploy storage that is cost-effective for customers, delivers incremental ratepayer benefits broadly, and delivers on the load flexibility needed to meet the state's climate goals. Similarly, the CPUC should consider tariffs that allow solar paired with storage to both grid charge and export. This would increase the utilization and value of paired storage in the wintertime, when there is insufficient solar production for charging—but load flexibility is important in managing peak winter conditions as the state electrifies.

[21] See page 10 of https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M584/K711/584711347.PDF

[22] See page 5 of https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M606/K596/606596742.PDF

V. Lessons Learned

SCPA has fully embraced the IRP process as a mechanism to facilitate long-term portfolio planning, identify infrastructure needs, and guide internal priorities. Since the 2022 IRP, SCPA has invested in building in-house transmission expertise, increased engagement in both the IRP proceeding and CAISO stakeholder initiatives, and sponsored research proving the value of new methods for statewide planning. Beyond the requests made in the *Commission Direction of Actions* section above, SCPA provides the following suggestions for the IRP process:

- **Strategic Planning:** SCPA encourages the CPUC to take a more strategic approach to resource planning, by extending the PSP cycle to every two years and leveraging the extra time to apply robust planning, increase stakeholder engagement, and consider strategic transmission investments and resource areas that should be a priority for the state. These improvements would alleviate year-to-year fluctuations, such as have been seen with offshore wind, out-of-state wind, and geothermal—that can mislead CAISO on transmission priorities and delay development of the resource fleet the state will need to meet state policy goals.

- **Live Contract Database:** The CPUC currently collects data on contracts through at least three different mechanisms for just IRP—the monthly procurement status updates, the procurement track compliance filings, and the formal IRP filings. All of these filings use a version of the RDT, which is often clunky to use and error-prone, and have different cadences and scopes. SCPA encourages the CPUC to look at creating an online database where LSEs can maintain a live representation of their contract fleets. The CPUC can then take snapshots from this database to determine compliance, update transmission planning assumptions, and track the state's progress towards meeting policy goals. Such a tool would improve visibility and accuracy that could be critical in prioritizing planning decisions that support achievement of the state's policy goals.

- **Improve Reliability Alignment:** SCPA is concerned that the current use of ELCCs for accrediting reliability value is overly simplistic and does not align with the slice-of-day RA program. In particular, SCPA is concerned that resources that the use of an annual ELCC will create a "cliff" when the state shifts from summer scarcity to winter scarcity. Meanwhile, misalignment with the RA program creates a situation where the fleet built for IRP is not useful for LSEs in meeting their RA program obligations. SCPA is seeing these two issues already converge: SCPA's battery fleet that was built for MTR does not have sufficient charging energy in winter months—but ELCCs are not necessarily encouraging SCPA to procure the resources needed to satisfy that deficiency and reduce dependence on natural gas RA. SCPA believes improved alignment will reduce the cost and improve the reliability of resources that LSEs procure to meet state policy goals.

- **Support Supply-side Opportunities:** The CPUC has traditionally relied on demand-side levers, such as procurement orders, to drive resource development. SCPA recognizes that

procurement orders play an important role. Indeed, the 1 GW clean firm order in MTR has been a driving force behind the step-change in investment in geothermal. However, if demand-side levers are used without also addressing supply constraints, there is a real hazard of driving-up prices for ratepayers. This is a reality today – where the scarcity of interconnection capacity limits the competition in the market. LSEs are also forced to procure for resource types that have the ability to locate to the few areas of interconnection capacity, such as battery storage. This has its own cost, given the market is currently flush with battery capacity that returns minimal market value to LSEs. Going forward, SCPA encourages the CPUC to take a more supply-side approach to driving resource procurement. This could include proactively planning transmission to areas with diverse resources, working with other state agencies to expedite permitting, and expanding compliance eligibility for energy-only and distributed energy resources.

- **Avoid False Precision:** The current process requires a very specific busbar-level definition for the location of planned resources to facilitate transmission planning. The CPUC has mimicked this level of precision in RESOLVE, including a very localized representation of constraints and associated costs. It is not reasonable to expect this level of precision in identifying resource locations 10 or 15 years out. As described above, SCPA is even seeing misalignment in projects trying to enter Cluster 16 this year. SCPA encourages the CPUC to review its modeling and interface with CAISO to avoid unintended consequences from applying a false level of precision. This feedback is related to SCPA's requests for more strategic planning and application of robust planning. Ultimately, SCPA desires a process that delivers transmission investments that are sufficiently flexible to accommodate the uncertainty and on-the-ground realities that are inherit to resource development. This will avoid a situation where achievement of the state's policy goals are delayed.

- **Data Access:** SCPA appreciates the CPUC's practice of posting comprehensive RESOLVE datasets that allow stakeholders visibility into modeling assumptions and even run their own sensitivities. However, these datasets are often provided with minimal lead time to major portfolio decisions. SCPA asks that the CPUC allow at least three months of time between the posting of data sets and a portfolio decision—which will allow stakeholders like SCPA to provide meaningful insights. Additionally, SCPA asks that the CPUC increase access to the inputs and results of its SERVM modeling. Although the system reliability modeling datasets the CPUC currently posts are a great start, they are incomplete (missing things like assumed outage rates) and are focused on inputs. Seeing a granular depiction of SERVM outputs would improve stakeholders' confidence in CPUC modeling results and allow for useful stakeholder input.

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.*

Attachment C

SCPA's Resource Data Template Version 3

(Public Version)

Attachment C is Submitted per Notice of Availability

Attachment D

Clean Power System Calculator

Attachment D is Submitted per Notice of Availability