Application No.:	A.23-04-003
Exhibit No.:	SCE-03
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Energy Resource Recovery Account (ERRA) Review of Operations, 2022 Chapters I - II

PUBLIC VERSION

Before the

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Rosemead, California
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SCE-03: Testimony of Southern California Edison Company in Support of Its Energy Resource Recovery Account (ERRA) Review of Operations, 2022 Chapters I - II

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I.

LEAST-COST DISPATCH

A. Introduction and Commission Standard Review

This section discusses SCE's compliance with least-cost dispatch (LCD) principles and requirements as specified by applicable Commission orders. The fundamental design of the CAISO Market Redesign and Technology Upgrade (MRTU) environment impacts how SCE "achieves" LCD. In D.11-10-002 (on SCE's 2009 ERRA Review proceeding), the Commission acknowledged this, stating "[o]n April 1, 2009, the CAISO began implementation of MRTU, which substantially changed the least-cost dispatch processes of SCE and other utilities."[1] More recent Commission guidance defines how SCE must demonstrate that it adhered to LCD principles, and the Commission formalized that guidance in D.15-05-007.

1. Information in SCE's Testimony and Workpapers

SCE's testimony and workpapers provide detailed documentation for the Record Period, as required by D.15-05-007. The testimony includes:

- Overview/narrative of LCD in the CAISO markets;
- Description of SCE's bidding and scheduling processes;
- Summary reports/tables documenting dispatchable thermal resource aggregated annual exception rates for:
  - Incremental cost bid calculations;
  - Self-commitment decisions; and
  - Master File data changes;
- Narratives reviewing significant strategy changes, internal software and/or process changes, and the CAISO market design changes during the Record Period, including documentation of SCE's review of market changes;

[1] D.11-10-002, Finding of Fact (FOF) 1.

- Background summary tables including:
  - Total capacity of the dispatchable portfolio;
  - Total dispatchable capacity lost due to planned or forced outages;
  - Total capacity of the non-dispatchable portfolio;
  - Total non-dispatchable capacity lost due to planned or forced outages; and
  - Total energy awards (dispatchable and non-dispatchable) by resource type (*e.g.*, hydro, pumped storage, thermal), broken down by self-scheduled versus market awards; and,
- Spot market electric and natural gas transactions made by SCE.

SCE's workpapers provide other information required by the relevant decisions and document all key LCD-related activities as well as spot market transactions SCE made during the Record Period.[2] A close examination of SCE's LCD practices, decisions and energy transactions made by SCE during the Record Period, will confirm that SCE's procurement practices were consistent with SOC 4 and its LCD protocols (keeping in mind that any *ex post* analysis must appropriately consider the contemporaneous information SCE had when making *ex ante* LCD decisions).

2. <u>The Commission's LCD Standard</u>

In D.02-12-074, which was issued pre-MRTU, the Commission explained the SOC 4 requirements in the utilities' approved procurement plans as follows:

> Prudent contract administration includes administration of all contracts within the terms and conditions of those contracts, to include dispatching dispatchable contracts when it is most economical to do so. In administering contracts, the utilities have the responsibility to dispose of economic long power and to purchase economic short power in a manner that minimizes ratepayer costs. Least-cost dispatch refers to a situation in which the most cost-effective mix of total resources is used, thereby minimizing the cost of delivering electric services. . . . The utility bears the burden of proving compliance with the standard set forth in its plan.[3]

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[2] Dispatchable resource commitment and dispatch decisions are made by the CAISO, not SCE, although these decisions are based on the bids SCE submits to the CAISO.

[3] D.02-12-074, Ordering Paragraph (OP) 24b. The ellipsis indicates language deleted by D.03-06-076, p. 27 and OP 16.

In D.05-01-054, also issued pre-MRTU, the Commission affirmed that in conducting the daily economic dispatch of energy, utilities must comply with SOC 4, which states:

> The utilities shall prudently administer all contracts and generation resources and dispatch the energy in a least-cost manner. Our definitions of prudent contract administration and least-cost dispatch are the same as our existing standard.[4]

According to the Commission, once this definition of SOC 4 was placed in the utilities' procurement plans, it became the "upfront standard" under Assembly Bill (AB) 57 regarding prudent contract administration and the daily dispatch of energy. As a result, the question addressed in the ERRA Review proceeding regarding LCD is whether the utility has complied with this standard – that is: (1) whether the utility has dispatched[5] the dispatchable contracts and Utility-Owned Generation (UOG) under its control "when it is most economical to do so;" (2) whether it has "disposed of economic long power and purchased economic short power in a manner that minimizes customer costs;" and (3) whether it has used "the most cost-effective mix of its total resources, thereby minimizing the cost of delivering electrical services."

Based on past Commission guidance and the application of basic economic principles, SCE bases its compliance with the LCD standard set forth in SOC 4 on the following operating objectives: (1) a dispatchable resource should run only when its variable costs can be expected to be recovered from the market; (2) SCE bids its dispatchable resources [redacted] then CAISO commits and dispatches the resources through its market co-optimization mechanism;[6] (3) SCE purchases power bilaterally when it anticipates doing so will reduce price risk and result in a lower cost than purchasing from the CAISO market; and (4) SCE sells surplus

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4 D.02-10-062, Conclusion of Law (COL) 11.

5 In this context, "SCE's dispatch" of dispatchable resources is interpreted as submitting cost-based bids to the CAISO market, with the CAISO making resource commitment and dispatch decisions based on the bids all market participants submit for their respective resources. SCE complies with SOC 4 by appropriately executing processes under its control (*e.g.*, bidding its resources correctly), thus enabling the CAISO to commit the resources in a least-cost manner.

6 The CAISO's market co-optimization process considers reliability standards and requirements, and includes a full network model reflecting transmission constraints, producing locational prices (including loss and congestion cost components) at thousands of points across the system.

power in a manner that reduces customer costs.[7] Alignment with these objectives considers that CAISO may force-commit certain resources out of economic order for grid reliability reasons (*e.g.*, to provide voltage support, to ameliorate transmission congestion, etc.), and Resource Adequacy (RA) resources must be presented to the market for SCE to comply with the Commission's and CAISO's reliability requirements.

For resource bidding, SCE employed a strategy (discussed below) to address the cost-minimization objective set forth in SOC 4. This strategy was implemented through the actions of personnel in SCE's Energy Procurement and Management organization, specifically the Trading & Market Operations (TMO) department. In the sections below, SCE explains how its procurement processes and activities aligned with these LCD principles.

B. Overview of LCD in the CAISO Wholesale Market

The CAISO operates a market environment that determines the optimal resource mix to serve each day's demand, based on supply and demand bids that all market participants (including SCE) submit. Below is a summary of SCE's LCD-related activities in the 2022 CAISO market.

1. Supply and Demand Bidding/Scheduling

During the Record Period, SCE, as a CAISO Scheduling Coordinator (SC), submitted bids and schedules for its available generator capacity, and interchange schedules, to the CAISO for evaluation in the day-ahead integrated forward market (IFM) and real-time market (RTM). SCE also submitted ancillary services (AS) bids, in which the CAISO determines how to best utilize resources for energy, AS, a combination of both, or neither. This process is referred to as "co-optimization," and results in more efficient commitment and dispatch of generating resources across the CAISO-controlled grid. SCE also submitted bids for its forecasted bundled service customer demand to acquire energy in the IFM.

[7] Power purchases and/or sales can be through the bilateral or CAISO markets.

2. Spot Market Electrical and Natural Gas Transactions

SCE used market[8] energy transactions, when appropriate, to manage its forecasted residual net short (RNS) and residual net long (RNL)[9] energy positions prior to the CAISO IFM. SCE also managed, when appropriate, its post-IFM residual net position (RNP) due to changing supply availability or load forecast changes through the hour-ahead market and/or the CAISO RTM. SCE also made physical natural gas transactions based on its forecast of the CAISO IFM results and exceptional dispatch (ED) activity.

C. LCD Principles during the Record Period

During the Record Period, SCE complied with SOC 4 by concurrently managing its diverse portfolio of energy resources (contract and utility-owned) and engaging in spot market transactions that reduce price risk and minimize costs to bundled service customers. Decisions regarding supply and demand bidding, scheduling, power trading, and natural gas trading, are made based on the following goals:

- Minimize cost to customers;
- Maximize reliability for each operating day by adhering to the Commission's RA requirements;
- Reduce SCE's hourly RNP prior to real-time, when appropriate;
- Submit economic bids/offers and schedules to the CAISO and other control areas in accordance with the applicable area timelines and reliability protocols; and,
- Mitigate financial credit risk by ensuring that counterparties meet certain credit criteria.

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[8] In this context, "market" refers to electrical energy transactions executed outside of the CAISO's IFM and includes transactions executed directly (bilaterally) with counterparties, through voice or electronic brokers (*e.g.*, ICE Brokerage) and through exchanges (*e.g.*, ICE Clear). Trading generally takes place between 5 a.m. and 7 a.m. PST, Monday through Friday, excluding holidays.

[9] SCE incorporates the electrical energy positions from SCE's ownership share of the Palo Verde Nuclear Generating Station and through other renewable and non-renewable contracts outside of the CAISO. These energy positions are managed to minimize SCE customer costs and may include scheduling and selling the energy outside of the CAISO system and markets.

D. Implementing the LCD Standard

SCE evaluates the economics of its dispatchable resource portfolio before submitting bids and schedules to the CAISO. These resources include UOG and utility-contracted resources, as well as spot market transactions in the day-ahead, hour-ahead, and real-time markets.[10]

1. SCE's Bidding Strategy

In the CAISO market, market participants (including SCE) submit bids and self-schedules to offer energy and AS from resources available to the grid (supply bids), and to acquire energy from the grid to serve customer demand (demand bids). SCE employed bidding strategies with the goal of serving SCE's customers at the lowest possible cost, consistent with the Commission's intent set forth in SOC 4. It is described in more detail below.

a) Supply Bidding Strategy

SCE's supply bidding strategy is designed to make all dispatchable resources available to the CAISO at [redacted][11]

[10] As the Commission explained: "It is true that the existing scope of SOC 4 does not encompass all procurement activities. Specifically, ERRA filings review the reasonableness of contract administration and least-cost dispatch. On the other hand, forward purchase and sale transactions done months prior to the time of dispatch are considered procurement activities and as such, should be reviewed in the quarterly compliance Advice Letter filings." D.05-01-054 at p. 9.

[11] Uplift charges are based in part on the portion of a market participant's demand that is served by energy supplied through the CAISO market (*i.e.*, not served by self-scheduled supply).

Prior to the month (in its month-ahead RA showing), SCE designates enough RA resources to meet Commission and CAISO requirements for load-serving entities (System RA capacity equal to at least 115 percent of SCE's forecast monthly peak demand[12]).

For dispatchable resources, SCE's bid prices are based on [redacted]

During the Record Period, [redacted]

(1) Opportunity Cost Bidding

[redacted]

[12] For Instance, the Commission adopted an effective Planning Reserve Margin (PRM) of 20% - 22.5% for 2022 and 2023 in D.21-02-028 and D.21-03-056.

[redacted]

(2) Dispatch Efficiency Bidding

[redacted]

(3) Import Bidding

Import bids are grouped into the categories discussed below.

(a) Must-Take Imports

[redacted]

[13] See CAISO Grid Emergencies History Report at http://www.caiso.com/Documents/Grid-Emergencies-History-Report-1998-Present.pdf#search=system%20alert%20warning.

(b) Bilaterally Transacted Energy Imports

SCE's bid is based on a [redacted]

2. Renewable Curtailment Bidding

[redacted]

3. Demand Bidding Strategy

In the CAISO market, SCE must submit hourly IFM bids (price and quantity) to obtain the power needed to serve SCE's forecast bundled customer demand. In 2018, SCE implemented a bidding strategy [redacted]

[redacted]

4. Demand Response Bidding Strategy

SCE's economically-triggered Demand Response (DR) resources are bid at [redacted]

[redacted]

5. Eastwood and Hoover Hydro Bidding Strategy

When plant, safety, and water conditions allow, SCE submits [redacted]

[redacted]

E. Daily LCD Process

SCE implements the guiding principles described above in its daily operations. LCD-related processes are primarily based on load and resource forecasts, as well as forecast and actual power and gas prices. These forecasts are documented in the daily resource plans and are in part based on continuous monitoring of market conditions. The daily forecasting and resource planning process for each operating day requires close coordination within the TMO department.

For each day of the Record Period, SCE prepared and utilized the daily resource plans to, among other things, identify the mix of available resources in SCE's portfolio, document SCE's forecast of CAISO IFM results, and estimate SCE's hourly RNP. The following discussion summarizes the processes and actions by SCE personnel during the Record Period to prepare robust daily resource plans.

TMO's Forecasting team developed hourly short-term demand forecasts for each operating day for use in creating the daily resource plan. Such demand forecasts incorporated short-term weather forecasts prepared by SCE's meteorologists, in addition to weather forecasts and data obtained from other meteorological data providers. The demand forecasts also included expectations of customer

migrations from SCE to Community Choice Aggregators, as well as expected behind-the-meter solar generation.

TMO's Forecasting team also developed short-term wholesale power price projections using data gathered from internal and external sources. The hourly price forecasts were key elements in formulating projected resource output based on expected CAISO IFM results. Together with the short-term demand forecasts, the short-term price forecasts were used to develop SCE's RNP forecasts, which were used in power and gas hedging activities.

TMO personnel integrated the short-term demand forecast, short-term price forecast, and then projected resource availability in the planning models to prepare daily resource plans. Each plan contained the following key elements:

- Projected hourly availability of SCE's non-dispatchable resources;
- Projected hourly availability of SCE's dispatchable resources;
- Forecasted hourly electricity prices in southern California;[14]
- Forecasted natural gas prices delivered to key California locations;
- Projected economic dispatch of SCE's dispatchable resources;
- Exceptions to marginal cost bidding for SCE's dispatchable resources;
- Energy transactions executed prior to daily trading;
- Forecasted hourly demand;
- Projected hourly RNP; and,
- Projected gas requirements at each generating facility for which SCE had procurement responsibility.

1. SCE Managed Its Resources in Compliance with SOC 4

As evidenced by the documentation provided herein and in SCE's workpapers, SCE's market processes and actions throughout the Record Period enabled the CAISO to commit and dispatch

[14] At the SP-15 EZ Gen Hub, SCE's Load Aggregation Point (LAP) and at the Locational Marginal Pricing (LMP) nodes with dispatchable generation from SCE's portfolio.

SCE's resource portfolio in an economic manner, as described in SOC 4 and relevant Commission decisions interpreting SOC 4.

F. Summary Reports – Annual Exception Rates

As required by D.15-05-007, this section describes SCE's annual exception rates for dispatchable thermal resource incremental bid cost calculations, self-commitment decisions, and CAISO Master File (Resource Data Template, or RDT) changes.

1. Incremental Bid Cost Calculations

All energy bids submitted to the CAISO IFM during the Record Period are documented in SCE's confidential workpapers for SCE-03, Chapter I-.[15]

The actual incremental bid utilized by the CAISO in the IFM - the clean bid[16] - is compared to the calculated [redacted] During the Record Period, SCE submitted 363,577 bids[17] for its dispatchable thermal resources to the CAISO, with 48 bids found to have a variance[18] due to incorrect values, and zero hours where dispatchable thermal resources were not bid into the CAISO market. SCE's confidential workpapers include detailed information on the variances and evaluation methodology.[19] Table I-1 below shows the estimated cost impact.

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15 See "Section E_Inc Bid Cost Variance_CONFIDENTIAL.xlsx" and "Section E_Inc Bid Cost Variance BLYTHE_CONFIDENTIAL.xlsx"

16 The clean bid is a proxy for SCE's submitted bid. A clean bid is defined as, "a valid Bid submitted by a Scheduling Coordinator that requires no modification, a Default Modified Bid, or a Generated Bid deemed to be acceptable for submission to the CAISO Market applications" (CAISO Tariff, Appendix A.)

17 "Bid" is defined as an IFM energy bid for one resource, for one hour. See "Section E_Inc Bid Cost Variance Not Bid Summary_CONFIDENTIAL.xlsx" for details.

18 A "variance" in this context is defined as a greater than $0.10 difference between calculated and actual submitted bids. *See* D.15-05-007, Appendix A.

19 See "Section E_Inc Bid Cost Variance_CONFIDENTIAL.xlsx" and "Section E_Inc Bid Cost Variance BLYTHE_CONFIDENTIAL.xlsx".

Table I-1
Summary of 2022 Thermal Resource Incremental Bid Cost Exceptions

Description	Variances > $0.10 (Hours)	% of Bid Hours	Resources Not Bid (Hours)	Est. Cost Impact
Incorrect Value	48	0.01%	0	$ 308,387.58
Totals	**48**	**0.01%**	**0**	**$ 308,387.58**

2. Self-Commitment Exceptions

During the Record Period, [redacted]

3. Master File (RDT) Change Exceptions

During the Record Period, SCE made two Master File or Resource Data Template (RDT) changes to declare startup (SU) and minimum load (ML) costs for one thermal resource that was onboarded in 2022[20].

The CAISO tariff provides two methodologies – "Proxy" or "Registered" – to declare resource SU and ML costs:

- Proxy cost option: The SU and/or ML costs are automatically calculated each day based on pre-defined fuel quantities for each, multiplied by an indexed gas price plus a variable operations and maintenance (VOM) adder.[21] The costs thus reflect any daily natural gas price variations, and certain additional non fuel-based (*i.e.*, "fixed")[22] startup cost components that were approved by the CAISO.

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[20] See "Section E_Commit Cost_CONFIDENTIAL.xlsx".

[21] Electing the Proxy cost option also allows Market Participants to submit daily SU and/or ML cost *bids,* to the extent they are lower than the resulting CAISO-calculated costs.

[22] "Fixed" SU cost is a static component that does not vary with fuel price changes, but applies only when (and every time) the resource is started. As such, it is truly a variable operating cost, as it would not be incurred but for running the resource.

- Registered cost option: The SU and/or ML costs are pre-defined as static dollar amounts for the election period.[23] This option does not reflect the daily natural gas price changes, but allows other non-fuel based (*e.g.*, contractual) costs to be included (within certain limits). The CAISO tariff only allows this option for new use-limited resources for the first 14 months, then the resource is required to change to a proxy cost option.

During the Record Period, [redacted] This benefitted customers by more effectively enabling the CAISO to dispatch the resources in a least-cost manner.

G. Market and Business Process Changes

During 2022, the CAISO implemented several market changes that have impacted how market participants interact with the CAISO market, including how bids are submitted, and how bidding requirements are monitored and incentivized. Major changes are highlighted below:

1. RDRR Bidding Enhancements Phase 1

On March 23, 2022, the CAISO filed with the Federal Energy Regulatory Commission (FERC) an amendment to its tariff to implement Reliability Demand Response Resource (RDRR) Bidding Enhancements Phase 1. In this amendment, the CAISO proposed to raise the RDRR real-time bid floor to 95 percent of the hard energy bid cap in the real time market for hours when the CAISO accepts energy bids priced up to $2,000/MWh. This is to ensure 1) RDRRs maintain the high strike price fundamental to their design; 2) the CAISO does not dispatch RDRRs too early once enabled; and 3) that RDRRs do not suppress real-time prices in the early hours of an emergency. FERC approved the CAISO's proposal on May 24, 2022 and the CAISO implemented the changes on June 1, 2022.[24]

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[23] The CAISO tariff allows SU and ML cost updates every 30 days. Elections and defined values carry forward until changed.

[24] See https://www.caiso.com/Documents/Jun6-2022-InformationalFiling-EffectiveDateofReliabilityDemandResponseResource-ER22-1431.pdf

2. RDRR Bidding Enhancements Phase 2

On August 22, 2022, the CAISO filed an amendment to its tariff to implement RDRR Bidding Enhancements Phase 2. This phase models the PMin of a discrete-dispatch RDRR at just below the RDRR's upper economic limit (*i.e.,* the maximum capacity limit in its bid) so the market can treat the costs of RDRR resources more appropriately, and effectively respect the dispatch limitations of discrete-dispatch RDRRs. It also allows discrete RDRRs to register up to 100 MW in size, or larger if they meet certain criteria set by the CAISO. FERC approved the CAISO's proposal on October 24, 2022 and the CAISO implemented the changes on November 3, 2022.[25]

3. Transmission Service and Market Scheduling Priorities Phase 1

On January 27, 2022, the CAISO filed an amendment to (1) retain interim tariff provisions until June 1, 2022 to establish wheel-through priorities in the day-ahead and real-time market optimization processes and allocate capacity between CAISO load and wheeling through transactions during stressed system conditions; and (2) revise tariff provisions on a non-interim basis regarding the resources eligible to back high-priority, non-recallable exports *(i.e.,* export self-schedules at scheduling points explicitly sourced by non-RA capacity). FERC approved the CAISO's filing on March 15, 2022.[26]

4. CAISO's Alerts, Warnings, and Emergencies (AWE) Notification System Transitioned to the North American Electric Reliability Corporation (NERC) Energy Emergency Alerts (EEA) System

On May 1, 2022, the CAISO transitioned its AWE notifications to align with NERC's EEA designations[27]. Specifically, the CAISO introduced emergency levels under EEA (*i.e.,* EEA Watch, EEA 1, EEA 2 and EEA3) that replaced then-existing Alert, Warning and Emergency Stages 1 to 3[28].

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[25] See https://www.caiso.com/Documents/Nov4-2022-InformationalFilingofEffectiveDate-ReliabilityDemandResponseResource-ER22-2700.pdf

[26] See https://www.caiso.com/Documents/Mar15-2022-OrderAcceptingExtension-Loads-Exports-Wheeling-ER22-906.pdf

[27] See https://www.caiso.com/Documents/4420.pdf

[28] See https://www.caiso.com/Documents/Presentation-AWE-NERC-EEA-Training-Apr20-2022.pdf

5. Internal Software Changes

Other than previously described topics, SCE did not implement any significant software changes.

6. LCD-Related Process Changes

To ensure SCE is prepared for CAISO system emergency events that could impact reliability to its customers, an EPM Alert & Warning System was developed in 2021 to provide sufficient lead time to avoid or minimize any loss-of-load events. The internal system is a tiered alert notification network that uses lead times to potential events, confidence levels of forecasts, and both SCE internal and CAISO quantitative/qualitative metrics to prepare in advance of CAISO's declaration of an emergency. The Alert system notifies relevant internal stakeholders to activate procedures (*e.g.* deployment of reliability resources, increases in capacity during the net peak, modification of bid strategies, etc.) prior to or during a CAISO emergency. In 2022, the system was expanded to include visibility to potential reliability risks to gas supply in the Southern California region and Permian Basin gas production areas. The system was also updated to align with the CAISO's change to the NERC EEA.

H. Background Summary Tables

Table I-2 below provides annual summary data for SCE's resource portfolio broken down by dispatchable and non-dispatchable resources including capacity,[29] unavailable capacity,[30] day-ahead self-schedule (SS) awards,[31] and day-ahead market awards. The CAISO reports market awards for day-ahead exceptional dispatches as self-schedules (SS).

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[29] "Capacity" is calculated as the aggregate of the applicable resources' maximum capacity ratings multiplied by the number of hours during the Record Period each resource was under SCE control.

[30] "Unavailable capacity" is defined as zero availability (*i.e.*, excludes partial de-rates) for the applicable resources.

[31] [redacted] See "Section E_SS and Market Awards_CONFIDENTIAL.xlsx"

Table I-2
Background Summary of 2022 Resource Capacity and Awards

Dispatchable	Capacity (MWh)	Unavailable Capacity (MWh)	DA SS Awards (MWh)	DA Market Awards (MWh)
Thermal	47,708,402			
Hydro	11,649,486			
Energy Storage	7,410,432			
Totals	**66,768,320**			

Non-Dispatchable	Capacity (MWh)	Unavailable Capacity (MWh)	DA SS Awards (MWh)	DA Market Awards (MWh)
Other	5,974,902			
Wind & Solar	66,661,005			
Nuclear	5,562,600			
Hydro	1,126,921			
Totals	**79,325,429**			

I. Demand Response Resources

During the Record Period, all of SCE's economically triggered DR resources were available for CAISO market dispatch. PDRs and RDRRs[32] represented approximately 1,236 MW of integrated capacity in September 2022.[33] SCE's confidential workpapers include detailed information on program parameters, dispatch,[34] opportunity cost methodology (when applicable), dispatch exceptions, and estimated cost impacts.

J. SCE's Market Purchases and Sales

The CAISO determines which resources will be dispatched and ensures that physical supply and demand are matched (cleared) through its market operations. The clearing process that takes place in the IFM is such that the difference between a market participant's awarded supply and demand (*i.e.,* the RNP) is cleared at the IFM price; this difference, effectively, equals SCE's IFM RNP. SCE's trading activities focus on managing the physical and financial risks associated with SCE's RNP. Transactions

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[32] PDR includes customers in the Capacity Bidding Program (CBP) and Local Capacity Requirements (LCR) DR contracts. RDRR includes customers in the Base Interruptible Program (BIP), Agricultural Pumping Interruptible (API), Summer Discount Plan (SDP) and Smart Energy Program (SEP).

[33] Integrated MW vary by month, due to program availability and contracts coming on or off line.

[34] RDRR includes provisions for SCE's Grid Control Center to issue reliability-based dispatches, which are considered outside the scope of LCD and thus not included in this discussion.

can be for physical or financial products, as both serve to hedge against the unknown IFM price at the time of the trade.

During the Record Period, SCE participated in the non-CAISO market (trading physical and financial electricity products) to diversify its exposure. For example, [redacted] Furthermore, SCE is still required to manage open positions outside the CAISO system with physical electricity transactions.

As the IFM will usually clear all of SCE's RNP, SCE's Energy Trading team does not have the objective of reducing the CAISO-delivered RNP to (or near) zero; rather, the team's objective is primarily price-risk mitigation. For example, [redacted]

1. Day-Ahead Transaction Summary

The majority (99 percent) of the day-ahead transactions were standard on-peak and off-peak products. However, as discussed above, SCE also relied on the IFM to transact energy to manage the RNP in its price-risk minimization efforts. SCE's Day-Ahead purchases and sales during the Record Period are shown in Table I-3 below.

Table I-3
Summary of 2022 Day-Ahead Spot Electric Transactions
(Physical and Financial)

2022 Day-Ahead Spot Power		
	Annual	
Deal Type	**Energy (GWh)**	**Number of Deals**
Broker/Exchange Purchases		
Standard On-Peak	2,107.12	176
Standard Off-Peak	13.35	10
Other Non-Standard Products	8.00	20
Subtotal Broker/Exchange	**2,128.48**	**206**
Bilateral Purchases		
Standard On-Peak	0.00	0
Standard Off-Peak	0.00	0
Other Non-Standard Products	0.00	0
Subtotal Bilateral	**0.00**	**0**
Total Purchased	**2,128.48**	**206**
Broker/Exchange Sales		
Standard On-Peak		
Standard Off-Peak		
Other Non-Standard Products		
Subtotal Broker/Exchange	**0.00**	**0**
Bilateral Sales		
Standard On-Peak		
Standard Off-Peak	0.00	0
Other Non-Standard Products	12.10	4
Subtotal Bilateral	**12.10**	**4**
Total Sold	**12.10**	**4**
Total Broker/Exchange	2,128.48	206
Total Bilateral	12.10	4
Total Transacted	**2,140.58**	**210**

2. SCE's Day-Ahead Transactions Were Competitive and in Compliance with SOC 4

As discussed above, SCE's day-ahead purchase and sale transactions during the Record Period were conducted via brokers/exchanges and bilateral processes in accordance with its LCD transaction protocols and SCE's Commission-approved BPP.

3. Hour-Ahead Transaction Summary

Table I-4 below is a summary of SCE's hour-ahead purchases and sales during the Record Period.

Table I-4
Summary of 2022 Hour-Ahead Spot Electric Transactions
(Physical and Financial)

2022 Hour-Ahead Spot Power		
	Annual	
Deal Type	**Energy (GWh)**	**Number of Deals**
Broker/Exchange Purchases	0.00	0
Bilateral Purchases	0.00	0
Total Purchased	**0.00**	**0**
Broker/Exchange Sales	0.00	0
Bilateral Sales	0.33	[redacted]
Total Sold	**0.33**	**3**
Total Broker/Exchange	0.00	0
Total Bilateral	0.33	**3**
Total Transacted	**0.33**	**3**

4. SCE's Hour-Ahead Transactions Were Competitive and in Compliance with SOC 4

Moderating SCE's potential exposure to the CAISO's RTM was a consideration in SCE's determination of the energy quantities to transact in the hour-ahead market. In addition, the criteria previously discussed regarding day-ahead transactions also applied to SCE's transaction decisions in the hour-ahead market.

Unlike the day-ahead spot market, which usually has many potential creditworthy counterparties who trade standard and non-standard on-peak and off-peak products, the hour-ahead spot market is usually much less liquid, with a low number of potential creditworthy counterparties.

The IFM clears most open positions in the day-ahead timeframe down to the hourly level, significantly reducing the amount of potential energy to transact in the hour-ahead markets. In general, low liquidity associated with hour-ahead trading is due to the following reasons:

- The IFM clearing most open positions for most market participants, prior to real-time;
- Many non-load-serving market participants (*e.g.*, banks and hedge funds) close out their positions prior to the hour-ahead market;
- Increased participation in, and the expansion of, the CAISO Energy Imbalance Market (EIM) allows some market participants to manage their load and supply in the EIM, thereby reducing the need for transactions in the hour-ahead markets;
- The products transacted are for non-standard deliveries, typically for only up to a few hours on a given day; and,
- Given SCE's estimated hour-ahead RNP is usually determined just a few hours before, it is often difficult to find creditworthy counterparties whose energy positions can offset SCE's energy positions.

SCE followed SOC 4 in its hour-ahead transacting during the Record Period by appropriately reducing its RNP, when feasible, through competitively-priced sales or purchases. This compliance can be confirmed by understanding the market conditions that existed at the time of a given transaction and reviewing SCE's daily resource plans.[35]

In summary, SCE's hour-ahead transactions during the Record Period were conducted in accordance with its LCD transaction protocols. In the absence of reliable price indices for the hour-ahead market (which, if available, would undoubtedly show a range of reported prices for each hour), SCE's price surveys are the best indicators available for hour-ahead market prices for the various products, locations, and market conditions.

5. Gas Procurement Supporting LCD

During the Record Period, SCE transacted, transported, and hedged natural gas supplies in conjunction with SCE gas agreements. Only the short-term (*i.e.*, daily spot and intra-day) gas

[35] SCE provides this information to the Commission through the Quarterly Compliance Report (QCR) process.

transactions that were executed in support of dispatchable resources are reviewed in this ERRA Review proceeding; SCE's long-term transactions are reviewed in its QCR submissions.

SCE's overall objective in providing gas supplies under the agreements[36] for which it was responsible during the Record Period was to minimize costs, while ensuring operational reliability and flexibility to respond to continuously-changing generation requirements of SCE's resource portfolio, as dictated by LCD requirements. During the Record Year, SCE utilized Backbone Transportation Service (BTS) to diversify supply receipt points and hedge gas price volatility.

To cost-effectively manage SCE's overall physical gas position, SCE's gas trading team reviewed the daily resource plan, market fundamentals, pipeline conditions, and gas imbalance account to determine the quantity of day-ahead gas needed to meet SCE's gas requirements. The traders purchased the required physical gas volumes utilizing a combination of daily index and fixed priced transactions, and baseload supply arrangements. Daily index and fixed price transactions are entered into bilaterally or via brokers and electronic exchanges (*e.g.*, ICE). Because the forecasted day-ahead gas requirements must be purchased before the CAISO's daily IFM results are published, SCE also utilizes the intra-day and secondary imbalance gas markets to transact gas volumes when IFM results are much different than anticipated, or intra-day generation schedules change.

6. Gas Transaction Summary

Table I-5 below is a summary of the daily spot and intra-day gas transactions during the Record Period. A portion of SCE's gas purchases were daily index call options which were set up as term deals; as such, their volumes are not included here. Please refer to SCE-02, Chapter I for additional information regarding gas transactions.

[36] Relevant information regarding gas agreements is discussed in Chapter I.

Table I-5
Summary of 2022 Spot Gas Transactions

2022 Spot Gas		
	Annual	
Deal Type	**Volume (Billion BTU)**	**Number of Deals**
Broker/Exchange Purchases	240,974	7,315
Bilateral Purchases	25,543	508
Total Purchased	**266,517**	**7823**
Broker/Exchange Sales	4,272	696
Bilateral Sales	1,022	50
Total Sold	**5,295**	**746**
Total Broker/Exchange	245,246	8,011
Total Bilateral	26,566	558
Total Transacted	**271,812**	**8,569**

7. SCE's Spot Gas Transactions Were Competitive and in Compliance with SOC 4

During the Record Period, all of SCE's spot gas transactions were at prices competitive with spot gas index prices published in recognized surveys. Accordingly, these transactions complied with SOC 4.

K. SCE's Spot Electric and Gas Transactions Met LCD Compliance Requirements

As evidenced by the foregoing discussion and the documentation provided in SCE's workpapers, SCE's electric and gas transactions and processes minimized costs to SCE's customers throughout the Record Period.

L. Conclusion

During the Record Period, SCE consistently followed prudent procurement and bidding processes and practices to satisfy SOC 4. As evidenced by this testimony and the supporting workpapers, SCE also provided qualitative and quantitative documentation that its actions met the Commission's LCD Compliance Standard, and this showing complies with the requirements established in D.15-05-007. Accordingly, the Commission should find that SCE's LCD-related activities during the Record Period were reasonable and in compliance with the applicable Commission standards.

II.

CONTRACT ADMINISTRATION AND COSTS

A. Introduction

The Commission provided guidance on what it expects from the utility when reviewing energy contract administration and on the scope and nature of such reviews. As used in this Chapter, the term "contract administration" means activities implementing the exercise of contract rights and performing contract obligations after contract execution by SCE. The administration and management of these contracts is explained throughout this chapter based upon the following resource categories: (1) Behind the Meter (BTM) contracts; (2) Conventional and Natural Gas contracts (including Demand Response Auction Mechanism (DRAM)); (3) Public Utility Regulatory Policy Act (PURPA) and Combined Heat and Power (CHP) contracts; (4) Renewables Portfolio Standard (RPS) contracts; and, (5) Battery Energy Storage System(s) (BESS) contracts.

1. Behind-The-Meter Contracts

SCE executes and administers BTM contracts, which are contracts for resources sited on the customer side of the meter, with the objective of reducing onsite load (*i.e.*, there is no export energy). BTM contracts are entered into under the procurement authority granted to SCE through its Commission-approved procurement plans including the 2012 Long Term Procurement Plan (LTPP) proceeding (Tracks 1 and 4) and other RFOs. The administration for BTM contracts is managed by SCE's Customer Program & Services (CP&S) unit and is discussed separately from the Conventional, PURPA/CHP, RPS, or BESS sections of this chapter.

2. Conventional and Natural Gas Contracts

"Conventional energy contracts" are contracts with, or related to, non-CHP, fossil-fired, thermal resources including tolling agreements or Power Purchase Agreements (PPAs), physical or financial structured commodity transactions (*e.g.*, commodity transactions other than trades), contracts for fuel or electricity transportation, resource adequacy (RA) contracts, or demand response resource purchase agreements (RPAs), and contracts that do not fit exclusively within BTM, PURPA, CHP, RPS

or BESS. SCE executed conventional contracts either prior to the passage of AB 57[37] after the passage of AB 57[38] under the procurement authority granted to SCE through its then-applicable Commission-approved procurement plan, through various SCE RFOs, through Commission-approved DRAM (or other) solicitations,[39] or through bilateral transactions outside of the Commission-approved procurement plan for which SCE sought separate upfront approval from the Commission. In addition, SCE has Master Enabling Agreements under which power, natural gas, Resource Adequacy capacity, transmission, emissions, and financial hedging transactions (most short-term),[40] are executed under SCE's Commission-approved procurement plan.

3. PURPA and CHP Contracts

SCE also administers PPAs entered under the Commission's implementation of PURPA.[41] The generating facilities subject to these PPAs are referred to as Qualifying Facilities (QFs) within the meaning of PURPA and consist of either small power producers fueled by renewable resources, or cogeneration facilities as defined in PURPA. Most PPAs are "standard offer" contracts approved by the Commission, including: Standard Offer 1 (SO1); Standard Offer 3 (SO3); and Interim Standard Offer 4 (ISO4 or SO4) contracts. In addition, SCE has signed "nonstandard" or negotiated (NEG) contracts with QFs, usually based on a standard offer, which have been approved by the Commission.

Since November 2011, SCE administers PPAs entered into under the CHP Settlement adopted by the Commission in D.10-12-035. The CHP Settlement developed a State CHP Program with the intent of transitioning from the prior PURPA program to a market-based, state-administered program for CHP projects above 20 MW. This program is governed by a set of provisions called the CHP

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37 Inter-utility contracts that SCE entered into with other utilities prior to re-entering the procurement role on behalf of bundled service customers on January 1, 2003 are often referred to as legacy agreements.

38 New transactions are generally reviewed in SCE's QCR advice letter filings or through a separate advice letter or application to the Commission for pre-approval.

39 In accordance with D.19-12-040 and D.19-07-009.

40 SCE considers short-term transactions to be those with delivery terms up to and including one quarter in duration and up to one quarter forward.

41 Public Law No. 95-617 (Nov. 9, 1978), 92 Stat. 3117, *available at* https://www.gpo.gov/fdsys/pkg/STATUTE-92/pdf/STATUTE-92-Pg3117.pdf.

Settlement Term Sheet. One condition precedent to implementing the CHP Settlement was that the FERC terminate the IOUs' PURPA must-take obligation pursuant to §210(m), as modified by the Energy Policy Act of 2005,[42] for QFs above 20 MW. On June 16, 2011, the FERC granted the California IOUs §210(m) application to terminate the PURPA must-take obligation for QFs above 20 MW.[43]

The CHP Settlement provided a path for CHP resources above 20 MW to obtain PPAs in the absence of the IOUs' PURPA must-take obligation and established a PURPA QF Standard Offer Contract (QF SOC) for QFs 20 MW or less. The CHP Settlement created market-based agreements for CHP projects. One agreement is a Standard PPA signed under the CHP Settlement's RFO PPA. Bilateral negotiations are another, less common procurement process for CHP. These PPAs are known as CHP Bilateral PPAs. These CHP RFO and CHP Bilateral PPA contracts are not PURPA contracts but rather a result of a collaborative effort between the IOUs and the CHP parties through the CHP Settlement. Additionally, qualifying CHP projects of 20 MW or less are eligible to execute a tariff contract, at any time, pursuant to AB 1613.[44] Similar to the QF SOC, the AB 1613 program and its associated contracts are administered per the requirements of PURPA, which remains in effect in California for QFs of 20 MW or less.[45]

4. RPS Contracts

SCE executes and administers PPAs to implement California's RPS, which became effective January 1, 2003.[46] Initial RPS legislation (SB 1078 and SB 107) required certain LSEs, including the IOUs, to increase procurement from eligible renewable resources (ERRs), as defined in the

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42 Public Law No. 109-58 (Aug. 8, 2005), 119 Stat. 594, *available at* https://www.gpo.gov/fdsys/pkg/PLAW-109publ58/pdf/PLAW-109publ58.pdf.

43 135 FERC ¶ 61,234.

44 Assembly Bill 1613 (Blakeslee 2007) and amended by Assembly Bill 2791 (Blakeslee 2008) directed the CEC, the CPUC, and the CARB to implement the Waste Heat and Carbon Emissions Reduction Act. The Act is designed to encourage the development of new CHP systems in California with a generating capacity of not more than 20 MW. *See also* D. 09-12-042 (as modified by D.10-04-055, D.10-12-055 and D.11-04-033) and Resolution E-4424 for approved contract form and program specifics.

45 Adopted in D.09-12-042.

46 *See* Pub. Util. Code §399.11, et. seq.

legislation, by at least 1 percent of annual sales per year, so that 20 percent of retail sales are served from ERRs by 2010.[47] In 2011, SB X1-2 expanded the RPS to 33 percent by 2020.[48] In September 2015, SB 350 further expanded the RPS requirement to 50 percent by 2030. In September 2018, SB 100 expanded the RPS requirement to 50 percent by 2026, 60 percent by 2030 and established a state policy that 100 percent of retail sales of electricity to California end-use customers come from eligible renewable resources and zero-carbon resources by 2045.[49]

Based on SCE's RPS Renewable Energy Credits (RECs) available inventory, SCE has entered into REC sales agreements under the Edison Electric Institute Master Enabling Agreement executed under SCE's Commission-approved RPS Procurement Plan to capture market value for its customers relative to SCE's available RPS REC inventory. On May 24, 2021, the Commission issued Decision (D.) 21-05-030 to authorize new Voluntary Allocation, Market Offer, and Request for Inormation (RFI) processes for RPS contracts subject to the Power Charge Indifference Adjustment (PCIA). The Decision adopted a Voluntary Allocation and Market Offer (VAMO) mechanism, which authorizes a process for the IOUs to allocate a "slice" of an IOUs entire PCIA-eligible RPS portfolios to eligible load serving entities (LSEs) who agree to accept, which will elect their allocations in 10% increments in proportion to their vintaged, forecasted, annual load share and sell unallocated RECs through a Market Offer. BESS Contracts.

5. BESS

SCE administers PPAs with BESS projects procured in various Commission-approved solicitations, including all-source, preferred resources, local capacity reliability, or through bilateral transactions. Initial legislation in AB 2514 (Stats. 2010, Ch. 469) required the Commission to determine appropriate targets, if any, for each load-serving entity to procure viable and cost-effective BESS.[50]

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47 *See* Pub. Util. Code § 399.15, et. seq.

48 Senate BillX1-2, *available at* http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb_0001-0050/sbx1_2_bill_20110412_chaptered.pdf. Additionally, this bill eliminated the 1 percent per year requirement in the previous RPS legislation.

49 Senate Bill SB100, *available at* *https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100.*

50 Cal. Pub. Util. Code § 2836 *et seq*.

Rulemaking (R.)10-12-007 was opened to implement AB 2514 and was adopted by the Commission on October 17, 2013 in D.13-10-040. SCE's share of the initial 1,325 MW target was 580 MW, divided into biennial procurement targets in 2014, 2016, 2018, and 2020, managed through the Energy Storage RFOs. On March 2, 2020, SCE demonstrated in A.20-03-002 to the Commission that it reached its procurement target of BESS in its 2018 biennial procurement cycle with a total eligible procurement of 609.08 MW.

The policy objectives of AB 2514 to transform the energy storage market and overcome barriers for increased adoption of BESS were realized. SCE's procurement demonstrated that battery energy storage systems were cost-competitive not only on their own merits, but also in instances when valued head-to-head against other technology types. As California continues its transition to a clean energy future, battery energy storage systems will be an essential resource for keeping the state's grid safe, reliable, and affordable.

B. Safety

1. BTM Contract Development Project Monitoring and Safety

SCE is strongly committed to safety in all aspects of its business. Consistent with SCE's focus on safety, BTM contracts require that counterparty (Seller) must safely construct and operate their projects and comply with applicable safety regulations and standards. The contracts also require that the Seller provide SCE a report from an independent engineer certifying that the Seller has a written plan for the safe construction and operation of the project prior to commencement of any construction activities on the project site.

For the BTM projects interconnecting to SCE's grid, safety is addressed as part of Rule 21 generator's interconnection process, which requires testing for safety and reliability of the generation and interconnection facilities. Sellers may commence deliveries under the contract only after certain criteria have been met, including confirmation of completing safety testing and issuance of a Permission to Operate letter from SCE's interconnection department. Additionally, local, state, and federal agencies with review and approval authority over the projects are charged with enforcing safety, environmental, and other regulations (SCE requires proof from the Authority Having Jurisdiction – city, county or state

officials, as applicable – that the installation and planned operation of the facilities comply with such regulations prior to issuing the Permission to Operate letter).

2. Non-BTM Contract Administration Safety Practices

Consistent with SCE's strong commitment to safety in all aspects of its business, SCE hold the Seller responsible for the safe construction and operation of their generating facilities and compliance with all safety regulations. SCE has taken several steps to address those issues over which it has the most visibility and control – the delivery of electricity products to SCE in a reliable, safe, and operationally sound manner.

Consistent with this focus, SCE includes a provision in many of its contracts providing that prior to commencement of any construction activities on the project site, the Seller must provide to SCE a report from an independent engineer certifying that the Seller has a written plan for the safe construction and operation of the generating facility, in accordance with Prudent Electrical Practices.

All of SCE's PPAs provide that the Seller must operate the generating facility in accordance with Prudent Electrical Practices. Further, these provisions specifically require that all Sellers take reasonable steps to ensure that:

a) Equipment, materials, resources, and supplies, including spare parts inventories, are available to meet the generating facility's needs;
b) Sufficient operating personnel are available at all times and are adequately experienced, trained, and licensed as necessary to operate the generating facility properly and efficiently, and are capable of responding to reasonably foreseeable emergency conditions at the generating facility and emergencies whether caused by events on or off the project site;
c) Preventive, routine, and non-routine maintenance and repairs are performed on a basis that ensures reliable, long term and safe operation of the generating facility, and are performed by knowledgeable, trained, and experienced personnel utilizing proper equipment and tools;

d) Appropriate monitoring and testing are performed to ensure equipment is functioning as designed;

e) Equipment is not operated in a reckless manner, in violation of manufacturer's guidelines or in a manner unsafe to workers, the general public, the Transmission Provider's electric system or contrary to environmental laws, permits or regulations or without regard to defined limitations such as flood conditions, safety inspection requirements, operating voltage, current, reactive power loading, frequency, rotational speed, polarity, synchronization, and control system limits; and,

f) Equipment and components are designed and manufactured to meet or exceed the standard of durability generally used for electric generating facilities operating in the Western United States and will function properly over the full range of ambient temperature and weather conditions reasonably expected to occur at the project site under both normal and emergency conditions.

SCE Energy Contract Managers and members from SCE's Contract Compliance and Technical Services group monitor the development of counterparty energy projects, from contract execution throughout the term of the PPA. Typically, a contract requires the Seller to provide written progress reports on their project's development status to SCE on a monthly or quarterly basis until Commercial Operation is achieved. As part of these progress reports, generators must provide the status of construction activities, including Occupational Health and Safety Administration (OSHA) recordable and work stoppage information. The assigned contract managers and compliance team members review the written progress reports, conduct conference calls with counterparty personnel, and conduct site visits to ensure that SCE is consistently up-to-date regarding the status of each project, along with any associated issues that impact the project. Prior to a project achieving Commercial Operation, SCE consistently reviews and tracks development activities, including site control, permitting, financing, construction, and safety.

During the onboarding process of bringing a project to commercial operation, Engineers from SCE's Contract Compliance and Technical Services group conduct site visits to verify that the

facility has been built to the specifications referenced in the contract. Prior to the site visit, an SCE Engineer contacts the counterparty to discuss any safety hazards unique to the facility such as dangerous wildlife, abnormal noise issues, dangerous access roads, etc., and assess the minimum personal protective equipment (PPE) required for the site visit. The SCE Engineer then reviews a technology-specific hazard assessment developed by the Engineers and safety professionals from within SCE. This review prepares the Engineer for the potential hazards associated with each of the generation technologies and the required PPE[51] before the site visit.

Upon arriving at the site, the SCE Engineer and any other SCE personnel meet with the site representative(s) and conduct a Safety Tailboard. During this tailboard, participants discuss the planned activities and all safety considerations by using a checklist developed by SCE. The checklist includes, *inter alia*, personal protective equipment, communication protocols, emergency response, location of safety/first aid equipment, and location of nearest emergency room. The site contact will also perform various safety trainings or reminders depending on whether the site is still under construction or if control of the project has transferred to an O&M provider. In all cases, conducting the Safety Tailboard prior to the inspection ensures SCE and facility personnel keep safety top of mind during all site visits.

For procurement contracts with third-party generators, local, state, and federal agencies with review and approval authority over the generation facilities are charged with enforcing safety, environmental and other regulations for the project, including decommissioning. Safety is also addressed as part of a generator's interconnection process, which requires testing for safety and reliability of the interconnected generation. SCE declares that a facility has commenced deliveries under the contract only after certain criteria has been met, including that the interconnecting utility and the CAISO have concluded such testing and given permission to commence Commercial Operation.

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[51] The SCE Engineer maintains an inventory of PPE covering all types of generating facilities. The inventory is used to outfit, as needed, for site visits and also to replenish "site visit kits" containing a standard set of PPE provided to employees that may engage in site visits.

C. Authorization for Recovery of Contract Expenses

The California Public Utilities Code, Commission decisions, and approved advice letters provide for recovery of the costs associated with SCE's procurement contracts during the term of those agreements. Pursuant to D.02-10-062, SCE submitted Advice 1665-E to implement the ERRA BA and allow SCE to debit and recover its net purchased power expenses,[52] including applicable energy contract costs, to the ERRA BA for cost recovery. In addition, D.02-12-074 authorized cost recovery for the reasonable costs associated with administering and managing SCE's energy contracts.[53]

In D.06-07-029, as modified by D.11-05-005, the Commission adopted a cost allocation methodology (CAM) to allocate the benefits and costs of new generation to all benefiting customers within SCE's service territory. Specifically, the Commission allowed the IOUs to recover "net capacity costs" for certain contracts from all bundled, Direct Access (DA), and Community Choice Aggregation (CCA) customers through the CAM.

In D.07-09-044, the Commission authorized SCE to establish a balancing account to record costs and benefits associated with new generation resources. SCE established the New System Generation Balancing Account (NSGBA)[54] to track and recover the net costs of the new generation resources from all benefiting customers (including bundled service, DA, and CCA customers), while continuing to record all other costs associated with the energy contracts in the ERRA BA. Since only the net capacity costs of these resources are recovered through the CAM (*i.e.*, NSGBA), sometimes a contract has a portion of its costs recovered through the CAM and a portion of its costs recovered through the ERRA BA or the PABA.

Pursuant to D.18-10-019, SCE submitted Advice 3914-E to establish the Portfolio Allocation Balancing Account (PABA),[55] with subaccounts for each vintaged portfolio, to record the costs, market

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[52] Purchased power expenses include costs associated with renewable contracts, inter-utility contracts, bilateral contracts, ancillary services, uplift charges, and residual net short and net long procurement activities.

[53] *See* D.02-12-074 and Pub. Util. Code Section 454.5(d)(2).

[54] The NSGBA is discussed in Chapter IV of this ERRA Application. Chapter IV discusses cost recovery for procurement activities through ERRA.

[55] Advice 3914-E was approved by the Commission's Energy Division with an effective date of January 1, 2019.

revenues, actual retained RA and RPS values, and billed customer revenues associated with its Competition Transition Charge (CTC) and Power Charge Indifference Adjustment (PCIA) eligible resources. The establishment of the PABA moved recovery of certain procurement contracts out of the ERRA BA and into the PABA.

In November 2019, the Commission issued D.19-11-016 that required procurement of an additional 3,300 MW of resource adequacy capacity by all load-serving entities for 2021-2023, of which SCE was ordered to procure 1,184.7 MW.[56] Subsequently in May 2022, the Commission issued D.22-05-015, which adopted a Modified Cost Adjustment Mechanism (MCAM) to ensure that the net costs of electric resource procurement obligations mandated in D.19-11-016 was allocated in a fair manner through the use of a non-bypassable customer charge. MCAM costs were split between SCE bundled customers, opt-out load serving entity (LSE) customers, and non-operational opt-out LSE customers through PABA, a newly created MCAM balancing account, and NSGBA, respectively.

To address the mid-term reliability needs within the California Independent System Operator's (CAISO's) operating system, in June 2021, the Commission issued D.21-06-035, which required at least 11,500 MWs of additional net qualifying capacity (NQC) to be procured by all of the load-serving entities subject to the Commission's integrated resource planning authority between 2023 and 2026.[57] In September 2021, SCE submitted Advice 4589-E revising its PABA preliminary statement to record the costs and benefits related to the procurement of D.21-06-035 in the 2021 vintage of the PABA, which was based on the date of D.21-06-035.[58]

D.21-02-028 directed SCE to contract for capacity that is available to service peak and net peak demand in the summer of 2021. Per D.21-02-028, SCE was to procure on behalf of all customers in its service territory with the costs and benefits allocated to all benefitting customers through the CAM

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[56] D.19-11-016, OP 3(o).

[57] 2,000 MW by 2023, an additional 6,000 by 2024, an additional 1,500 MW by 2025, and an additional 2,000 MW by 2026

[58] Advice 4589-E was accepted with an effective date of October 16, 2021.

(NSBGA).[59] Subsequently, D.21-03-056 and D.21-12-015 ordered SCE to take actions to prepare for potential extreme weather in the summers of 2021 through 2023.

1. The Standard of Review for Cost Recovery

In a series of decisions, the Commission explained the standards it would apply to review the utilities' administration of contracts in the utility supply portfolio.[60] In this ERRA Review proceeding, SCE provides evidence that its contracts were administered in accordance with the terms of the contracts and that any contract disputes that arose were, or are in the process of being, reasonably resolved.[61] In this chapter, SCE demonstrates that during the Record Period it administered all contracts for which it has responsibility in a manner consistent with these standards and that its contract administration activities should therefore be found prudent and reasonable. The Commission's review of purchase and sale transactions, including the type of product purchased or sold, together with the bidding or other transaction procedure followed, and the contracts' terms and prices, is conducted in SCE's QCR advice letter filings[62] or through separate advice letters or applications.

D. Summary of Contract Administration and Management Processes

SCE's goal is to administer its contracts through a balanced and fair process to maximize benefits to customers at the lowest achievable cost. Certain contract transactions provide not only commodity and price benefits, but also non-price benefits such as dispatchability or favorable terms and conditions.

The contract administration process consists of several activities including: (1) exercising contract options in a prudent and economic manner; (2) verifying that the counterparty is complying with the contract terms, including credit support and collateral requirements; (3) verifying that billing and payments are accurate and consistent with the terms of the contract; (4) reviewing interruptions of service and *force majeure* events; (5) renegotiating contract provisions as necessary due to changed

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[59] D.21-02-028, p. 12.

[60] *See* D.02-10-062, D.02-12-069, D.02-12-074, D.03-06-067, D.03-06-074, D.03-06-076, D.03-12-003, and D.05-01-054.

[61] Pub. Util. Code Section 454.5(d)(2).

[62] D.05-01-054, pp. 7-10.

circumstances or conditions; (6) resolving disputes; (7) purchasing natural gas fuel at certain times and under certain types of contracts; and, (8) assigning, amending, renewing, or terminating contracts.

After execution, contracts are assigned to a SCE contract manager who carries out the management and administration of that contract and all activities related to it. While the contract manager ensures comprehensive oversight and takes the lead in communicating with the counterparty, he or she will seek assistance from other SCE groups with specialized functions. These groups include, *inter alia*, Portfolio Planning and Analysis, Trading and Market Operations, Settlements, Regulatory Affairs, Law, Credit Risk, Risk Operations & Collateral Management, and Contract Compliance and Technical Services, as needed.

When SCE determines that a counterparty does not comply with the terms or conditions of an agreement, or that differences exist between SCE and a counterparty over interpretation of the contract terms or conditions, SCE initiates discussions to resolve the non-compliance or the difference in interpretation and seeks to recover the lost value, if any. When differences with a counterparty cannot be resolved by an amendment or otherwise, SCE or the counterparty initiates the appropriate dispute resolution process as described in the applicable agreement (typically mediation and then arbitration).

The administration and management of these contracts is explained below and is separated by the following contracts: (1) BTM contracts; (2) conventional and natural gas contracts; (3) PURPA and CHP contracts; (4) RPS contracts; and (5) BESS contracts.

1. Behind-The-Meter

The BTM contracts addressed in this section are for resources procured to meet Local Reliability Requirements pursuant to the 2012 LTPP proceeding Tracks 1 and 4, to support the Preferred Resources Pilot, system reliability needs resulting from the 2021-2023 Integrated Resource Planning proceeding and to meet reliability needs resulting from the limited operations of the Aliso Canyon gas storage field.

a) Contract Administration

This section provides information on all activities related to the management of BTM contracts, including contract development, amendments, assignments, contract capacity

demonstrations, measurement of energy deliveries, terminations, and other contract administration activities.

b) Summary of Contract Activity

During the Record Period, SCE managed twenty-six (26) Energy Efficiency (EE), ten (10) Demand Response (DR), ten (10) Renewable Distributed Generation (DG), and four (4) Permanent Load Shifting (PLS) contracts for a total of fifty (50) BTM contracts. Below, SCE sets forth its recorded contract-related expenses, describes its BTM contract development and administration activities during the Record Period, and demonstrates that such activities were reasonable.

c) Contract Development

During the Record Period, there were no additional contracts procured.

d) Contract Amendment Administration

After contract execution, BTM contract terms and conditions may be changed by amendments. During the Record Period there was no amendment activity.

e) Contract Capacity Verifications

SCE's capacity verification activities for BTM projects are designed to ensure that SCE's customers can reasonably expect to receive appropriate quantities of energy and capacity savings in full compliance with the associated contracts. During the Record Period, there were no projects that underwent capacity verification activities.

a. Renewable Distributed Generation:

Renewable DG capacity verifications are a one-time event performed prior to the contract becoming operational. The activity consists of a site visit by an independent third-party evaluator who is to document the equipment that was installed, collect measurements as outlined in contract to determine the minimal acceptable system performance and ensure that the outputs will be higher than that minimal acceptable system performance, determine if it is interconnected as a non-export system, identify the meter unique identification number(s), and to verify that the meter is collecting data from the project installation only. The verification is intended to determine: (i) whether the generating facility has been completed and installed in accordance with the contract and is operating as planned and

designed; and (ii) the amount of capacity installed at the site. During the Record Period, there was no activity.

b. Energy Efficiency:

EE capacity verifications are performed prior to the contract becoming operational. The activity consists of a site visit by an independent third-party evaluator who is to document the existing equipment to establish the pre-project conditions necessary and as outlined in the contract for determining the energy and capacity savings expected from installing the EE measures at one or more customer sites. The verification is intended to determine: (i) if the project has been completed and the measures have been installed in accordance with the project description and the Measuring and Verification Plan; (ii) the measures are operating as planned and designed; (iii) the measures will reduce the capacity at the site(s) in an amount equal to or exceeding the expected capacity savings, and (iii) the measures will reduce the energy use at the site(s) in an amount equal to or exceeding the minimum summer on-peak energy savings, minimum summer off-peak energy savings, and minimum winter on-peak energy savings. During the Record Period, there was no activity.

c. Permanent Load Shift (PLS):

PLS energy and capacity reduction verifications are performed prior to the contract becoming operational. The activity consists of a site visit by an independent third-party evaluator who is to document the existing equipment to establish the pre-project conditions necessary and as outlined in the contract for determining the energy and capacity savings expected from installing the PLS measures at one or more customer sites. The independent third-party evaluator uses the pre-installation description for purposes of establishing the measurement baseline and each individual measurement baseline and corresponding rated capacity and energy savings of each Thermal Energy Resource (TES). Twenty percent (20%) of the sites are subject to the pre-installation equipment inspection and the sites are selected by SCE, or if not, enough sites are selected by SCE, then by the independent third-party evaluator.

The verification is intended to determine: (i) the project has been completed and installed in accordance with the power purchase agreement; (ii) all measures in the project are operating as

planned and designed; (iii) the project reduced the capacity use at the sites in an amount not less than the expected capacity savings as determined in accordance with the agreement; and (iv) the project will result in a reduction in the energy use at the site in an amount not less than the expected summer on-peak energy savings, expected summer off-peak energy savings, and expected winter on-peak energy savings as determined in accordance with the agreement. For sites that were not subject to a post-installation inspection, the independent third-party evaluator deems that the forgoing criteria were met. During the Record Period, there was no activity.

f) Measurement of Energy Deliveries

(1) Energy Efficiency:

SCE uses energy and capacity reductions to calculate payments owed to BTM EE projects. In order to determine the payment for energy savings delivered by the party and overall energy savings delivery performance, the project must have (i) been completed and the measures have been installed in accordance with the project description and the M&V protocol; (ii) the measures are operating as planned and designed; (iii) the measures will reduce the capacity at the site(s) in the amount equal to or exceeding the minimum capacity savings; and (iv) the measures will reduce the capacity at the sites in an amount equal to or exceeding the minimum summer on-peak energy savings, minimum summer off-peak energy savings and minimum winter on-peak energy savings.

(2) Renewable Distributed Generation:

SCE uses meter data to calculate payments owed to BTM Renewable Distributed Generation projects. SCE requires the installation of revenue grade interval meters that have been tested according to all applicable ANSI (American National Standards Institute) C-12 testing protocols and certified by an independent testing body, along with being listed on the CEC website as an approved meter. The meter data is read, retrieved, validated, and sent to SCE by an independent third-party Performance Data Provider (PDP) monthly and is used to determine the payment for energy savings delivered by the party and overall energy savings delivery performance.

(3) Permanent Load Shift:

SCE uses grid reliable energy and capacity reduction savings to calculate payments owed to BTM PLS projects. In order to determine the payment for energy savings delivered by the party and overall energy savings delivery performance, the project must have (i) the project has been completed and installed in accordance with the terms of the agreement; (ii) all measures in the project are operating as planned and designed; (iii) the project reduced the capacity use at the site in an amount not less than the Expected Capacity Savings as determined in accordance with Exhibit B of the agreement; and (iv) the project will result in a reduction in the energy use at the site in an amount not less than the expected summer on-peak energy savings, expected summer off-peak energy savings, and expected winter on peak energy savings all as determined in accordance with Exhibit B of the agreement.

(4) Demand Response:

SCE uses meter data from SCE meters to determine DR performance and to calculate payments to BTM DR aggregators. After SCE has read, retrieved, and validated meter data, it is uploaded into the APX system and DR aggregators are able to retrieve the data to determine performance and prepar invoices which are submitted to SCE for payment. For the four Hybrid Electric Building Technologies agreements that utilize the CAISO alternative baseline, SCE also uses Hybrid sub-meter data in the settlement process.

g) Dispute Resolution and Litigation

During the Record Period, there was no dispute resolution and litigation activity.

h) Contract Terminations

During the Record Period, a total of 6 MWs of BTM contracts were terminated. This included one (1) Energy Efficiency and one (1) Demand Response contract from SCE's 2013 LCR solicitation whose delivery terms had expired in accordance with the contract. These agreements and their associated capacity MWs are shown below in Table II-6.

Table II-6
BTM Contracts that Terminated
January 1, 2022, Through December 31, 2022

	Contract ID	Project Name	Capacity (MW)	Contract Type	Termination Date	Note
1	447250	NRG Curtailment Solutions	5	Demand Response	1/1/2022	Contract expired and collateral was returned to Seller in accordance with the terms of the Agreement
2	408001	Metrus Energy-Hercules 1, LLC	1	Energy Efficiency	11/9/2022	Contract expired and no collateral was was being held, so no return of monies were warranted in accordance with the terms of the Agreement

i) Contracts that Achieved Commercial Operation

During the Record Period, there was no activity.

j) Other Contract Activities

During the Record Period, four (4) Renewable Distributed Generation offers, 490006, 490010, 490012, and 490014, [redacted] to cure the shortfall. The agreements mentioned are in Table II-7.

Table II-7
Other Activities
January 1, 2022, through December 31, 2022

	Project	Contract ID	Description
1	Amended & Restated Solar Star California XXXVIII, LLC	490006	[redacted]
2	LA Basin Solar III, LLC	490010	
3	Solar Star LCR LA 2, LLC	490012	
4	Solar Star LCR Irvine, LLC	490014	

k) BTM Contract Payment Process

The sections below discuss the administrative procedures, guidelines and processes regarding the monitoring, validation, and calculations of the various BTM contract settlement provisions. Appendix II-O lists the summary of payments during the Record Period.

(1) Energy Efficiency

SCE receives the capacity savings and pays the EE projects based upon a payment adjustment factor – a percentage used to calculate the adjusted contract price, calculated from the energy and capacity reductions as stated in the most recent primary post-installation inspection report or post-installation inspection report as described in the agreement.

BTM EE contracts are (i) paid annually for the capacity savings delivered based on the most recent primary post-installation inspection report or post-installation inspection report, and (ii) determined independent of any previous or future adjusted contract price calculation.

(2) Renewable Distributed Generation

SCE receives the quantity of energy savings and pays the Renewable DG projects based upon metered amounts per the contract settlement provisions. BTM Renewable DG contracts are paid every three months for the energy savings delivered by the generator based on time of delivery and the contracted energy savings price. During the Record Period, SCE managed active Renewable DG contracts which were paid using Time of Delivery Allocation Factors (TOD Factors) in the energy savings payment calculations. The TOD Factors for the delivery period are multiplied by the product of metered energy for that delivery period and the energy price.

Other payment impacts to the SCE's Renewable DG contracts include: (i) payment caps on 15 minute and annual kWh deliveries, and (ii) provisions that require a seller to meet certain energy savings delivery obligations. SCE and the seller set expected annual energy savings targets for the specific projects. These annual saving targets function as the basis for determining whether, for a 24-month period immediately preceding the end of each term year, the projects meet their energy savings delivery obligations. If a project does not meet its energy savings delivery requirements after supplementing their production kWh with confirmed lost output, the project may be subject to

liquidated damages known as a product replacement damage amount. There were four (4) offers (490006, 490010, 490012 & 490014) that incurred such penalties during the Record Period.

(3) Permanent Load Shift

SCE receives the capacity reduction savings and pays the PLS projects based upon the project Completion Date until the end of the Term. SCE shall make quarterly capacity payments to seller in arrears and in accordance with the provisions of the contract so long as (i) no default event with respect to the seller occurred and is continuing and (ii) no early termination date has occurred or been designated because of an default event with respect to the seller.

The quarterly "Capacity Payment" shall equal the sum of the expected capacity savings for each given month of the quarter multiplied by the Contract Price less any adjustments for capacity shortfall for each given month.

For any month in which a TES compressor failed to shut off in accordance with the TES resource schedule, the "Capacity Shortfall" shall equal the sum of the following for each such TES compressor; (i) the individual measurement baseline for that TES compressor multiplied by (ii) the ratio of the period of time that month that the TES compressor failed to shut off divided by the period of time the TES compressor was available to be shut off.

(4) Demand Response

On a monthly basis, the DR sellers and SCE use meter data to determine demand response performance and to calculate payments, zero payments or penalties to BTM demand response aggregators. After SCE has read, retrieved, and validated meter data, it is uploaded into the APX cloud-based system where DR aggregators are able to retrieve the data to determine performance and prepare invoices which are submitted to SCE. For the four Hybrid Electric Building Technologies agreements, which utilize the CAISO alternative baseline, SCE also uses Hybrid sub-meter data in the settlement process.

l) BTM Contract Collateral

The administration and tracking of BTM contract collateral are between two groups at SCE. Officially, administration of collateral activity is assigned to SCE's Credit Risk group

and Risk Operations & Collateral Management group. SCE's Risk Operations & Collateral Management group directly handles the routine collateral posting transactions with the counterparty and informs the contract managers of any delivery date security amount posted and due. To provide continuity for counterparties external to the company, contract managers within Customer Programs & Services (CP&S) serve as the primary contact for collateral issues. Delivery date security and performance assurance is typically posted in the form of cash or letter of credit. Appendix II-N lists the significant activities that took place during the Record Period related to CP&S project development security.

2. Conventional and Natural Gas

Conventional contracts are typically executed through RFOs or through a bilateral negotiation procurement process. Some of these contracts are executed under industry-standard master agreements with modifications agreed upon through negotiations. These form agreements include the Western Systems Power Pool (WSPP), the Edison Electric Institute (EEI), the North American Energy Standards Board (NAESB), the International Swaps and Derivatives Association (ISDA), the Transmission Resale Enabling Agreement (TREA), and FERC-approved transmission tariff agreements. Some agreements offer an "annex to the agreement" effectuating the right to contract for or trade another product or function under the same agreement. ISDA agreements offer a gas or power annex that enables the trading of both physical and financial transactions under a single agreement. Similarly, EEI offers a gas annex to allow for gas and power trades under the same master EEI agreement. Descriptions of these are included below:

- The WSPP, EEI, and power annex to the ISDA agreements are used for physical electricity transactions including tolling agreements;
- The NAESB, gas annex to the EEI and gas annex to the ISDA agreements are used for physical natural gas transactions;
- The ISDA agreements are used for financial electricity and natural gas transactions; and,
- The TREA is used for transmission transactions.

SCE's Energy Contracts Management group manages the administration of all enabling agreements required for the purchase and sale of electric and natural gas related products, including physical and financial gas transactions. Transactions for physical gas take place under a NAESB agreement, a gas annex to the ISDA agreement, or a gas annex to the EEI agreement. SCE's financial transactions, if any during the Record Period, would be executed via a broker and then cleared through an exchange with one of the counterparties under an active enabling agreement with SCE. During the Record Period, SCE was enabled to transact with many counterparties to facilitate the purchase and sale of electricity, capacity, physical natural gas, transmission and emissions offsets; and with brokers, clearing firms and trading platforms for financial gas transactions. A list of these agreements is included in Appendix II-B.

Each agreement specifies terms and conditions related to performance, events of default, payments, confidentiality requirements, dispute resolution, and other general contractual provisions. SCE may use the agreements in their standard form or agree to special provisions or amended forms of the agreements.

These agreements and any transactions done under them, including PPAs and RPAs, are submitted for Commission review in SCE's QCR, via advice letter filing, or in separate advice letters or applications. Once the agreements are in place and other required measures are taken by the parties (*i.e.*, providing collateral, development security, etc.), SCE's Credit Risk group adds the counterparty to SCE's "OK-to-trade" list, as applicable. SCE's traders may then execute transactions in compliance with the requirements of SCE's Financial Risk Management Committee and SCE's Commission-approved AB 57 BPP. Individual transactions underlying each enabling agreement and any amendments are reported in SCE's QCR.[63]

a) Contract Administration

During the Record Period, SCE administered bilateral transactions, contracts, and enabling agreements related to electric and natural gas purchases and sales, demand response,

[63] Advice letter filings for Q1, Q2, Q3, and Q4 of 2022 were submitted as Advice 4781-E, 4839-E, 4884-E, and 4960-E, respectively.

transmission and emissions offsets. SCE administered these contracts prudently, and according to their terms and conditions.[64]

b) Summary of Contract Activity

The conventional contracts administered by SCE during the Record Period include tolling confirmations, RA confirmations, transmission contracts, gas storage contracts, gas transportation contracts, demand response resource purchase agreements, and power purchase agreements. The list of transactions active or in SCE's energy contracts portfolio during the Record Period are sorted by types and listed in Appendix II-A. All transactions in Appendix II-A were either approved through the QCR in conformance with the guidelines in SCE's AB 57 BPP or through separate advice letter or application filings with the CPUC.

c) Conventional Contract Delivery

Table II-8 shows conventional projects that came on-line or started delivering to SCE under a new contract during the Record Period.

Table II-8
Conventional Projects that Began Operations
January 1, 2022, through December 31, 2022

ID	Project	Date	Capacity (MW)
10839	Watson Cogeneration Company	7/1/2022	305.0

d) Contract Development

All new contracts executed during the Record Period were filed through either the QCR in conformance with the guidelines in SCE's AB 57 BPP or through the advice letter or application processes, as noted. These are included here in Table II-9 and in Appendix II-A as information only related to contract activity during the Record Period.

[64] Confidential Appendix II-H includes a summary of bilateral power payments during the Record Period, which includes transmission and RA activity payments.

Table II-9
New Conventional and Natural Gas Contracts
January 1, 2022 Through December 31, 2022

	ID	Contract Counterparty	Quantity[1]	Type of Agreement	Date Executed	CPUC Resolution or Decision/SCE Advice Letter/Application
1	11294	Castleton Commodities Merchant Trading, L.P.	-	Master NAESB Agreement	1/13/2022	AL-4781-E
2	11256-1022	East Bay Community Energy Authority, A California Joint Power Authority	55.0	EEI - Remaining Import Capability Purchase	2/3/2022	AL-4781-E
3	11256-1021	East Bay Community Energy Authority, A California Joint Power Authority	39.0	EEI - Remaining Import Capability Purchase	2/3/2022	AL-4781-E
4	11246-1020	Clean Power Alliance of Southern California	50.0	EEI - RA Substitution Purchase	2/10/2022	AL-4781-E
5	11240-1007	Shell Energy North America (US), L.P.	12,500.0	GHG Offset - GHG (ARBOC) Purchase	2/17/2022	AL-4781-E
6	11240-1006	Shell Energy North America (US), L.P.	12,500.0	GHG Offset - GHG (ARBOC) Purchase	2/17/2022	AL-4781-E
7	11073-1018	Moss Landing Power Company, LLC	510.0	EEI - RA Substitution Sale	2/25/2022	AL-4781-E
8	11081-1019	Elk Hills Power LLC	8.0	EEI - RA Purchase	3/16/2022	AL-4781-E
9	11253-1024	Central Coast Community Energy	20.0	EEI - RA Sale	3/16/2022	AL-4781-E
10	11266-1008	Pioneer Community Energy	30.0	EEI - RA Sale	3/16/2022	AL-4781-E
11	11081-1020	Elk Hills Power LLC	60.00 - 20.00	EEI - RA Purchase	3/16/2022	AL-4781-E
12	11153-1052	Pacific Gas & Electric Company	100.0	EEI - RA Purchase	3/17/2022	AL-4781-E
13	11153-1053	Pacific Gas & Electric Company	100.0	EEI - RA Sale	3/17/2022	AL-4781-E
14	10839	Watson Cogeneration Company	305.0	Dispatchable CHP - Energy and RA Purchase	4/2/2022	AL 4767-E
15	11081-1021	Elk Hills Power LLC	50.0	EEI - RA Purchase	4/5/2022	AL-4839-E
16	11181-1021	Shell Energy North America (US), L.P.	29.0	EEI - RA Purchase	4/11/2022	AL-4839-E
17	11278-1005	San Diego Community Power	130.00 - 45.00	EEI - RA Purchase	4/13/2022	AL-4839-E
18	11278-1006	San Diego Community Power	130.00 - 45.00	EEI - RA Sale	4/13/2022	AL-4839-E
19	11281-1003	Bolt Energy Marketing, LLC	34.0	EEI - RA Purchase	4/13/2022	AL-4839-E
20	11291-1002	Orange County Power Authority	36.0	EEI - RA Purchase	4/13/2022	AL-4839-E
21	11257-1021	City of San José	35.0	EEI - RA Purchase	4/14/2022	AL-4839-E
22	11278-1007	San Diego Community Power	73.0	EEI - RA Purchase	4/15/2022	AL-4839-E
23	11262-1008	The Energy Authority, Inc.	25.0	EEI - RA Purchase	4/15/2022	AL-4839-E
24	11233-1008	City of Lancaster	50.0	EEI - Remaining Import Capability Purchase	4/21/2022	AL-4839-E
25	11034-1053	Calpine Energy Services LP	100.0	EEI - Gas Annex - RA Sale	4/21/2022	AL-4839-E
26	11295	Berry Petroleum Company, LLC	-	Master EEI Agreement	4/26/2022	AL-4839-E
27	11256-1023	East Bay Community Energy Authority, A California Joint Power Authority	20.0	EEI - RA Sale	4/26/2022	AL-4839-E
28	11295-1001	Berry Petroleum Company, LLC	34.10 - 33.00	EEI - RA Purchase	4/27/2022	AL 4787-E
29	11252-1023	Peninsula Clean Energy Authority	25.0	EEI - Remaining Import Capab l ty Purchase	4/28/2022	AL-4839-E
30	11551-1002	Brookfield Renewable Trading & Marketing	14,000.0	WSPP - Remaining Import Capability Purchase	5/4/2022	AL-4839-E
31	10138	Voltus, Inc.	51.00 - 30.40	DRAM Resource Purchase Agreement - RA Purchase	5/5/2022	Will be filed in this QCR's Record Year (2022)
32	10136	Leapfrog Power, Inc.	34.20 - 19.00	DRAM Resource Purchase Agreement - RA Purchase	5/5/2022	Will be filed in this QCR's Record Year (2022)
33	10140	Resi Station, LLC	8.00- 0.80	DRAM Resource Purchase Agreement - RA Purchase	5/5/2022	Will be filed in this QCR's Record Year (2022)
34	10139	Enerwise Global Technologies, LLC d/b/a CPower	25.00- 15.00	DRAM Resource Purchase Agreement - RA Purchase	5/5/2022	Will be filed in this QCR's Record Year (2022)
35	10137	Resi Station, LLC	10.00 - 1.00	DRAM Resource Purchase Agreement - RA Purchase	5/5/2022	Will be filed in this QCR's Record Year (2022)
36	11181-1022	Shell Energy North America (US), L.P.	28.00 - 11.00	EEI - RA Sale	5/9/2022	AL-4839-E
37	11181-1023	Shell Energy North America (US), L.P.	39.0	EEI - RA Purchase	5/9/2022	AL-4839-E
38	11291-1003	Orange County Power Authority	40.0	EEI - RA Sale	5/13/2022	AL-4839-E
39	11278-1008	San Diego Community Power	71.00 - 50.00	EEI - Remaining Import Capability Sale	5/16/2022	AL-4839-E
40	11551-1003	Brookfield Renewable Trading & Marketing	6,000.0	WSPP - Remaining Import Capability Purchase	5/26/2022	AL-4839-E
41	11265-1008	San Diego Gas & Electric Company	100.0	EEI - RA Purchase	6/10/2022	AL-4839-E
42	11240-1009	Shell Energy North America (US), L.P.	30,000.0	GHG Offset - GHG (ARBOC) Purchase	6/29/2022	AL-4839-E
43	11240-1008	Shell Energy North America (US), L.P.	30,000.0	GHG Offset - GHG (ARBOC) Purchase	6/29/2022	AL-4839-E
44	11153-1054	Pacific Gas & Electric Company	65.0	EEI - Remaining Import Capability Purchase	7/1/2022	AL-4884-E
45	11153-1055	Pacific Gas & Electric Company	75.0	EEI - Remaining Import Capability Purchase	7/1/2022	AL-4884-E
46	11296	Spotlight Energy, LLC	-	Master NAESB Agreement	8/9/2022	AL-4884-E
47	11551-1004	Brookfield Renewable Trading & Marketing	10,000.0	WSPP - Remaining Import Capability Purchase	8/9/2022	N/A
48	11153-1056	Pacific Gas & Electric Company	35.0	EEI - Remaining Import Capab lity Sale	8/10/2022	AL-4884-E
49	11240-1010	Shell Energy North America (US), L.P.	50,000.0	GHG Offset - GHG (ARBOC) Purchase	9/20/2022	AL-4884-E
50	11240-1011	Shell Energy North America (US), L.P.	50,000.0	GHG Offset - GHG (ARBOC) Purchase	9/20/2022	AL-4884-E
51	11263-1002	3 Phases Renewables Inc.	1.80 - 0.10	EEI - RA Sale	9/28/2022	AL-4884-E
52	11541-1012	Bonneville Power Administration	-	WSPP - Transmission Losses Purchase	9/28/2022	N/A
53	11291-1004	Orange County Power Authority	35.60 - 1.80	EEI - RA Sale	9/28/2022	AL-4884-E
54	11298	The Regents of the University of California	-	Master EEI Agreement	9/29/2022	AL-4884-E
55	11300	Desert Community Energy	-	Master EEI Agreement	9/29/2022	AL-4884-E
56	11301	City of Pomona	-	Master EEI Agreement	9/29/2022	AL-4884-E
57	11299	City of Santa Barbara	-	Master EEI Agreement	9/29/2022	AL-4884-E
58	11300-1001	Desert Community Energy	7.90 - 0.40	EEI - RA Sale	9/29/2022	AL-4884-E
59	11233-1009	City of Lancaster	0.47 - 0.02	EEI - RA Sale	9/29/2022	AL-4884-E
60	11298-1001	The Regents of the University of California	1.50 - 0.08	EEI - RA Sale	9/29/2022	AL-4884-E
61	11299-1001	City of Santa Barbara	6.69 - 0.35	EEI - RA Sale	9/29/2022	AL-4884-E
62	11301-1001	City of Pomona	8.07 - 0.42	EEI - RA Sale	9/29/2022	AL-4884-E
63	11246-1021	Clean Power Alliance of Southern California	7.24 - 0.38	EEI - RA Sale	10/7/2022	AL-4960-E
64	11234-1026	Marin Clean Energy	175.00 - 25.00	EEI - RA Sale	10/10/2022	AL-4960-E
65	11234-1025	Marin Clean Energy	41.00 - 37.40	EEI - RA Sale	10/11/2022	AL-4960-E
66	11261-1003	City of Rancho Cucamonga	10.0	EEI - RA Sale	10/11/2022	AL-4960-E
67	11228-1027	Sonoma Clean Power Authority	80.00 - 3.00	EEI - RA Sale	10/11/2022	AL-4960-E
68	11180-1024	Sempra Gas & Power Marketing, LLC	562.0	RA Purchase Agreement - RA Sale	10/13/2022	AL-4960-E
69	11229-1008	Silicon Valley Clean Energy Authority	100.0	EEI - RA Sale	10/14/2022	AL-4960-E
70	11246-1022	Clean Power Alliance of Southern California	39.60 - 38.80	EEI - RA Sale	10/17/2022	AL-4960-E
71	11253-1025	Central Coast Community Energy	220.00 - 120.00	EEI - RA Sale	10/17/2022	AL-4960-E
72	11274-1002	Ellwood Power, LLC	54.0	EEI - RA Sale	10/19/2022	AL-4960-E
73	11279-1005	Ormond Beach Power, LLC	1,491.0	EEI - RA Substitution Sale	10/19/2022	AL-4960-E
74	11257-1022	City of San José	39.20 - 23.80	EEI - RA Sale	10/20/2022	AL-4960-E
75	11256-1024	East Bay Community Energy Authority, A California Joint Power Authority	285.50 - 80.00	EEI - RA Sale	10/20/2022	AL-4960-E
76	11257-1023	City of San José	178.00 - 3.00	EEI - RA Sale	10/20/2022	AL-4960-E
77	11266-1009	Pioneer Community Energy	41.00 - 38.80	EEI - RA Sale	10/24/2022	AL-4960-E
78	11266-1010	Pioneer Community Energy	26.0	EEI - RA Sale	10/24/2022	AL-4960-E
79	11252-1027	Peninsula Clean Energy Authority	100.00 - 20.00	EEI - RA Purchase	10/24/2022	AL-4960-E
80	11187-1001	Southern Energy Solution Group, LLC	25.0	EEI - FTA - RA Sale	10/24/2022	AL-4960-E
81	11252-1025	Peninsula Clean Energy Authority	190.00 - 80.00	EEI - RA Sale	10/24/2022	AL-4960-E
82	11252-1024	Peninsula Clean Energy Authority	37.4	EEI - RA Sale	10/24/2022	AL-4960-E
83	11252-1026	Peninsula Clean Energy Authority	100.00 - 20.00	EEI - RA Sale	10/24/2022	AL-4960-E
84	11258-1015	Direct Energy Business Marketing, LLC	175.00 - 40.00	EEI - RA Sale	10/26/2022	AL-4960-E
85	11088-1034	Constellation Energy Generation, LLC	300.00 - 150.00	EEI - Gas Annex - RA Sale	10/26/2022	AL-4960-E
86	11259-1020	City & County of SF Through Its PUC, CleanPowerSF	41.00 - 16.80	EEI - RA Sale	10/27/2022	AL-4960-E
87	11259-1021	City & County of SF Through Its PUC, CleanPowerSF	205.00 - 54.00	EEI - RA Sale	10/27/2022	AL-4960-E
88	11102-1005	High Desert Power Project, LLC	550.0	EEI - RA Substitution Sale	10/27/2022	AL-4960-E
89	11102-1007	High Desert Power Project, LLC	500.0	EEI - RA Sale	10/28/2022	AL-4960-E
90	11278-1009	San Diego Community Power	98.60 - 7.90	EEI - RA Sale	10/28/2022	AL-4960-E
91	11102-1006	High Desert Power Project, LLC	175.0	EEI - RA Sale	10/28/2022	AL-4960-E
92	11278-1010	San Diego Community Power	98.60 - 7.90	EEI - RA Purchase	10/28/2022	AL-4960-E
93	11263-1003	3 Phases Renewables Inc.	5.0	EEI - RA Purchase	10/31/2022	AL-4960-E
94	11260-1009	Commercial Energy of Montana, Inc.	1.0	EEI - RA Sale	10/31/2022	AL-4960-E
95	11260-1008	Commercial Energy of Montana, Inc.	1.0	EEI - RA Purchase	10/31/2022	AL-4960-E
96	11263-1004	3 Phases Renewables Inc.	5.0	EEI - RA Sale	10/31/2022	AL-4960-E
97	11240-1012	Shell Energy North America (US), L.P.	25,000.0	GHG Offset - GHG (ARBOC) Purchase	11/4/2022	AL-4960-E
98	11240-1013	Shell Energy North America (US), L.P.	25,000.0	GHG Offset - GHG (ARBOC) Purchase	11/4/2022	AL-4960-E
99	11180-1025	Sempra Gas & Power Marketing, LLC	482.0	EEI - Gas Annex - RA Substitution Sale	12/13/2022	AL-4960-E
100	11062-1017	EDF Trading North Amer ca, LLC	308.60 - 45.00	ISDA - Power Annex - RA Substitution Sale	12/16/2022	AL-4960-E
101	11062-1018	EDF Trading North Amer ca, LLC	53.0	ISDA - Power Annex - RA Sale	12/16/2022	AL-4960-E
102	11062-1019	EDF Trading North Amer ca, LLC	148.00 - 140.00	ISDA - Power Annex - RA Sale	12/16/2022	AL-4960-E

[1] Quantity expressed in (1) megawatt hour (MWh) for "WSPP - Remaining Import Capability Purchase" agreement, (2) metric ton (mt) for "GHG Offset - GHG (ARBOC) Purchase" agreement, (3) megawatt (MW) for all other agreements.

e) Contract Amendment Administration

The following contract amendments to conventional and natural gas contracts were executed during the Record Period for which SCE is seeking approval through this ERRA filing as identified in Table II-10.

Table II-10
Conventional and Gas Amendments and Letter Agreements
January 1, 2022 Through December 31, 2022

	ID	Contract Counterparty	Amendment No. and Description	Date Executed
1	11268	Elbow River Marketing	Amendment No. 1 to add the newly defined term, Direct Environmental Benefits (DEBs) and to update credit and notice provisions to match the lates Offset Agreement.	1/12/2022
2	11259-1016	The City & County of SF Through Its PUC, CleanPowerSF	[redacted]	2/9/2022
3	11259-1018	The City & County of SF Through Its PUC, CleanPowerSF	Amendment No. 1 to correct the Delivery Period in Appendix B.	2/9/2022
4	11228	Sonoma Clean Power Authority	Amendment No. 1 to Paragraph 10 of the Collateral Annex to modify the collateral threshold due to SCPA's updated credit rating.	2/28/2022
5	11262	The Energy Authority, Inc.	[redacted]	6/22/2022
7	11259	The City & County of SF Through Its PUC, CleanPowerSF	Amendment No. 1 to Paragraph 10 of the Collateral Annex to modify the collateral threshold due to CleanPowerSF's updated credit rating.	10/13/2022
8	11180-1024	Sempra Gas & Power Marketing, LLC	Amendment No. 1 to correct the product and contract quantity amount, and update the corresponding collateral requirement.	12/13/2022
9	10002	AES Huntington Beach Energy, LLC	Amendment No. 1 to Amendment No. 7 to extend the Permit Issuance Allocated Time to receive an Increased Air Quality Operation Permit.	12/30/2022

(1) Elbow River Marketing LLTD (ID 10268)

Elbow River Marketing, Ltd (Elbow) and SCE executed a Master Offset Credit Purchase Agreement (Offset Agreement) on October 21, 2019. Elbow and SCE executed Amendment No. 1 on January 12, 2022 to add a newly defined term, "Direct Environmental Benefits (DEBs)", and to update credit and notice provisions. SCE's customers benefit from this amendment by complying with the updated Cap-and-Trade regulations and having accurate information available for contract administration.

(2) The City and County of San Francisco Through Its PUC, CleanPowerSF (ID 11259-1016)

The City and County of San Francisco through Its Public Utilities Commission, CleanPowerSF (CleanPowerSF) and SCE executed an EEI Master Purchase and Sale Agreement on August 6, 2019, and a Confirmation Letter was executed on August 2, 2021, as part of SCE's 2021 Resource Adequacy (RA) solicitation (the "RA Confirm"). CleanPowerSF and SCE executed Amendment No. 1 to the RA Confirm on February 9, 2022, to reduce the amount of Flexible RA sold to CleanPowerSF by four (4) MW for March 2022. The price of the RA sold for March 2022 was [redacted] commensurate with removal of the Flex-RA attribute. SCE's customers benefit from this amendment because it allows SCE to fulfill its responsibility to accurately reflect unit capabilities to the market and avoid procuring additional Flex RA from the market to replace the loss of Flexible Capacity.

(3) The City and County of San Francisco Through Its PUC, CleanPowerSF (ID: 11259-1018)

The City and County of San Francisco through Its Public Utilities Commission, CleanPowerSF (CleanPowerSF) and SCE executed an EEI Master Purchase and Sale Agreement on August 6, 2019, and a Confirmation Letter was was executed on August 2, 2021, as part of SCE's 2021 Resource Adequacy (RA) solicitation (the "RA Confirm"). CleanPowerSF and SCE executed Amendment No. 1 to the RA Confirm on February 9, 2022, to correct a typographical error in the Delivery Period in Appendix B. SCE's customers benefit from this amendment by having accurate information available for contract administration.

(4) Sonoma Clean Power Authority (ID 11228)

Sonoma Clean Power Authority (SCPA) and SCE executed an EEI Master Power Purchase and Sale Agreement (EEI Agreement), including the Cover Sheet, and the Collateral Annex and Paragraph 10 to the Collateral Annex on October 5, 2017. SCE and SCPA executed Amendment No. 1 to Paragraph 10 to the Collateral Annex on February 28, 2022, to modify SCPA's Collateral Threshold amounts as a result of SCPA's improved credit rating. SCE's customers benefit from this amendment by ensuring the collateral threshold appropriately reflects SCPA's credit rating.

(5) The Energy Authority, Inc. (ID 11262)

The Energy Authority, Inc. (TEA) and SCE executed an EEI Master Power Purchase and Sale Agreement on October 25, 2019 (EEI Agreement). SCE and TEA executed a Settlement Agreement on June 22, 2022, to confirm the responsibility for financial penalty or assessment that any regulator may impose for actions if later found to be in violation of the CAISO Fifth Replacement FERC Electric Tariff (Open Access Tariff), or other applicable market rule or regulation associated with specific incidents. SCE's customers benefit from this settlement agreement because it allows SCE to recover applicable damages in the amount of [redacted] and limits SCE's liability if penalties are imposed for the related incidents.

(6) The City and County of San Francisco Through Its PUC, CleanPowerSF (ID11259)

The City and County of San Francisco through Its Public Utilities Commission, CleanPowerSF (CleanPowerSF) and SCE executed an EEI Master Purchase and Sale Agreement, including the Cover Sheet, and the Collateral Annex and Paragraph 10 to the Collateral Annex on on August 16, 2019. SCE and CleanPowerSF executed Amendment No. 1 to Paragraph 10 to the Collateral Annex on October 13, 2022, to modify the collateral threshold due to CleanPowerSF's improved credit rating. SCE's customers benefit from this amendment by ensuring the collateral threshold appropriately reflects CleanPowerSF's credit rating.

(7) Sempra Gas & Power Marketing (ID 11180-1024)

Sempra Gas & Power Marketing, LLC (Sempra) and SCE executed an EEI Master Purchase and Sale Agreement on November 16, 2006, and a Confirmation Letter was executed on October 13, 2022, as part of SCE's 2022 RA e-Solicitation. Sempra and SCE executed Amendment No. 1 to the Confirmation Letter on December 13, 2022, to (i) modify the Contract Quantity sold to Sempra from 562 MW to 80 MW for a T-45 RA product and a separate Confirmation for the Substitute RA product in the amount of 482 MW, and (ii) update the corresponding Full Floating Independent Amount and the Units referenced in Appendix C. Sempra and SCE transacted the Substitute RA product in the amount of 482 MW under a separate Confirmation Letter. SCE's

customers benefit from this amendment by having accurate contract information for contract administration.

(8) AES Huntington Beach, LLC (ID10002)

AES Huntington Beach Energy, LLC is a 649 MW combined cycle-gas fired project located in Huntington Beach, California, originally executed as part of SCE's 2013 LCR solicitation. The PPA was executed on November 3, 2014, with Amendment No. 7 executed on August 31, 2021. SCE and AES Huntington Beach, LLC executed Amendment No. 1 to Amendment No. 7 on December 30, 2022, to extend the Permit Issuance Allocated Time from 16 months to 20 months to receive an Increased Air Quality Operation Permit. SCE's customers benefit from this amendment by providing more time for the Seller to obtain an Increased Air Quality Operation Permit, preserving SCE's customer benefit attributed to the actions in Amendment No. 7[65], and providing important reliability to the grid.

f) Contract Assignment Administration

Conventional contracts may only be assigned with the written consent of the parties, which may not be unreasonably withheld. There are many reasons contract counterparties seek to assign their contracts. For example, the counterparty may want to sell or transfer the project to a new entity, sell or assign part of the ownership in the project to tax equity, assign the contract to a lender as security for a loan, or effectuate a change of control of the project. Table II-11 lists the conventional and gas contract consents and assignments to which SCE consented during the Record Period.

Table II-11
Conventional and Gas Contract Consents and Consents to Assignments
January 1, 2022 Through December 31, 2022

ID	Contract Counterparty	Consents and Description	Date Executed
11102	High Desert Power Project, LLC	Consent to Collateral Assignment	4/26/2022

g) Affiliate Transactions and Contract Information

There were no affiliate conventional contracts during the Record Period.

[65] Amendment No. 7 was submitted for review with Exhibit SCE-03C, Chapter II, of A.22-04-001.

h) Dispute Resolution and Litigation

SCE did not have any conventional projects that had dispute resolutions and litigation activities during the Record Period.

i) Contract Termination

Table II-12 below, identifies the conventional contract terminations that occurred during the Record Period.

Table II-12
Conventional Contract Terminations
January 1, 2022 Through December 31, 2022

	ID	Project	Contract Type	Termination Date	Notes
1	11121	Louis Dreyfus Energy Services LP	NAESB	1/7/2022	Contract expired in accordance with counterparty's termination notice dated 12/9/2021 and no collateral was posted in accordance with the Agreement.
2	11283	NextEra Energy Marketing, LLC	EEI	12/31/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
3	10132	Enersponse Inc.	DRAM Resource Purchase Agreement	12/31/2022	Contract expired in accordance with the terms of the contract. Collateral is being held until Seller pays the remaining charges or costs, if applicable.
4	10133	Enersponse Inc.	DRAM Resource Purchase Agreement	12/31/2022	Contract expired in accordance with the terms of the contract. Collateral is being held until Seller pays the remaining charges or costs, if applicable.
5	10134	Leapfrog Power, Inc.	DRAM Resource Purchase Agreement	12/31/2022	Contract expired in accordance with the terms of the contract. Collateral is being held until Seller pays the remaining charges or costs, if applicable.
6	10135	Voltus, Inc.	DRAM Resource Purchase Agreement	12/31/2022	Contract expired in accordance with the terms of the contract. Collateral is being held until Seller pays the remaining charges or costs, if applicable.
7	14026-1030	SoCal Gas Company - Schedule A (CSU San Bernardino Fuel Cell)	Gas Transportation Agreement	12/31/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
8	14026-1035	SoCal Gas Company - Schedule A (UC Santa Barbara Fuel Cell)	Gas Transportation Agreement	12/31/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.

j) Inter-utility Contracts

SCE was a party to two[66] major inter-utility contracts during the Record Period under which it was expected to purchase and/or exchange capacity and associated energy, as shown in Table II-13. The Pasadena inter-utility contract was executed prior to industry restructuring and contains complex terms and conditions that were designed to satisfy the unique needs of SCE and each of the counterparties at the time of execution.

Table II-13
Non-Coincident Contract Capacity Quantities and
Expiration Dates for SCE's Major Inter-utility for 2022 Contracts

	ID	Counterparty	Contract Type	Inbound Capacity (MW)	Outbound Capacity (MW)	Expiration Date
1	10045	WAPA/Bureau of Reclamation	Purchase	280.2	0.0	9/20/2067
2	11048	Pasadena	Exchange	3.0	15.0	Evergreen

(1) WAPA / Bureau of Reclamation (ID 10045)

The current contract with Western Area Power Administration (WAPA) and the Bureau of Reclamation, concerning the Boulder Canyon Project or Hoover Dam, was approved by the Commission in D.16-08-017. The delivery term under the contract began October 1, 2017, and will expire on September 30, 2067. There were no contractual changes or modifications associated with this contract during the Record Period.

(2) City of Pasadena Corporation Grant Deed (ID 11048)

On June 20, 1933, SCE and the City of Pasadena (Pasadena) entered into the Corporation Grant Deed that transferred ownership of a hydroelectric powerhouse and accompanying parcels of land in Azusa Canyon to Pasadena. In accordance with the exchange provisions of the Corporation Grant Deed, Pasadena delivers to SCE the entire electrical output of the Azusa Powerhouse (nameplate rated at 3 MW). Pasadena then has 12 months from the time of delivery

[66] Excluded from this total are SCE's so-called "Fringe Service" agreements, which provide for small amounts of energy exchanges among neighboring utilities. These include two contracts with the Department of Defense for the Air Force that SCE presented to the Commission in Advice 2686-E and 1777-E and contracts associated with retail tariffs.

to SCE to request that SCE return a like amount of energy. SCE charges Pasadena for transmission service on the returned energy. If Pasadena does not request the like amount of energy, or any portion thereof, to be returned within this twelve-month period, Pasadena forfeits any subsequent right to the non-returned energy, and the energy is purchased by SCE at a rate of $2.50/MWh. There were no contractual changes or modifications associated with this contract during the Record Period.

3. PURPA and CHP

This section provides information on PURPA and CHP contract management, including contract development, amendments, assignments, uncontrollable force claim administration, forced outage claim administration, dispute resolution, and contract terminations. SCE pursues these activities and programs in accordance with its contract administration principles and practices, and Commission guidelines. The following four fundamental principles have evolved to guide SCE's administration of its PURPA and CHP contracts:

- SCE's actions must be consistent with Commission directives;
- PURPA and CHP contract provisions that benefit or protect SCE's customers must be enforced pursuant to a reasonable interpretation of contract language;
- Contracts with affiliate and non-affiliate PURPA or CHP counterparties are to be administered in a consistent manner; and,
- Where appropriate, SCE's administration of PURPA and CHP contracts should be consistent with utility and/or industry practice.

a) Contract Administration

This section discusses SCE's administration of the remaining SO1, SO3, ISO4, NEG (negotiated), QF SOC, and AB 1613 Agreements; these PPAs are referred to in this section as "PURPA contracts," and the projects that generate power for sale to SCE under such contracts are referred to as "PURPA projects." This section also discusses the administration of the remaining CHP RFOPPAs; these PPAs are "CHP contracts," and are no longer PURPA contracts, and the projects that generate power for sale to SCE under such contracts are referred to as "CHP projects." As explained

below, the Commission has authorized SCE to recover the costs associated with PURPA and CHP contracts, subject to its review of SCE's administration of the contracts.[67]

D.97-11-074 held that "costs associated with QF and inter-utility contracts should undergo reasonableness reviews" and that "[a]nnual reviews will include a review of contract administration and litigation costs."[68] In addressing the reasonableness of PURPA contract administration, the Commission found that utilities must administer their contracts in a prudent manner, ensure compliance with the terms and conditions of the contracts, and purchase and sell power in a manner that minimizes customer costs. Utilities are to exercise good utility practice in administering contracts. Utilities are expected to engage in those practices, methods, and acts that, in exercising reasonable judgment in light of the facts known when the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. The prudence standard is intended to include a range of acceptable practices, methods, or acts.[69]

D.02-10-062 established the ERRA BA to track utility-retained generation, procurement activities, and purchased power expenses. In the term sheet of the QF Settlement adopted by D.10-12-035, the IOUs are directed to "recover the cost of all payments made pursuant to PPAs and PPA Amendments executed under [the] CHP Program in their respective Energy Resources Recovery Accounts."[70] Per D.10-12-035, the Commission adopted terms to allocate "relevant costs, as appropriate," for purposes of cost recovery through the CAM.[71] Table II-14 includes PURPA and CHP projects with contract costs recovered through both CAM and the ERRA BA during the Record Period.

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67 PURPA: Pub. Util. Code §367(2); D.95-12-063 at p. 130. CHP: D.10-12-035, approving Section 13.2 of Term Sheet.

68 D.97-11-074, pp. 125, 127-128.

69 *See, e.g.*, D.90-09-088, pp. 14-16.

70 CHP Program Settlement Agreement Term Sheet, October 8, 2010, Section 13.2.1 at p. 56, *available at* https://www.pge.com/includes/docs/pdfs/b2b/energysupply/qualifyingfacilities/settlement/final_term_sheet.pdf.

71 *Id.* at pp. 55-56, Sections 13.1.1 & 13.1.2.2.

Table II-14
PURPA and CHP Contract Costs Recovered Through CAM and ERRA BA

	ID	Project	CAM Authorization	Contract Type
1	2155	Chevron USA (Train D)	D.14-07-019	SO1
2	2818	GEP Ethanol, LLC (Pixley Cogen Partners, LLC)	D.09-12-042	AB1613
3	2819	Berry Petroleum Company	E-4681	CHP RFO
4	2826	U.S. Borax Inc.	E-4681	CHP RFO
5	2829	Watson Cogeneration Company	E-4714	CHP Bilateral
6	2834	Techni-Cast Corporation	D.09-12-042	AB1613
7	2835	CEFF II Tehachapi Property, LLC	N/A	AB1613
8	2844	Elk Hills	E-4682	CHP RFO
9	2845	New-Indy Ontario	E-4681	CHP RFO
10	2847	Houeweling Nurseries Oxnard, Inc.	D.09-12-042	AB1613
11	2855	New-Indy Oxnard	E-4681	CHP RFO
12	2872	The Procter & Gamble Paper Products Company	3882-E	CHP RFO
13	2913	The Procter & Gamble Paper Products Company	D.07-09-040	QF SOC
14	10839	Watson Cogeneration Company	AL 4767-E	Dispatchable CHP

In this Section, SCE sets forth its recorded PURPA and CHP contract-related expenses and describes its PURPA and CHP contract administration activities, demonstrating that SCE reasonably administered these contracts during the Record Period.[72]

b) Summary of Contract Activity

During the Record Period, SCE purchased 0.48 billion kWh[73] from 28 PURPA contracts and recorded PURPA contract-related costs of $51.31 million. There was one PURPA project on-line that sold no power to SCE during the Record Period. SCE also purchased 0.039 billion kWh[74]

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[72] Two summary documents accompany this chapter as appendices. Appendix II-I lists each active PURPA and CHP project and the Commission decision that found the applicable PURPA or CHP contract reasonable and eligible for rate recovery, subject to the contract administration review described above. Appendix II-J sets forth payment and production figures for each active PURPA or CHP project from which SCE purchased power during the Record Period.

[73] Purchases in billion kWh from PURPA projects by month were as follows:

Billions of kwh	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Total
PURPA	0.02	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.04	0.03	0.04	0.48

[74] Purchases in billion kWh from CHP projects by month were as follows:

Billions of kwh	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Total
CHP	0.003	0.004	0.005	0.003	0.002	0.003	0.003	0.004	0.004	0.003	0.004	0.001	0.039

from 8 active CHP contracts, and recorded CHP contract-related costs of $4.28 million during the Record Period.

There was 1,146 MW of net on-line capacity available for sale to SCE from PURPA and CHP projects during the Record Period (*i.e.,* generating capacity net of station use and other committed on-site loads). This net on-line capacity includes five technologies: (1) cogeneration or combined heat and power; (2) geothermal; (3) small hydro; (4) solar; and (5) wind.[75] Approximately 10 percent of SCE's net on-line capacity from PURPA and CHP RFO PPAs is from renewable technologies[76] (112 net MW), while the remaining 90 percent is from cogeneration or other QFs ineligible to be classified as renewable projects (1034 net MW). No PURPA projects achieved commercial operation during the Record Period. While most CHP and PURPA projects are within SCE's 50,000 square mile service area, SCE also has PURPA and CHP contracts with projects in the service areas of PG&E and the Imperial Irrigation District (IID).

The PURPA and CHP contracts administered by SCE during the Record Period include: four AB 1613 contracts; eight SO1 contracts; five SO3 contracts, one SO4 contract; six NEG contracts; eight CHP RFO contracts; and four QF SOC contracts.

c) PURPA and CHP Projects That Achieved Commercial Operation or Started Delivering to SCE under a New Contract

There were no PURPA and CHP projects that came on-line or started delivering to SCE under a new contract during the Record Period.

d) Contract Development

Table II-15 summarizes the PURPA and CHP contracts that were entered into during the Record Period.

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[75] SCE uses a numbering convention to identify contracts by technology. The 1000 series refers to biomass, the 2000 series refers to cogeneration, the 3000 series refers to geothermal, the 4000 series refers to small hydro, the 5000 series refers to solar, and the 6000 series refers to wind. In previous years, these may have been identified as "RAP ID."

[76] Renewable technologies include: small hydro projects less than 30 MW, biomass, geothermal, wind, and solar. Though classified as QFs, output from these RPS-eligible projects contribute to RPS goals.

Table II-15
PURPA and CHP New Contracts Executed
January 1, 2022, through December 31, 2022

	ID	Project	Contract Type	Capacity (MW)	Date Executed	CPUC Resolution or Decision/SCE Advice Letter/Application
1	5128	Gettysburg Solar Farm, LLC	QF-SOC	20.0	3/22/2022	D.10-12-035

e) Contract Amendment Administration

There were no PURPA and CHP amendments SCE entered into during the Record Period for which it is seeking approval through this ERRA filing.

f) Contract Assignment Administration

PURPA and CHP contracts typically may be assigned to other parties based upon the written consent of the parties, which may not be unreasonably withheld. Counterparties may request SCE's consent to assignment of their contracts for many reasons, including the project's sale or transfer to a new entity, sell or assign part of the ownership in the project to tax equity, assign the contract to a lender as security for a loan, or effectuate a change of control of the project. Certain assignments may require SCE to consent to the appointment of a project manager. Table II-16 lists the CHP and PURPA contract consents and assignments to which SCE consented during the Record Period.

Table II-16
CHP and PURPA Contract Consents and Consents to Assignments
January 1, 2022 Through December 31, 2022

	ID	Project	Type of Assignment or Consent	Date Signed
1	6456	Edom Hills Project 1, LLC	Consent to Assignment of Membership Interest	2/18/2022

g) Affiliate Transactions and Contract Information

SCE had no affiliate PURPA or CHP contracts during the Record Period.

h) Dispute Resolution and Litigation

SCE did not have any PURPA and CHP projects that had dispute resolutions and litigation activities during the Record Period.

i) Uncontrollable Force Administration

SCE's ISO4 contracts, many of its NEG contracts, and CHP contracts include provisions that may excuse a PURPA or CHP project from performing certain contractual obligations to the extent the project can demonstrate that the occurrence of an uncontrollable force prevented the project from performing such obligations. An uncontrollable force is any circumstance beyond a project's reasonable control as defined in the agreements and is often known as a Force Majeure.

Whenever a PURPA or CHP contract holder claims that an uncontrollable force caused it to fail to meet its contractual obligations, SCE undertakes the following activities:

- Determines whether the claim was submitted within the contractually required period, which is typically two weeks;
- Requires that the counterparty submit sufficient evidence to substantiate the claim that an uncontrollable force event occurred. This may include meteorological or weather reports to support a claim of weather damage, construction and equipment specifications, manufacturer maintenance manuals and bulletins, the project's operations and maintenance/repair logs, copies of insurance claims, damage assessments, failure reports, or other relevant materials; and,
- Evaluates whether the suspension of performance was of no greater scope and of no longer duration than was required by the uncontrollable force, and that the contract holder used its best efforts to remedy its inability to perform.

If SCE grants the claim, and if the contract does not provide otherwise, the firm capacity PURPA or CHP contract counterparty will continue to receive firm capacity payments for up to 90 days from the occurrence, despite its inability to deliver power to SCE. Such payments are typically based upon the project's historical performance during the affected time period. In addition, during the period of an approved uncontrollable force event, delivery requirements under the contract are excused.

There were no uncontrollable force claims tendered to SCE or pending during the Record Year.

j) Forced Outage Claim Administration

A forced outage claim is approved when a project operating pursuant to a PURPA or CHP contract is otherwise capable of generating electricity but is forced to shut down either because

SCE is unable to receive the generation due to abnormal system conditions or because of a failure in the project's operations. An approved forced outage claim generally has the same effect upon the project as an approved uncontrollable force claim (otherwise known as a Force Majeure); namely, the project's performance requirements are excused during the period of the forced outage. The forced outage may also be contractually obligated and defined in the contract. There is no deadline specified in the PURPA or CHP contracts by which the counterparty must notify SCE that a forced outage has occurred. However, SCE considers the promptness with which the claim is submitted, among other factors, in determining whether to grant the claim. In assessing the claim, SCE verifies that an outage occurred, whether the outage resulted from an event that constitutes a forced outage under the contract, and the magnitude and duration of the outage. If appropriate, SCE analyzes meter data, substation logs, and system operations reports in reviewing the claim. There were no forced outage claims tendered to SCE or pending during the Record Year.

k) Contract Terminations

Table II-17 identifies the terminations that occurred during the Record Period.

Table II-17
PURPA and CHP Contract Terminations
January 1, 2022 Through December 31, 2022

	ID	Project	Capacity (MW)	Contract Type	Termination Date	Notes
1	2413	St. John's Hospital and Health Center	1.1	SO1	2/4/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
2	2401	City of Ventura/Eastside Wtr Renovation	0.5	SO1	4/1/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
3	4004	Hi Head Hydro Incorporated	0.4	NEG	4/30/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
4	2819	Berry Petroleum Company, LLC (TAFT-PG&E)	38.0	CHP-RFO	6/30/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
5	2826	U.S. Borax Inc.	30.0 - 28.0	CHP-RFO	6/30/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
6	2829	Watson Cogeneration Company	279.0 - 274.0	CHP-RFO	6/30/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
7	6456	Edom Hills Project 1, LLC	19.5	QF-SOC	9/30/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.
8	3021	Second Imperial Geothermal Co.	37.0	NEG	12/31/2022	[redacted]
9	2845	New-Indy Ontario, LLC	33.9	CHP-RFO	12/31/2022	Contract expired and no collateral was posted in accordance with the terms of the contract.

4. RPS

Commission Resolutions approving RPS contracts typically provide for the recovery of all payments made pursuant to those contracts, subject to the Commission's review of the reasonableness of SCE's contract administration. These expenses include power purchased pursuant to the RPS contracts discussed in this chapter.

a) Contract Administration

This section provides information on all activities related to the management of RPS contracts, including contract development, amendments, assignments, contract capacity verifications, measurement of energy deliveries, terminations, active monitoring of contracts to ensure

the project output qualifies under requirements of the RPS, and activities related to management of projects in the Western Renewable Energy Generation Information System (WREG.IS).[77]

b) Summary of Contract Activity

During the Record Period, SCE purchased 25.20 billion kWh[78] from 264 RPS contracts and recorded RPS payments of $2.272 billion.

Below, SCE sets forth its recorded RPS contract-related expenses, describes its RPS, REC sale, and VAMO contracts development and administration activities during the Record Period, and demonstrates that such activities were reasonable.[79] SCE executes power purchase agreements (referred to as RPS contracts or PPAs) with renewable generators through competitive solicitations, bilateral negotiations, standard contracts, and feed-in tariffs. SCE executes REC sales agreements under SCE's Commission-approved RPS procurement plan through competitive solicitations or bilateral negotiations.

Pursuant to AB 1969 and SB 380, SCE administers a feed-in tariff for eligible renewable projects that are 3 MW and less. In July 2013, the Renewable Market Adjusting Tariff (ReMAT) replaced the California Renewable Energy Small Tariff (CREST) and the Water Agency Tariff for Eligible Renewables (WATER) for eligible renewable projects that are 1.5 MW and less. On December 6, 2017, an order was issued by the U.S. District Court for the Northern District of California granting summary judgment in favor of plaintiff Winding Creek Solar LLC in case No. 13-cv-04934-JD. In a letter dated December 15, 2017, the CPUC instructed each of the three IOUs to not execute any new ReMAT contracts, to not hold any new ReMAT program periods, and to not accept any new ReMAT applications effective as of that date. On January 22, 2021, the CPUC approved (1) Advice 4331-E/E-A

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77 Throughout this section, any undefined capitalized terms have the meaning set forth in the relevant RPS project contract.

78 Purchases in billion kWh from RPS contracts by month were as follows:

Billions of kwh	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Total
ERR	1.680	1.661	2.052	2.334	2.784	2.672	2.520	2.637	1.949	1.737	1.717	1.457	25.20

79 Two summary documents accompany this chapter as Appendices II-K and II-L. Appendix II-K lists each RPS project active or terminated during the Record Period and the corresponding Commission application for approval or resolution that found the RPS contract reasonable as to formation Appendix II-L sets forth payment and production figures for each RPS project from which SCE purchased power during the Record Period.

submitted by SCE that presented modifications to ReMAT and to the power purchase agreement pursuant to D.20-10-005, which authorized the re-launch of the ReMAT program, and (2) utilized concepts in pending advice letters (Advice 3660-E/E-A) submitted by SCE for the ReMAT program. At the CPUC's direction, SCE re-launched the program on February 11, 2021. SCE's Energy Contracts Management group administers ReMAT contracts executed in prior years and in the Record Period.

Pursuant to Executive Order S-06-06,[80] SCE voluntarily developed a standard biomass program for eligible projects of 20 MW and less. This program was then expanded to all renewable generators through Renewable Standard Contracts (RSC) for generators 5 MW and less (RSC5) and 20 MW and less (RSC20). During the 2010 Record Period, in response to the market, SCE changed the structure of the RSC program and modeled it after SCE's all-source RFOs with reverse auction pricing instead of a fixed price at the Market Price Referent (MPR). In D.10-12-048, issued on December 17, 2010, the Commission adopted the then new procurement process called Renewable Auction Mechanism (RAM) to procure renewable energy from projects 20 MW or less that are RPS-eligible, replacing SCE's RSC program. D.10-12-048 ordered SCE, PG&E, and SDG&E to implement the RAM and procure 1,000 MW allocated across the utilities over a two-year period through competitive auctions using standard, non-negotiable contracts.[81] As a result of these programs, SCE administers many RSC and RAM program contracts.

SCE administers the Community Renewables-Renewables Auction Mechanism contracts implementing SB 43's goal to encourage the use of renewable energy, for those who might not have access to products such as solar rooftop. Minimum customer subscription requirement ramps from 45 percent in year one to 95 percent in year four and beyond. D.15-01-051[82] and D.16-05-006, and Resolution E-4734 established the Green Tariff Shared Renewables (GTSR) program to implement SB 43, and Resolution E-5028 extended the program with minor modifications. The Commission ordered the IOUs to use the RAM or ReMAT programs for this advance procurement and to have advance

[80] Signed April 25, 2006, the executive order established a 20 percent biomass target within the 20 percent state RPS target.

[81] The Commission further clarified details of the RAM program in Resolution E-4414, issued August 22, 2011, Resolution E-4489, issued April 19, 2012 and Resolution E-4546, issued November 8, 2012.

[82] D.15-01-051, at p. 27, OP 8, at p. 181.

procurement under contract within one year following the issuance of the GTSR Decision. The GTSR Decision further authorized the IOUs to seek approval of a GTSR standard contract through changes to the RAM standard contract using a Tier 2 advice letter.[83] Additionally, per CPUC Resolution E-5028, SCE is required to hold at least one solicitation per twelve-month period until its program allocation MW requirement is met. SCE's remaining total procurement target is 171 MW in total, 126 MW for Enhanced Community Renewables and 45 MW for Enhanced Community Renewables – Environmental Justice.

Following the sixth RAM auction (RAM 6), SCE incorporated the RAM procurement tool into its annual RPS solicitation as the "Standard Contract Option." The Commission approved this approach in D.14-11-042 and D.15-12-025.[84] Additionally, in accordance with its tariff and prior Commission decisions, SCE launched its first solicitation for Enhanced Community Renewables (ECR) projects between 0.5 MW and 3 MW using the ECR-Market Adjusting Tariff. D.16-05-006, which was the culmination of Phase IV of the proceeding concerning Applications 12-01-008, 12-04-020, and 14-01-007, refined the GTSR Program rules adopted in D.15-01-051. Among other things, D.16-05-006 allowed ECR projects between 500 kW and 20 MW and ECR-Environmental Justice projects, located in SCE's top 20 percent most impacted communities, between 500 kW and 1 MW to participate in newly required solicitations using the RAM tool.[85] D.16-05-006 also indicated that use of the ReMAT tool to procure ECR projects is no longer required, but each IOU may use the ReMAT tool at its discretion.

SCE administers the BioRAM contracts implemented in response to the Emergency Proclamation issued on October 30, 2015, by Governor Brown to protect public safety and property from falling dead trees and wildfire. On March 18, 2016, the Commission issued Resolution E-4770 requiring each IOU to hold a RAM auction targeted at facilities that utilize fuel from high hazard zones (HHZ) in order to procure at least 50 MW (20 MW, PG&E; 20 MW, SCE; and 10 MW, SDG&E). On August 31, 2016, the California legislature passed SB 859 and it was signed into law on

83 See GTSR Decision, OP 5, at p. 180.

84 D.14-11-042 at OP 30 and D.15-12-025 at OP 1.

85 D.16-05-006 at p. 12.

September 14, 2016. As a result, the Commission issued Resolution E-4805 on October 21, 2016, to include a new requirement for IOUs to procure their respective shares of capacity from existing biomass facilities using dead and dying trees located in HHZs as feedstock. On December 13, 2018, the Commission issued D.18-12-003 establishing a methodology for calculating a non-bypassable charge to collect revenue to pay for BioRAM procurement by the IOUs through each utility's public purpose program charge.

SCE administers California's Bioenergy Market Adjusting Tariff (BioMAT) program. SB 1122 (Rubio), Stats. 2012, ch. 612, created a new bioenergy feed-in tariff within the procurement programs of the RPS program and required the IOUs to procure an additional 250 MWs of renewable feed-in-tariff (FiT) resources from small-scale bioenergy projects that commence operation on or after June 1, 2013. In D.14-12-081 and D.15-09-004, the Commission established a bioenergy FiT program, known as the Bioenergy Market Adjusting Tariff (BioMAT). The BioMAT program began offering contracts in February 2016. In D.16-10-025, the Commission implemented several changes to the BioMAT program for generation facilities using forest biomass as fuel (Category 3) in response to the tree mortality emergency identified in the Governor's October 30, 2015 Proclamation of a State of Emergency and SB 840, Stats. 2016, ch. 341. In D.17-08-021, the Commission implemented changes to the capacity limits for generation facilities in the BioMAT program in accordance with amendments made to Section 399.20(f) by AB 1923 (Wood), Stats. 2016, ch. 663. On March 4, 2020, the Commission issued D.20-02-044 approving directed biogas for the BioMAT Program. On October 7, 2020, SCE received a Revised Disposition Letter approving Advice 4195-E, but with modifications to the PPA to clarify that projects utilizing directed biogas are eligible to participate in the BioMAT Program, provided they meet all applicable BioMAT Program requirements. On September 1, 2020, the Commission issued D.20-08-043 to revise the BioMAT Program. The Decision extended the BioMAT program end date from February 2021 to December 31, 2025 and directed the IOUs to revise their BioMAT Program tariffs and standard Power Purchase Agreements (PPAs) as necessary to implement the revisions to the BioMAT Program, as provided in the Decision, and further instructed that the IOUs shall begin executing contracts and accepting program participation requests under the revised BioMAT

tariff and standard PPA, and offering amendments to existing contracts that are not yet operational, in accordance with D.20 08-043.

SCE administers the Solar Photovoltaic Program (SPVP). Under SPVP RFOs, SCE conducted solicitations for an overall target of 125 MW of non-utility-owned solar photovoltaic installations over a five-year period, made up of primarily rooftop projects in the 1 to 2 MW range; however, larger systems and ground-mount systems were also eligible to participate.[86] SCE satisfied its procurement target; therefore, the program is now closed.

SCE administers Disadvantaged Communities (DAC) Green Tariff (GT or DAC-GT) and Community Solar Green Tariff (CSGT, or DAC-CSGT). AB 327 (Perea), Stats. 2013, ch. 611, directed the Commission to develop a successor to the then existing Net Energy Metering tariff that included, "promoting the installation of renewable generation among residential customers in disadvantaged communities." On June 22, 2018, D.18-06-027 adopted alternatives to promote solar distributed generation in DAC, with further corrections and clarifications issued on October 18, 2018. On May 30, 2019, Commission approved via Resolution E-4999, with modifications, tariffs to implement DAC-GT and DAC-CSGT programs. Final approval of Advice 4049-E/E-A providing the procurement plan, RFO and RFI, and non-negotiable contract, was received on December 30, 2019. DAC-GT program provides low-income customers in DACs the option to receive 100 percent of their energy from renewable resources located within a DAC that is anywhere in SCE's service territory. DAC-CSGT program provides DAC customers the option to receive 100 percent of their energy from a local solar renewable resource located within five miles of a DAC census tract within SCE's service territory, or within 40 miles of San Joaquin Valley pilot program community identified in D.17-05-014.

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[86] On February 11, 2011, SCE filed a Petition for Modification (PFM) of the SPVP, requesting that the Commission increase the competitive solicitation portion of the SPVP from 250 MW to 375 MW, with 125 MW administered under the original SPVP-RFO parameters set forth in D.09-06-049 and Resolution E-4299 and 250 MW administered under revised parameters. The SPVP goals are rated in MW DC. On January 16, 2012, the Commission issued a Decision partially granting SCE's PFM. The Decision modifies the SPVP to no more than 125 MW each of IPP procurement and utility development, with the amount of ground-mounted facilities increased to 20 percent (25 MW). The 250 MW cut from the original capacity cap were moved to the RAM program (as 200 MW AC). On July 27, 2012, SCE filed a second PFM of the SPVP, requesting that the Commission reduce the 125 MW target for the utility development portion of the SPVP to no more than 91 MW and move the remaining 34 MW to SCE's RAM allocation (as 31 MW AC). On June 3, 2013, the Commission granted SCE's second PFM.

SCE gives DAC-GT and DAC-CSGT customers a 20 percent discount on their electric bill. SCE is required to launch two DAC-GT and DAC-CSGT RFOs a year, until program caps of DAC-GT 56.50 MW and DAC-CSGT 14.63 MW are met.

SCE administers contracts under SCE's Commission-approved VAMO mechanism. On May 24, 2021, the Commission issued Decision (D.) 21-05-030 to authorize new Voluntary Allocation, Market Offer, and Request for Information (RFI) processes for RPS contracts subject to the Power Charge Indifference Adjustment (PCIA). Voluntary Allocations are expected to be made once per RPS Compliance Period beginning with 2023 deliveries. All RECs not accepted through the Voluntary Allocation are to be offered for sale in the Market Offer, which must be conducted after each Voluntary Allocation process though competitive solicitations.

On February 23, 2023, pursuant to CPUC Decision 21-06-035 and a Proposed Decision issued on January 13, 2023 and revised on February 21, 2023 as part of Rulemaking R.20-05-003, SCE launched the 2023 MTR RFO, which solicitation included request for renewable resources to come online between June 2025 through 2030.

Projects that are in development or generate power for purchase by SCE under RPS contracts, REC sales from SCE to counterparties under an EEI Confirm, VAMO contracts or unbundled REC sales, are discussed in this chapter as well and are referred to as "RPS projects."[87] There are many renewable projects selling electric power to SCE which have maintained status as QFs and are delivering renewable energy to SCE under a PURPA contract. They are covered in the earlier testimony section for PURPA and CHP.

c) RPS Contracts that Achieved Commercial Operation

Table II-18 summarizes the RPS projects that came on-line or started delivering to SCE under a new contract during the Record Period.

[87] SCE uses a contract numbering convention to identify contracts by technology, where the 1000 series refers to biomass, the 3000 series refers to geothermal, the 4000 series refers to small hydro, the 5000 series to solar, the 6000 series to wind, the five digit number followed by a dash and then by a 8000 series (e.g., 11234-8015) refers to REC sales, and the 88000 series refers to Voluntary Allocation or unbundled REC sales.

Table II-18
New RPS Contracts that Achieved Commerical Operations
January 1, 2022, through December 31, 2022

	ID	Project	Commercial On-line Date	Capacity (MW)
1	1346	Santa Barbara County	6/24/2022	2.3

d) Contract Development

Table II-19 below shows the RPS contracts executed during the Record Year. This is for information only as these contracts were either pre-approved or submitted for approval through an advice letter or application as indicated in the table.

Table II-19
New RPS Contracts Executed
January 1, 2022 Through December 31, 2022

	ID	Project	Quantity[1][2]	Contract Type	Executed Date	Advice Letter or CPUC Resolution
1	1447	Organic Energy Solutions, LLC	2.6	BioMAT	4/29/2022	N/A-Pre-Approved
2	88076	SRECTrade, Inc.	32,500.0	Unbundled REC Sale Agreement	5/20/2022	AL 4821-E
3	11228-8075	Sonoma Clean Power Authority	367,182.0	EEI - Energy + REC Sale	5/20/2022	AL 4821-E
4	11233-8074	City of Lancaster	100,000.0	EEI - Energy + REC Sale	5/20/2022	AL 4821-E
5	11256-8068	East Bay Community Energy Authority, A California Joint Power Authority	150,000.0	EEI - Energy + REC Sale	5/20/2022	AL 4821-E
6	11271-8073	SRECTrade, Inc.	5,000.0	EEI - Energy + REC Sale	5/20/2022	AL 4821-E
7	11278-8072	San Diego Community Power	146,873.0 - 97,915.0	EEI - Energy + REC Sale	5/20/2022	AL 4821-E
8	11291-8071	Orange County Power Authority	200,000.0	EEI - Energy + REC Sale	5/20/2022	AL 4821-E
9	5130	RB Inyokern Solar WDT 1281, LLC	19.8	CR-RAM	6/3/2022	AL 4814-E
10	5131	RB Inyokern Solar WDT 1281, LLC	12.0	CR-RAM	6/3/2022	AL 4814-E
11	11257-8069	City of San José	250,000.0	EEI - Energy + REC Sale	6/3/2022	AL 4821-E
12	11257-8070	City of San José	5,429.0	EEI - Energy + REC Sale	6/3/2022	AL 4821-E
13	11246-8077	Clean Power Alliance of Southern California	550,000.0	EEI - Energy + REC Sale	7/5/2022	AL 4845-E
14	11246-8078	Clean Power Alliance of Southern California	70,000.0	EEI - Energy + REC Sale	7/5/2022	AL 4845-E
15	88079	Clean Power Alliance of Southern California	-	Voluntary Allocation - Energy + REC Sale	7/25/2022	Approved via D.22-11-021 (2022 RPS Plan)
16	88082	Shell Energy North America (US), L.P.	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
17	88083	Desert Community Energy	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
18	88084	3 Phases Renewables Inc.	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
19	88085	Direct Energy Business Marketing, LLC	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
20	88086	City of Palmdale	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
21	88087	City of Santa Barbara	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
22	88088	Town of Apple Valley	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
23	88089	City of Pomona	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
24	88090	City of Pico Rivera	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
25	88091	City of Rancho Mirage	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
26	88092	City of San Jacinto	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
27	88093	City of Lancaster	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
28	88094	Commercial Energy of Montana, Inc.	-	Voluntary Allocation - Energy + REC Sale	7/26/2022	Approved via D.22-11-021 (2022 RPS Plan)
29	88080	Orange County Power Authority	-	Voluntary Allocation - Energy + REC Sale	7/28/2022	Approved via D.22-11-021 (2022 RPS Plan)
30	88096	SRECTrade, Inc.	8,000.0	Unbundled REC Sale Agreement	9/13/2022	AL 4866-E
31	88097	SRECTrade, Inc.	70,000.0	Unbundled REC Sale Agreement	9/13/2022	AL 4866-E
32	11233-8095	City of Lancaster	50,000.0	EEI - Energy + REC Sale	9/13/2022	AL 4866-E

[1] Quantity expressed in (1) megawatt hour (MWh) for Contract Types containing "REC Sale", and (2) megawatt (MW) for all remaining Contract Types.
[2] Voluntary Allocation - Energy + REC Sale Contract Types will have Quantity starting in January 1, 2023.

e) Contract Amendment Administration

After execution, RPS contract terms and conditions may be changed by amendment. Table II-20 below lists the RPS contract amendments SCE entered into during the Record Period and for which it seeks Commission approval through this filing.

Table II-20
RPS Contract Amendments and Letter Agreements
January 1, 2022 Through December 31, 2022

	ID	Project	Amendment Number and Description	Date Executed
1	1346	Santa Barbara County	Amendment No. 1 to align with California Public Utilities Commission issued Decision D. 20-08-043 which requires utilities to offer amendments to existing projects that are not yet operational.	3/10/2022
2	1245	MM Tulare Energy, LLC	[redacted]	5/13/2022
3	5217	Desert Sunlight 250, LLC	Amendment No. 1 to allow for shared interconnection with new energy storage agreement (ID 12045) and Letter Agreement upon receipt of Department of Energy consent for shared interconnection with Sunlight Storage, LLC (ID 12045).	8/30/2022
4	5805	Imperial Valley Solar 2, LLC	Amendment No. 2 to modify definition of the PPA to reflect a new ultimate parent in accordance with the consent to assignment of membership interest.	11/18/2022

(1) Santa Barbara County (ID 1346)

Santa Barbara County is a 2.3 MW biogas project located in Goleta, California, originally executed as part of SCE's BioMAT Solicitation. The PPA was executed on January 7, 2020. SCE and Santa Barbara County executed amendment No. 1 on March 10, 2022 to align the PPA with California Public Utilities Commission issued Decision ("D.") 20-08-043 which required utilities to offer amendments to existing projects that are not yet operational. SCE's customers benefit from this amendment by supporting the viability of the project and the BioMAT program.

(2) MM Tulare Energy, LLC (ID 1245)

MM Tulare Energy, LLC (MM Tulare) is a 1.5MW biomethane landfill gas project located in Visalia, California, originally executed as part of SCE's ReMAT solicitation. The

PPA was executed on March 14, 2017. SCE and MM Tulare executed a Letter Agreement on May 13, 2022 to [redacted] to settle Guaranteed Energy Production (GEP) Damages owed by MM Tulare for Performance Measurement Period 3 of the PPA. SCE's customers benefit from this letter agreement by alleviating any potential disputes, ensuring payment plus interest of the GEP damages, and allowing the project to continue operating and ensuring utilization of the project's methane for energy production.

(3) Desert Sunlight 250 (ID 5217)

Desert Sunlight 250, LLC (Desert Sunlight) is a 250 MW solar project located in Riverside County, California, originally executed as part of SCE's 2009 RPS solicitation. The PPA was executed on August 17, 2009. SCE and Desert Sunlight executed Amendment No. 1 on August 30, 2022, to allow for the shared interconnection of the project with a new battery energy storage project, Sunlight Storage, LLC (ID 12045), an affiliate of Desert Sunlight, and also contracted with SCE under a separate battery energy storage purchase and sale agreement. Amendment No. 1 further facilitates the expeditious transfer of 230 MW of deliverability from the Desert Sunlight project to the Sunlight Storage project to ensure its Full Capacity Deliverability Status. SCE and Desert Sunlight subsequently executed a Letter Agreement on August 30, 2022, to update the transfer of deliverability dates outlined in Amendment No. 1 from 2022 to 2023 upon receiving consent from the Department of Energy. SCE's customers benefit from this amendment by supporting the construction and operation of the new battery energy storage project providing important reliability to the grid.

(4) Imperial Valley Solar 2, LLC (ID 5805)

Imperial Valley Solar 2, LLC (IVS2) (Mount Signal Solar II) is a 153.52 MW solar photovoltaic project located in Calexico, Imperial County, California, originally executed as part of SCE's 2013 RPS solicitation. The PPA was executed on July 31, 2014. SCE and IVS2 executed Amendment No. 2 on November 18, 2022, to update the definition of "Ultimate Parent" within the PPA to reflect the new ultimate parent in accordance with New Energy Solar US Corp's assignment of 100% membership interest in NES Galaxy, LLC, and thereby, its indirect ownership of 50% of the Class B membership interest in IVS2, to GSRP Shubert LLC, a Delaware limited liability company. SCE's

customers benefit from this amendment by having accurate project ownership information available for contract administration.

f) Contract Assignment Administration

RPS contracts may only be assigned with the written consent of the parties, which may not be unreasonably withheld. There are many reasons RPS contract counterparties seek to assign their contracts. The counterparty might want to sell or transfer the project to a new entity, sell or assign a portion of the project to tax equity, assign the contract to a lender as security for a loan, or a change of control of the project. Table II-21 lists the contract assignments to which SCE consented during the Record Period.

Table II-21
RPS Contract Consents and Consents to Assignments
January 1, 2022 Through December 31, 2022

	ID	Project	Type of Assignment or Consent	Consent Signed
1	5630	RE Adams East LLC	Consent to Collateral Assignment of Membership Interest	3/10/2022
2	5755	Catalina Solar 2, LLC	Consent to Collateral Assignment of Membership Interest	3/10/2022
3	5805	Imperial Valley Solar 2, LLC	Consent to Assignment of Membership Interest	5/27/2022
4	5649	SunE W12DG-C, LLC	Consent to Assignment of Membership Interest	7/13/2022
5	5207	Solar Blythe, LLC	Consent to Assignment of Membership Interest	7/21/2022
6	5252	TA High Desert, LLC	Consent to Assignment of Membership Interest	7/21/2022
7	5774	Solar Oasis, LLC	Consent to Assignment of Membership Interest	7/21/2022
8	5785	Kona Solar, LLC	Consent to Assignment of Membership Interest	11/10/2022
9	5786	Kona Solar, LLC	Consent to Assignment of Membership Interest	11/10/2022
10	5787	Kona Solar, LLC	Consent to Assignment of Membership Interest	11/10/2022
11	4213	TKO Power, LLC (South Bear Creek)	Consent to Assignment of Membership Interest	11/18/2022
12	5805	Imperial Valley Solar 2, LLC	Consent to Assignment of Membership Interest	11/18/2022
13	5262	Antelope DSR 3, LLC	Consent to Assignment and Change of Control	12/14/2022
14	5785	Kona Solar, LLC	Consent to Collateral Assignment and Collateral Assignment of Membership Interest	12/23/2022
15	5786	Kona Solar, LLC	Consent to Collateral Assignment and Collateral Assignment of Membership Interes	12/23/2022
16	5787	Kona Solar, LLC	Consent to Collateral Assignment and Collateral Assignment of Membership Interest	12/23/2022

g) Affiliate Transactions and Contract Information

There were no affiliate RPS contracts during the Record Period.

h) Uncontrollable Force Administration

SCE's RPS contracts include provisions that may excuse an RPS project from performing certain contractual obligations to the extent the project can demonstrate that the occurrence of an uncontrollable force, or a circumstance beyond its reasonable control as defined in the agreements (often known as a Force Majeure), prevented the project from performing such obligations.

Whenever an RPS contract holder claims that an uncontrollable force caused it to fail to meet its contractual obligations, SCE undertakes the following activities:

- Determines whether the claim was submitted within the contractually required period, which is typically two weeks;
- Requires that the counterparty submit sufficient evidence to substantiate the claim that an uncontrollable force event occurred. This may include meteorological or weather reports to support a claim of weather damage, construction and equipment specifications, manufacturer maintenance manuals and bulletins, the project's operations and maintenance/repair logs, copies of insurance claims, damage assessments, failure reports, and other relevant materials; and
- Evaluates whether the suspension of performance was of no greater scope and of no longer duration than was required by the uncontrollable force, and that the RPS contract holder used its best efforts to remedy its inability to perform.

If SCE grants the claim, and if the contract does not provide otherwise, the RPS contract counterparty receives lost output credit (kWh) for the period of the event, up to 365 days, despite a failure to deliver power to SCE. Lost output credit is applied to the annual production amounts found in the contract to offset any replacement energy damages to compensate SCE customers for nonperformance of the contract. Table II-22 lists the uncontrollable force claims tendered to SCE or pending during the Record Period.

Table II-22
RPS Uncontrollable Force Claims Tendered and/or Pending
January 1, 2022 Through December 31, 2022

	ID	Project	Date and Event	Status
1	5208	Solar Partners 1, LLC	8/12/2021 - Force Majeure claim due to area wildfires causing particulate matter that impact their ability to generate electricity.	On 2/16/2023, SCE accepted the Force Majeure and considers this claim closed.
2			8/12/2022 - Force Majeure claim due to desert flood that may impact Seller's 2 year annual delivery obligation.	On 11/8/2022, SCE requested additional information to support this claim.
3			8/12/2022 - Force Majeure claim due to desert flood that may impact Seller's 2 year annual delivery obligation.	On 11/8/2022, SCE requested additional information to support this claim.
4	5262	Antelope DSR3	8/11/2022 - Force Majeure claim due to GSU transformer failure causing the project to go offline.	On 8/12/2022, SCE requested additional information to support this claim.
5	5124	Phelan Solar, LLC	9/26/2016 - Covid-19 Force Majeure claim due to switchboard switches replacement delay.	On 1/13/2023, SCE denied the Force Majeure claim and considers this claim closed.

(1) Solar Partners I, LLC (ID 5208)

Solar Partners I, LLC (Ivanpah) is a 117 MW solar thermal project located in San Bernardino County, California, originally executed as a part of SCE's 2008 RPS solicitation. The PPA was executed on February 6, 2009. The following Force Majeure claims were active during the Record Period.

On August 12, 2021, Ivanpah provided SCE with Notification of a Force Majeure event related to area wildfires that began in July 2021 and continued into August 2021. Ivanpah asserts that the particulate matter from the fire acted to reduce insolation, impacting Ivanpah's ability to generate electricity. On August 13, 2021, SCE acknowledged receipt of Ivanpah's notice and requested further supporting documentation of the event. On December 2, 2021, SCE received a report from Ivanpah to further support its Force Majeure claim, along with calculations for their estimated lost output for the affected period. SCE reviewed Ivanpah's final lost output report for the prior Term Year (February 1, 2021 through January 31, 2022). The Lost Output for this claim totals 2,510 MWh. The claim was accepted on February 17, 2023. SCE considers this claim closed.

On August 12, 2022, Ivanpah provided SCE with a Notification of a Force Majeure event related to a severe monsoonal thunderstorm that resulted in localized flooding that caused loss of communication with approximately 3700 heliostats and rendered them non-functional. Ivanpah's notice stated that the Generating Facility would incur partially reduced generation until the non-functioning heliostats are repaired, replaced, or restored. SCE reviewed the information provided by Ivanpah, and on November 8, 2022, SCE requested further documentation of the event. The aforementioned Force Majeure claim remains open pending Ivanpah provision of additional SCE requested documentation.

On the same day, August 12, 2022, Ivanpah provided SCE with another Notification of a Force Majeure event related to purported issues with the Siemens Energy steam turbine installations of the same model deployed by Ivanpah. Ivanpah stated that the Siemens Energy steam turbine installations have experienced cracking in the shroud wire that secures certain rows of rotating blades of the turbine, creating a risk of catastrophic failure. Ivanpah further asserted that Siemens Energy recommends replacement of those blades using shroud wires composed of a more durable material to mitigate the risk of such failure. SCE reviewed the information provided by Ivanpah and On November 8, 2022, SCE requested further supporting documentation of the event. The aforementioned Force Majeure claim remains open pending Ivanpah provision of additional SCE requested documentation.

(2) Antelope DSR3 (ID 4262)

Antelope DSR3 is a 20MW GTSR project located in Lancaster, California. The PPA was executed on July 28, 2016. The following Force Majeure claim was active during the Record Period.

On August 11, 2022, Antelope DSR3 notified SCE of a Force Majeure event describing an event on July 28, 2022, involving the failure of the "GSU Transformer", causing the project to shut down and go offline. The transformer was shipped back to the manufacturer who has since performed a Root Cause Analysis of the subject equipment to determine the cause of the failure. The results of the Root Cause Analysis were inconclusive. On August 12, 2022, SCE requested additional documentation and details surrounding the Force Majeure event and on November 23, 2022,

SCE followed-up with a further request for documentation. The aforementioned Force Majeure claim remains open pending Antelope DSR3's provision of additional SCE requested documentation.

(3) Phelan Solar, LLC (ID 5124)

Phelan Solar, LLC (Phelan Solar) is a 3 MW solar project located in El Mirage, California originally executed as part of CR-RAM Program solicitation. The PPA was executed on July 18, 2018. The following Force Majeure claim was active during the Record Period

On October 25, 2022, Phelan Solar notified SCE of a Force Majeure event due to delays related to receiving replacement switches for the facility switchboard which were damaged in transit to the site. Phelan Solar claimed that COVID-19 related interruptions in component supplies, shipments, and logistics, caused delays in delivery of the replacement switches that would affect Phelan Solar's ability to achieve commercial operation by the PPA's commercial operation deadline of February 1, 2023. On December 16, 2022, upon SCE's request for further details of the claim, Phelan Solar provided a supplemental letter and supporting documentation. On January 13, 2023, SCE rejected Phelan Solar's Force Majeure claim as the evidence suggests that delays in receiving replacement switches are not currently driving the project delays. SCE considers this claim closed.

i) Energy Delivery Performance Administration

Some of SCE's RPS contracts include provisions that require a seller to meet certain energy delivery obligations. During the negotiations of the RPS contracts, SCE and the seller set expected annual net energy production targets for the specific projects. These annual production targets function as the basis for determining whether, in a term year, the projects meet their energy delivery obligations. The energy delivery obligation calculation may be performed on either an annual or multi-year basis depending on contract terms. Regardless of the timing of the calculation, the result is either a comparison of the actual annual energy deliveries or the average annual energy delivery over multiple years to determine if the energy delivery obligation has been met.

SCE examines the production of each project and determines if the project has met the energy delivery requirement. Depending on the contract, the seller may request credit for lost production if the loss is attributed to lost output (output the facility otherwise would have produced if not curtailed or subject to an accepted Force Majeure claim) as defined in the PPA. If a project does not

meet its energy delivery requirements after supplementing their energy production with confirmed lost output, the project may be subject to liquidated damages known as energy replacement damage amount.

During the Record Period, calculations regarding annual production were performed on 139 contracts. The failures for the contracts that did not meet their required targets during the Record Period, or had prior period replacement damage amounts settled during the Record Period are described below:

(1) Republic Services of Sonoma County Energy Producers, Inc. (ID 1238)

Republic Services of Sonoma County Energy Producers, Inc., a 5 MW biogas facility, had a 12-month (2020 through 2021) term year period production target of 31.54 GWh and delivered 24.63 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 6.90 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Republic Services of Sonoma County Energy Producers, Inc. and fully settled in February 2022. Additionally, Republic Services of Sonoma County Energy Producers, Inc. had a 12-month (2021 through 2022) term year period production target of 31.54 GWh and delivered 19.55 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 11.98 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Republic Services of Sonoma County Energy Producers, Inc. and fully settled in December 2022.

(2) Rio Bravo Fresno (ID 1244)

Rio Bravo Fresno, a 24.3 MW biomass facility, had a 12-month (2020 through 2021) term year period production target of 162.84 GWh and delivered 161.52 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 1.33 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Rio Bravo Fresno and fully settled in January 2022. Additionally, Rio Bravo Fresno had a 12-month (2021 through 2022) term year period production target of 162.84 GWh and delivered 142.26 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 20.58 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Rio Bravo Fresno and fully settled in October 2022.

(3) MM Tulare Energy, LLC (ID 1245)

MM Tulare Energy, LLC (MM Tulare), a 1.5 MW biomass facility, had a 24-month (2019 through 2021) performance measurement period production target of 20.50 GWh and delivered 11.90 GWh, with no qualified lost output to reduce the obligation, leaving a shortfall of 8.61 GWh. The energy replacement damage amount was agreed to be [redacted] per SCE's Letter Agreement with MM Tulare. [redacted] was netted from SCE's payments to MM Tulare and settled from April through December 2022, with the remaining amount to be paid in 2023.

(4) Central CA Fuel Cell 2, LLC (ID 1252)

Central CA Fuel Cell 2 LLC (Central CA Fuel Cell), a 2.8 MW biogas facility, had a 24-month (2019 through 2021) performance measurement period production target of 39.51 GWh and delivered 35.17 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 4.34 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Central CA Fuel Cell and fully settled in March 2022.

(5) Orni 18, LLC (ID 3108)

ORNI 18, LLC (ORNI), a 33.178 MW geothermal facility, had a 12-month (2021 through 2022) term year production target of 48.68 GWh and delivered 46.69 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 1.99 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to ORNI and fully settled in July 2022.

(6) California Water Service Company (ID 4205)

California Water Service Company (Cal Water), a 0.325 MW hydro facility, had a 24-month (2019 through 2021) performance measurement period production target of 420 MWh and delivered 0 MWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 420 MWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Cal Water and fully settled in June 2022.

(7) Calleguas Municipal Water District (ID 4252)

Calleguas Municipal Water District, a 1.0 MW hydro facility, had a 24-month (2020 through 2022) performance measurement period production target of 2.25 GWh and delivered 1.83 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 420 MWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Calleguas Municipal Water District and fully settled in July 2022.

(8) Caliente Springs (ID 5226)

Caliente Springs, LLC, a 0.912 MW solar facility, had a 24-month (2019 through 2021) performance measurement period production target of 3.37 GWh and delivered 2.99 GWh, including 1,322 hours submitted by Caliente Springs, LLC and confirmed by SCE to qualify as seller excused hours, reducing Caliente Springs, LLC's obligation and leaving a shortfall of 128 MWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Caliente Springs, LLC and fully settled in January 2022.

(9) Garnet Solar Power Generation Station 1, LLC (ID 5488)

Garnet Solar Pwr Gen Station 1, LLC, a 4 MW solar facility, had a 24-month (2020 through 2022) calculation period production target of 15.55 GWh and delivered 11.25 GWh, including 3.19 GWh submitted by Garnet Solar Pwr Gen Station 1, LLC and confirmed by SCE to qualify as lost output, reducing Garnet Solar Pwr Gen Station 1, LLC's obligation and leaving a shortfall of 1.11 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Garnet Solar Pwr Gen Station 1, LLC and fully settled in June 2022.

(10) Willow Springs Solar, LLC (ID 5883)

Willow Springs Solar, LLC, a 107.92 MW solar facility, had a 24-month (2019 through 2021) calculation period production target of 578.89 GWh and delivered 520.66 GWh, including 57.99 GWh submitted by Willow Springs Solar, LLC and confirmed by SCE to qualify as lost output, reducing Willow Springs Solar, LLC's obligation and leaving a shortfall of 241 MWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Willow Springs Solar, LLC and fully settled in July 2022.

(11) Alta Wind VIII, LLC (ID 6321)

Alta Wind VIII, LLC (Alta VIII), a 150 MW wind turbine facility, had a 24-month (2020 through 2022) calculation period production target of 476.14 GWh and delivered 449.77 GWh, including 555 MWh submitted by Alta VIII and confirmed by SCE to qualify as lost output, reducing Alta VIII's obligation and leaving a shortfall of 25.81 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Alta VIII and fully settled in October 2022.

(12) Mammoth Pacific, L.P. (ID 3027)

Mammoth-Pacific, L.P., a 10.5 MW geothermal facility, has a quarterly Energy Delivery Obligation of at least 20.01 GWh. In the quarter ended June 30, 2022, Mammoth-Pacific, L.P. delivered 15.94 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 4.06 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Mammoth-Pacific, L.P. and fully settled in June 2022. In the quarter ended September 30, 2022, Mammoth-Pacific, L.P. delivered 10.85 GWh, with no qualified lost output claimed to reduce the obligation, leaving a shortfall of 9.16 GWh. The energy replacement damage amount was calculated to be [redacted] which was netted from SCE's payment to Mammoth-Pacific, L.P. and fully settled in September 2022.

j) Dispute Resolution and Litigation

Details on RPS Project dispute resolutions and litigation activities during the Record Period are provided below.

(1) Sand Canyon of Tehachapi LLC (ID 6341)

The Sand Canyon of Tehachapi LLC (Sand Canyon) PPA was terminated by SCE on November 11, 2011 due to network upgrade costs substantially exceeding the cap specified in the PPA. After the termination, GLJ LLC (a lender and previous owner) for the Sand Canyon asserted its rights, based on a Consent to Collateral Assignment Agreement signed by SCE, Sand Canyon, GLJ, and Sand Canyon's controlling entity, Helo Energy, to take control of the then-terminated PPA. Pursuant to the terms of the Consent to Collateral Assignment Agreement and the PPA, SCE returned the development security of [redacted] associated with the PPA to GLJ.

On March 28, 2012, Helo Energy and Saugatuck Energy, another claimant to the development security, disregarded the alternative dispute resolution (ADR) provisions of the PPA and filed suit against SCE and several other parties in California Superior Court. The lawsuit claimed that SCE wrongfully terminated the PPA and incorrectly returned the development security to GLJ. The lawsuit also made numerous unrelated allegations against defendants other than SCE, related to the prior sale of the Sand Canyon PPA and assets. SCE moved to compel the ADR of plaintiffs' contract claims under the PPA. The trial court denied the motion and SCE appealed the decision. The Court of Appeal reversed the trial court, ruling that the plaintiffs' claims against SCE must be arbitrated. On remand, the trial court stayed plaintiffs' claims against SCE until the plaintiffs resolve their unrelated claims against the other defendants. That trial was held in California District Court on April 12, 2016. SCE monitored the case. The lawsuit to determine the ownership of the project, which SCE was not a party to, was settled by the litigants in 2019, with Helo prevailing as the owner of the project.

Subsequently, Helo pursued a claim against SCE for, allegedly, improper termination of the PPA. A mediation between Helo and SCE in October 2020 was unsuccessful in reaching an agreement. On August 9, 2022, an arbitrator ruled in SCE's favor, finding entirely for SCE in a review of its actions related to the PPA. SCE considers this dispute and associated litigation closed.

k) Contract Terminations

Table II-23 shows the RPS contracts that terminated during the Record Period.

Table II-23
RPS Contract Terminations
January 1, 2022 Through December 31, 2022

	ID	Project	Capacity (MW)	Contract Type	Termination Date	Notes
1	1347	Organic Energy Solutions, LLC	2.6	BioMAT	1/19/2022	[redacted]
2	5149	Community Solar Lancaster 1, LLC	3.0	CR-RAM	6/13/2022	
3	5510	USDA Forest Service National Technology and Development Program	0.3	CREST	7/22/2022	Contract expired and no collateral was posted in accordance with the terms of the Agreement.
4	4208	Lower Tule River Irrigation District	1.4	CREST	8/31/2022	Contract expired and no collateral was posted in accordance with the terms of the Agreement.
5	1244	Rio Bravo Fresno	24.3	BioRAM	9/30/2022	Contract expired in accordance with the terms of the contract. Collateral is being held until Seller pays the remaining CAISO charges or costs.

5. BESS

BESS contracts are executed through various Commission-approved solicitations or through bilateral transactions as described in Section A.5 and this Section b) below. SCE's Energy Contracts Management group currently manages the administration of agreements with BESS, stand-alone, or co-located[88] (renewable paired with battery energy storage system), with future opportunity for hybrid[89] projects. Each agreement specifies terms and conditions related to performance, events of default, payments, confidentiality requirements, dispute resolution, and other general contractual provisions. SCE may use the agreements in their standard form or agree to special provisions or amended forms of the agreements. These contracts, once executed by SCE and the BESS developer, are

[88] As defined by the CAISO: "A Generating Unit with a unique Resource ID that is part of a Generating Facility with other Generating Units" (each with their own Resource ID).

[89] As defined by the CAISO: "A Generating Unit, with a unique Resource ID at a single Point of Interconnection, with components that use different fuel sources or technologies."

submitted for Commission review and approval via advice letters or applications. The list of transactions active or in SCE's energy contracts portfolio during the Record Period are sorted by contract types and listed in Appendix II-A.

a) Contract Administration

This section provides information on all activities related to SCE administering contracts with BESS projects, including BESS contracts that achieved commercial operation, contract development, amendments, assignments, and other contract administration activities, during the Record Period, and demonstrates that SCE administered these contracts prudently and according to their terms and conditions. SCE executes and administers RA-only contracts, RA with put option contracts (*i.e.*, RA contracts where the seller also has the option to put the energy dispatch to SCE, essentially becoming a toll), and tolls (RA plus energy and ancillary services) with BESS projects through competitive solicitations or bilateral negotiations.

b) Summary of Contract Activity

SCE administers contracts with BESS[90] projects procured pursuant to AB 2514 and through other Commission-approved all-source or preferred resources solicitations for stand-alone or co-located BESS projects such as energy storage RFO, Integrated Distributed Energy Resources (IDER) RFO, Aliso Canyon Energy Storage (ACES) RFO, Distribution Investment Deferral Framework (DIDF) RFO, Local Capacity Requirements (LCR) RFO, and Preferred Resources Pilot (PRP 2) program. The procurement and solicitations that included requests for stand-alone, hybrid or co-located BESS projects in the Record Period are through D.21-03-056 and in response to Governor Newsom's issued Proclamation of State of Emergency, D.21-12-015, and the 2021 Midterm Reliability (MTR) RFO, which are further discussed below.

D.21-02-028 required the IOUs to procure capacity to be available during peak and net peak periods over the summer of 2021. D.21-03-056 and in response to Governor Newsom's issued Proclamation of State of Emergency, D.21-12-015, authorized the IOUs to continue procurement efforts to meet and exceed their respective incremental procurement targets to achieve a range of

[90] SCE uses a contract numbering convention to identify contracts with BESS identified by a five-digit number starting with "12xxx" (e.g. 12002), refers to a contract with a BESS.

additional procurement authorized in the decisions (Emergency Procurement). D.21-03-056 directed the IOUs to submit contracts to Energy Division via a Tier 1 advice letter on a continuing basis. The net costs associated with this procurement were required to be passed through to all benefiting customers consistent with the existing CAM. SCE's portion of the procurement target was determined to be between 950 MW and 1,350 MW for the summers of 2022 and 2023.

On July 29, 2021, SCE informed the Commission of its decision to end the PRP 2 program, submitted in Advice 4551-E. SCE continues to administer contracts executed with BESS developers in the PRP 2 Program.[91] The PRP program was a multi-year study designed to determine whether clean energy resources, including EE, DR, Renewable Distributed Generation, and BESS, can be acquired and deployed to offset the increasing customer demand for electricity in portions of central and south Orange County. The growing gap between supply and demand for electricity in the PRP area was due in part to the closure of the San Onofre Nuclear Generating Station and the impending retirement of nearby ocean-cooled power plants, known as Once-Through-Cooling (OTC), which may affect grid reliability.

SCE launched the 2021 MTR RFO[92] on July 30, 2021, in which SCE sought to procure a total of 4,056 MW[93] to be online in 2023 (705 MW), 2024 (2,114 MW), 2025 (530 MW), and 2026 (707 MW), with a minimum zero-emitting capacity of 858 MW by 2025. This significant procurement is a result of the IRP process, which aims to bolster system reliability, backfill various projected power plant retirements, and assist in clean energy and decarbonization goals.

SCE split its procurement activities into two RFOs. In the 2021 MTR RFO, which extended into 2022, SCE sought to procure eligible resources[94] to be online in 2023 and 2024, and in the 2022 MTR RFO, SCE sought to procure resources to be online in 2025 and 2026. The 2021

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91 D.18-07-023 authorized SCE to recover in rates, payments made pursuant to the executed contracts.

92 Pursuant to D.21-06-035.

93 SCE is soliciting stand-alone renewables, renewables paired with battery energy storage system, hybrid or co-located, and stand-alone battery energy storage system In Front of the Meter products and procurement minimum obligations defined in D.21-06-035, Table 6.

94 Eligible resources shall be zero-emitting (unless they otherwise qualify under the RPS eligibility requirements).

MTR RFO was further bifurcated into a Fastrack in which SCE sought projects capable of coming online by August 1, 2023, and certain select projects coming online by June 1, 2024, and the Standard Track in which SCE sought to procure the remaining balance of the 2024 need. In addition, pursuant to D.21-06-035, SCE also sought RA capacity for the Diablo Canyon replacement.

On February 23, 2023, pursuant to CPUC Decision 21-06-035 and a Proposed Decision issued on January 13, 2023 and revised on February 21, 2023 as part of Rulemaking R.20-05-003, SCE launched the 2023 MTR RFO to solicit, among other products, BESS (4-8 hours) and long lead-time resources to come online by June 1, 2028.

c) BESS Contracts that Achieved Commercial Operation

Table II-24 shows the BESS projects that came on-line or started delivering to SCE under a new contract during the Record Period.

Table II-24
BESS Projects that Achieved Commercial Operation
January 1, 2022 through December 31, 2022

	ID	Project	Date	Capacity (MW)
1	12005	Hecate Energy Johanna Facility LLC	1/1/2022	10.0
2	12006	Hecate Energy Johanna Facility LLC	1/1/2022	5.0
3	12003	Orange County Energy Storage 2 LLC	2/1/2022	9.0
4	12004	Orange County Energy Storage 3 LLC	2/1/2022	6.0
5	12045	Sunlight Storage, LLC	9/1/2022	230.0
6	12042	Sonoran West Solar Holdings, LLC	11/1/2022	200.0

d) Contract Development

Table II-25 shows the BESS contracts executed during the Record Year. This is for information only as these contracts were submitted for approval through an advice letter or application as indicated in the table.

Table II-25
New BESS Contracts Executed,
Pre-Approved or Submitted for Approval
January 1, 2022 through December 31, 2022

	ID	Contract Counterparty	Capacity (MW)	Type of Agreement	Date Executed	CPUC Resolution or Decision/SCE Advice Letter/Application
1	12048	Johanna Energy Center, LLC	40.0	RA Purchase Agreement - RA Purchase	1/27/2022	AL 4739-E
2	12049	Gateway Energy Storage, LLC	75.0	RA Purchase Agreement - RA Purchase	2/1/2022	AL 4739-E
3	12050	AES ES Alamitos 2	82.0	Power Purchase Tolling Agreement - RA + Energy Put Option Purchase	3/3/2022	AL 4739-E
4	12052	Desert Peak Energy Storage II, LLC	75.0	RA Agreement with Put Option - RA + Energy Put Option N/A	4/19/2022	AL 4800-E
5	12051	Silver Peak Solar, LLC	109.0	RA Agreement with Put Option - RA + Energy Put Option Purchase	6/3/2022	AL 4850-E
6	12053	Silver Peak Solar, LLC	110.0	RA Purchase Agreement - RA Purchase	6/3/2022	AL 4850-E
7	12054	Proxima Solar, LLC	40.0	RA Agreement with Put Option - RA + Energy Put Option Purchase	7/18/2022	AL 4850-E
8	12055	Hecate Grid Humidor Storage	115.0	RA Purchase Agreement - RA Purchase	8/13/2022	AL 4850-E
9	12056	McFarland Solar A, LLC	100.0	RA Purchase Agreement - RA Purchase	8/15/2022	AL 4850-E
10	12057	SBES HoldCo, LLC	68.8	RA Purchase Agreement - RA Purchase	9/8/2022	AL 4885-E
11	12058	Nova Power, LLC	230.0	RA Agreement with Put Option - RA + Energy Put Option Purchase	9/29/2022	AL 4885-E
12	12059	Nova Power, LLC	230.0	RA Agreement with Put Option - RA + Energy Put Option Purchase	9/29/2022	AL 4885-E
13	12060	Proxima Solar	90.0	RA Purchase Agreement - RA Purchase	10/25/2022	AL 4885-E
14	12061	Upland Reliability Project, LLC	120.0	RA Purchase Agreement - RA Purchase	12/3/2022	AL 4920-E
15	12062	SFS Energy Storage, LLC	90.0	RA Purchase Agreement - RA Purchase	12/3/2022	AL 4920-E
16	12065	MN8 Energy Operating Company, LLC	73.8	RA Purchase Agreement - RA Purchase	12/5/2022	Pending AL Filing
17	12063	Arica Solar, LLC	15.0	RA Purchase Agreement - RA Purchase	12/15/2022	AL 4920-E
18	12064	Rosie BESS Devco, LLC	147.0	RA Purchase Agreement - RA Purchase	12/15/2022	AL 4920-E
19	12066	Silver State South Storage, LLC	200.0	RA Agreement with Put Option - RA + Energy Put Option Purchase	12/20/2022	Pending AL Filing

e) Contract Amendment Administration

After execution, BESS contract terms and conditions may be changed by amendment. Table II-26 lists the BESS contract amendments SCE entered into during the Record Period and for which it seeks Commission approval through this filing.

Table II-26
BESS Contract Amendments and Letter Agreements
January 1, 2022 through December 31, 2022

	ID	Contract Counterparty	Amendment No. and Description	Date Executed
1	12034	SP Tranquility Solar Storage, LLC	Letter Agreement to provide additional time for Seller to receive, install and test, the remainder of the project's full 72 MW capacity due to Seller's valid Force Majeure claim	1/5/2022
2	12035	SP Garland Solar Storage, LLC	[redacted]	1/20/2022
3	12047	Peregrine Energy Storage, LLC	Amendment No 1 to replace the definition of "Full Capacity Deliverability Status" in the PPA with the definition of "Fully Deliverable"	2/17/2022
4	12032	Painter Energy Storage, LLC	[redacted]	3/18/2022
5	12034	SP Tranquility Solar Storage, LLC	Amendment No 5 to update certain deadlines impacted by Seller's valid Force Majeure claim, effectively extending the requirement for completion of certain testing obligations and the "Proxy RA Period" to April 2022	3/22/2022
6	12046	Condor Energy Storage, LLC	Amendment No 1 to update the Ultimate Parent definition in Exhibit A of the Agreement	5/18/2022
7	12047	Peregrine Energy Storage, LLC	Amendment No 2 to update the Ultimate Parent definition in Exhibit A of the Agreement	5/18/2022
8	12043	Silver Peak Solar, LLC	[redacted]	6/3/2022
9	12028	Ventura Energy Storage, LLC	Amendment No 5 to amend and replace Exhibit B in its entirety to reflect updated equipment design and specifications	7/27/2022
10	12045	Sunlight Storage, LLC	Amendment No 1 to extend the Expected Initial Delivery Date from 8/1/2022 to 9/1/2022, due to an SCE approved Force Majeure claim	8/4/2022
11	12045	Sunlight Storage, LLC	Letter Agreement to designate SCE as the Scheduling Coordinator during the Startup Period	8/30/2022
12	12042	Sonoran West Solar Holdings, LLC	[redacted]	9/1/2022
13	12045	Sunlight Storage, LLC	[redacted]	9/1/2022
14	12049	Gateway Energy Storage, LLC	Amendment No 1 to modify the financing provisions and defined terms regarding Portfolio Financing	9/7/2022
15	12045	Sunlight Storage, LLC	[redacted]	9/27/2022
16	12025	Wildcat I Energy Storage LLC	[redacted]	10/27/2022
17	12046	Condor Energy Storage, LLC	[redacted]	11/21/2022
18	12034	SP Tranquility Solar Storage, LLC	[redacted]	12/1/2022
19	12034	SP Tranquility Solar Storage, LLC	Amendment No 6 to modify certain settlement-related provisions of the Agreement to better align with the operating characteristics of the project	12/1/2022
20	12035	SP Garland Solar Storage, LLC	[redacted]	12/1/2022
21	12035	SP Garland Solar Storage, LLC	Amendment No 5 to modify certain settlement-related provisions of the Agreement to better align with the operating characteristics of the project	12/1/2022
22	12047	Peregrine Energy Storage, LLC	[redacted]	12/9/2022

(1) SP Tranquillity Solar Storage, LLC (ID 12034)

SP Tranquillity Solar Storage, LLC (Tranquillity) is a 72 MW battery energy storage system project located in Cantua Creek, California, originally executed as part of SCE's 2019 System Reliability RFO Fast Track solicitation. The PPA was executed on April 22, 2020. SCE and Tranquillity executed a Letter Agreement on January 5, 2022, to provide additional time for Tranquillity to receive, install and test the remainder of the project's full 72 MW capacity. The extension is provided as a result of a valid Force Majeure claim due to Covid-19-related manufacturer and shipping delays. SCE's customers benefit from this letter agreement by supporting the project to achieve full Expected Contract Capacity providing important reliability benefits to the grid.

(2) SP Garland Solar Storage, LLC (ID 12035)

SP Garland Solar Storage, LLC (Garland) is an 88 MW battery energy storage system project located in Rosamond, California, originally executed as part of SCE's 2019 System Reliability RFO Fast Track solicitation. The PPA was executed on April 22, 2020. SCE and Garland executed Amendment No. 4 on January 20, 2022, to [redacted] SCE's customers benefit from this amendment by receipt of [redacted] and by supporting the project's ability to operate at full Expected Contract Capacity providing important reliability benefits to the grid.

(3) Peregrine Energy Storage, LLC (ID 12047)

Peregrine Energy Storage LLC (Peregrine) is a 100 MW battery energy storage system project located in San Diego, California, originally executed as part of SCE's 2021 Mid-Term Reliability RFO Fast Track. The PPA was executed on December 6, 2021. SCE and Peregrine executed Amendment No. 1 on February 17, 2022, to replace the definition of "Full Capacity Deliverability Status" in the PPA with the definition of "Fully Deliverable". Fully Deliverable means

Full Capacity Deliverability Status or Partial Capacity Deliverability Status as those terms are defined in the CAISO Tariff; provided Partial Capacity Deliverability Status shall be in an amount no less than the Contracted Amount. SCE's customers benefit from this amendment by having accurate project information available for contract administration.

(4) Painter Energy Storage, LLC (ID 12032)

Painter Energy Storage, LLC (Painter) is a 5 MW (formerly 10 MW) battery energy storage system project located in Ventura County, California, originally executed as part of SCE's ACES 2 RFO. The PPA was executed on April 1, 2019. SCE and Painter executed Amendment No. 3 on March 18, 2022 to (i) update the Delivery Period, (ii) modify certain delivery date provisions within the Agreement, (iii) [redacted] and (iv) update other related provisions to accommodate commercial operation date readiness. SCE's customers benefit from this amendment by supporting the viability of a cost-effective project providing grid reliability in a critical area, and preserving a net present value of approximately [redacted]

(5) SP Tranquillity Solar Storage, LLC (ID 12034)

SP Tranquillity Solar Storage, LLC (Tranquillity) is a 72 MW battery energy storage system project located in Cantua Creek, California., originally executed as part of SCE's 2019 System Reliability RFO Fast Track solicitation. The PPA was executed on April 22, 2020. SCE and Tranquillity executed Amendment No.5 on March 22, 2022, to modify the deadline for Seller's completion of the Initial Commercial Operation Test (ICOT) and extend the Proxy RA Period to April 2022. The deadline obligations are modified as a result of Force Majeure events as identified in the Letter Agreement dated January 5, 2022. SCE's customers benefit from this amendment by supporting the viability of the project providing important reliability benefits to the grid.

(6) Condor Energy Storage, LLC (ID 12046)

Condor Energy Storage, LLC (Condor) is a 200 MW battery energy storage system project located in Grand Terrace, California., originally executed as part of SCE's 2021

Mid-Term Reliability RFO. The PPA was executed on December 6, 2021. SCE and Condor executed Amendment No. 1 on May 18, 2022, to update the Ultimate Parent definition in Exhibit A of the Agreement to identify Arevon Energy JV I, LLC as the new Ultimate Parent of the Condor. SCE's customers benefit from this amendment by having accurate project information available for contract administration.

(7) Peregrine Energy Storage, LLC (ID12047)

Peregrine Energy Storage LLC (Peregrine) is a 100 MW battery energy storage system project located in San Diego, California, originally executed as part of SCE's 2021 Mid-Term Reliability RFO Fast Track. The PPA was executed on December 6, 2021. SCE and Peregrine executed Amendment No. 2 on May 18, 2022, to update the Ultimate Parent definition in Exhibit A of the Agreement to identify Arevon Energy JV I, LLC as the new Ultimate Parent of the Peregrine. SCE's customers benefit from this amendment by having accurate project information available for contract administration.

(8) Silver Peak Solar, LLC (ID 12043)

Silver Peak Solar, LLC (Silver Peak) is a 60 MW battery energy storage system project located in Boulder City, Nevada, originally executed as part of SCE's 2019 System Reliability RFO solicitation. The PPA was executed on December 2, 2020. SCE and Silver Peak executed Amendment No. 1 on June 3, 2022, to address interconnection delays beyond the Silver Peak's control. The amendment contains modifications to [redacted] (vi) update the corresponding tables and information within the PPA to address the agreed-upon pricing and dates, and (vii) modify the financing provisions and associated definitions

in Exhibit A to allow for portfolio financing. SCE's customers benefit from this amendment by supporting the viability of the project providing important reliability benefits to the grid.

(9) Ventura Energy Storage, LLC (ID 12028)

Ventura Energy Storage, LLC (Ventura) is a 100 MW battery energy storage system project located in Ventura County, California, originally executed as part of SCE's LCR RFO. The PPA was executed on April 1, 2019. SCE and Ventura executed Amendment No. 5 on July 26, 2022, to amend and replace Exhibit B to the contract in its entirety to update the description of the equipment specifications to reflect the latest design. SCE's customers benefit from this amendment by having accurate project information available for contract administration.

(10) Sunlight Storage, LLC (ID 12045)

Sunlight Storage, LLC (Sunlight) is a 230 MW battery energy storage project located in Desert Center, California, originally executed as part of a bilateral negotiation. The PPA was executed on October 18, 2021. SCE and Sunlight executed Amendment No. 1 August 4, 2022, to modify the Expected Initial Delivery Date from August 1, 2022 to September 1, 2022 due to an SCE approved Force Majeure event related to equipment shipment delays resulting from a civil disturbance and labor strike near the equipment manufacturer's production facility. SCE customers benefit from this amendment by supporting the viability of the project providing important reliability benefits to the grid.

(11) Sunlight Storage, LLC (ID 12045)

Sunlight Storage, LLC (Sunlight) is a 230 MW battery energy storage project located in Desert Center, California, originally executed as part of a bilateral negotiation. The PPA was executed on October 18, 2021. SCE and Sunlight executed a Letter Agreement on August 30, 2022, to designate SCE as the Scheduling Coordinator prior to achieving the commercial operation date since CAISO was unable to transfer Scheduling Coordinator responsibilities during production deployment of the Full Network Model, which occurred the same week as the project's commercial operation date in the contract. SCE's customers benefit from this letter agreement by ensuring the ability of the project to come on-line in a timely manner and provide important reliability benefits to the grid.

(12) Sonoran West Solar Holdings, LLC (ID 12042)

Sonoran West Solar Holdings, LLC (Sonoran) is a 200 MW battery energy storage project located in Blythe, California, originally executed as part of SCE's System Reliability RFO, Standard Track. The PPA was executed on October 28, 2020. SCE and Sonoran executed Amendment No. 3 on September 1, 2022, to (i) extend the Expected Initial Delivery Date from August 1, 2022 to November 1, 2022, due to an SCE approved Force Majeure event, (ii) [redacted]. SCE's customers benefit from this amendment by supporting the viability of the project and provide important reliability benefits to the grid.

(13) Sunlight Storage, LLC (ID 12045)

Sunlight Storage, LLC (Sunlight) is a 230 MW battery energy storage project located in Desert Center, California, originally executed as part of a bilateral negotiation. The PPA was executed on October 18, 2021. SCE and Sunlight executed a Letter Agreement on September 1, 2022, to [redacted] The letter agreement further imposes [redacted] SCE's customers benefit from this letter agreement by enhancing the ability of the project to come on-line in a timely manner providing important, highly flexible reliability benefits to the grid.

(14) Gateway Energy Storage, LLC (ID 12049)

Gateway Energy Storage, LLC (Gateway) is a 75 MW battery energy storage project located in San Diego County, California, originally executed as part of SCE's Midterm Reliability RFO. The PPA was executed on February 1, 2022. SCE and Gateway executed Amendment No. 1 on September 7, 2022, to modify the Agreement financing provisions and associated definitions in

Exhibit A to allow for portfolio financing. SCE's customers benefit from this amendment by increasing the viability of the project and supporting broader financing options for the counterparty.

(15) Sunlight Storage, LLC (ID 12045)

Sunlight Storage, LLC (Sunlight) is a 230 MW battery energy storage project located in Desert Center, California, originally executed as part of a bilateral negotiation. The PPA was executed on October 18, 2021. SCE and Sunlight executed Amendment No. 2 on September 27, 2022, to [redacted] The PPA was signed after the Annual RA plan was due and Sunlight was unable to effectuate the transfer of deliverability in 2022. [redacted] SCE's customers benefit from this amendment by ensuring the ability of the project to come on-line in a timely manner, obtain full RA benefit, and provide important, highly flexible reliability benefits to the grid.

(16) Wildcat I Energy Storage, LLC (ID 12025)

Wildcat I Energy Storage LLC is a 1.5 MW battery energy storage project located in Palm Springs, California, originally executed as part of SCE's 2018 IDER solicitation. The PPA was executed on October 3, 2018. SCE and Wildcat I Energy Storage LLC executed Amendment No. 2 on October 27, 2022 to (i) retain the Contract Capacity at 1.5 MW (i.e., to retain the Phase 1 Contract Capacity, with no Phase 2 increase) through the entire Delivery Term, [redacted] and (iii) provide for enhanced LRCD dispatch rights giving SCE full nameplate capacity rating (3.0 MW) for 2 hours. SCE's customers benefit from this amendment by

realizing a net present value savings of [redacted] and ensuring a cost-effective project will provide grid reliability in a critical area.

(17) Condor Energy Storage, LLC (ID 12046)

Condor Energy Storage, LLC (Condor) is a 200 MW battery energy storage system project located in Grand Terrace, California., originally executed as part of SCE's 2021 Mid-Term Reliability RFO. The PPA was executed on December 6, 2021. SCE and Condor executed Amendment No. 2 on November 21, 2022 to [redacted], and (iv) modify description of the storage unit in Exhibit B to change the Flexible Capacity Category and identify the number of times the Project is capable of completing a full discharge followed by a full charge, in a calendar day. This amendment was submitted to the CPUC for approval as part of Advice Letter 4920-E, dated December 16, 2022, which approval was obtained via Resolution number E-5253 dated February 23, 2023. SCE's customers benefit from this amendment by supporting the viability of the project providing important reliability benefits to the grid and by having accurate project information available for contract administration.

(18) SP Tranquillity Solar Storage, LLC (ID 12034)

SP Tranquillity Solar Storage, LLC (Tranquillity) is a 72 MW battery energy storage system project located in Cantua Creek, CA, originally executed as part of SCE's 2019 System Reliability RFO Fast Track solicitation. The PPA was executed on April 22, 2020. SCE and Tranquillity executed a Letter Agreement on December 1, 2022, to [redacted]. SCE's customers benefit from this letter agreement through delivery of energy throughout 2023 and [redacted].

(19) SP Tranquillity Solar Storage, LLC (ID 12034)

SP Tranquillity Solar Storage, LLC (Tranquillity) is a 72 MW battery energy storage system project located in Cantua Creek, CA, originally executed as part of SCE's 2019 System Reliability RFO Fast Track solicitation. The PPA was executed on April 22, 2020. SCE and Tranquillity executed Amendment No. 6 on December 1, 2022, to modify settlement-related defined terms and calculations to address settlement consideration for charging and discharging of the battery energy storage system, and aid SCE settlement and payment functions. SCE's customers benefit from this amendment through reduced administrative costs and more accurate settlement mechanism.

(20) SP Garland Solar Storage, LLC (ID 12035)

SP Garland Solar Storage, LLC (Garland) is an 88 MW battery energy storage system project located in Rosamond, CA, originally executed as part of SCE's 2019 System Reliability RFO Fast Track solicitation. The PPA was executed on April 22, 2020. SCE and Garland executed a Letter Agreement on December 1, 2022, to [redacted] SCE's customers benefit from this letter agreement through delivery of energy throughout 2023 and [redacted]

(21) SP Garland Solar Storage, LLC (ID 12035)

SP Garland Solar Storage, LLC (Garland) is an 88 MW battery energy storage system project located in Rosamond, CA, originally executed as part of SCE's 2019 System Reliability RFO Fast Track solicitation. The PPA was executed on April 22, 2020. SCE and Garland executed Amendment No. 5 on December 1, 2022, to modify settlement-related defined terms and calculations to address settlement consideration for charging and discharging of the battery energy storage system, and aid SCE settlement and payment functions. SCE's customers benefit from this amendment through reduced administrative costs and more accurate settlement mechanism.

(22) Peregrine Energy Storage, LLC (ID 12047)

Peregrine Energy Storage LLC (Peregrine) is a 100 MW battery energy storage system project located in San Diego, California, originally executed as part of SCE's 2021 Mid-Term Reliability RFO Fast Track. The PPA was executed on December 6, 2021. SCE and Peregrine executed Amendment No. 3 on December 9, 2022 to [redacted] and (iv) modify description of the storage unit in Exhibit B to change the Flexible Capacity Category and identify the number of times the Project is capable of completing a full discharge followed by a full charge, in a calendar day. This amendment was submitted to the CPUC for approval as part of Advice Letter 4920-E, dated December 16, 2022, which approval was obtained via Resolution number E-5253 dated February 23, 2023. SCE's customers benefit from this amendment by supporting the viability of the project providing important reliability benefits to the grid and by having accurate project information available for contract administration.

f) Contract Assignment Administration

BESS contracts may only be assigned with the written consent of the parties, which may not be unreasonably withheld. There are many reasons BESS contract counterparties seek to assign their contracts. The counterparty might want to sell or transfer the project to a new entity, sell or assign a portion of the project to tax equity, assign the contract to a lender as security for a loan, or a change of control of the project. Table II-27 lists the contract assignments to which SCE consented during the Record Period.

Table II-27
BESS Contract Consents and Consents to Assignments
January 1, 2022 through December 31, 2022

	ID	Contract Counterparty	Consents and Description	Date Executed
1	12033	Goleta Energy Storage, LLC	Consent to Assignment of Membership Interest	1/19/2022
2	12046	Condor Energy Storage, LLC	Consent to Assignment of Membership Interest	5/5/2022
3	12047	Peregrine Energy Storage, LLC	Consent to Assignment of Membership Interest	5/5/2022
4	12022	Acorn I Energy Storage, LLC	Consent to Assignment of Membership and Partnership Interests	7/11/2022
5	12025	Wildcat I Energy Storage, LLC	Consent to Assignment of Membership and Partnership Interests	7/11/2022
6	12056	McFarland Solar A, LLC	Consent to Collateral Assignment of Membership Interest	8/15/2022
7	12037	Gateway Energy Storage, LLC	Consent to Collateral Assignment	9/7/2022
8	12049	Gateway Energy Storage, LLC	Consent to Collateral Assignment	9/7/2022
9	12036	Edwards Sanborn Storage I, LLC	Consent to Assignment of Membership Interest	10/20/2022
10	12025	Wildcat I Energy Storage, LLC	Consent to Assignment of Membership Interest	11/29/2022
11	12033	Goleta Energy Storage, LLC	Consent to Assignment of Membership Interest	11/30/2022
12	12032	Painter Energy Storage, LLC	Consent to Assignment of Membership Interest	12/21/2022

g) Affiliate Transactions and Contract Information

There were no affiliate BESS contracts during the Record Period.

h) Uncontrollable Force Administration

SCE's contracts with BESS projects include provisions that may excuse the project from performing certain contractual obligations to the extent the project can demonstrate that the occurrence of an uncontrollable force, or a circumstance beyond its reasonable control as defined in the agreements (often known as a Force Majeure), prevented the project from performing such obligations.

Whenever a BESS contract holder claims that an uncontrollable force caused it to fail to meet its contractual obligations, SCE undertakes the following activities:

- Determines whether the claim was submitted within the contractually required period, which is typically two weeks;
- Requires that the counterparty submit sufficient evidence to substantiate the claim that an uncontrollable force event occurred. This may include supply chain delays and associated uncontrollable force documentation, copies of insurance claims, and other relevant materials; and

- Evaluates whether the suspension of performance was of no greater scope and of no longer duration than was required by the uncontrollable force, and that the BESS contract holder used its best efforts to remedy its inability to perform.

Table II-28 lists the uncontrollable force claims from projects tendered to SCE or pending during the Record Period.

Table II-28
BESS Uncontrollable Force Claims Tendered and/or Pending
January 1, 2022 Through December 31, 2022

	ID	Project	Date and Event	Status
1	12042	Sonoran West Solar Holdings, LLC	3/22/2022 - Force Majeure claim due to mandated power outages issued by the Chinese government and COVID-19 causing supply delay and shortage that impacted project start date	On May 9, 2022, SCE accepted the Force Majeure claim and allowed the extension of the Initial Delivery Date from 8/1/2022 to 11/1/2022 SCE considers this claim closed
2	12045	Sunlight Storage, LLC	3/28/2022 - Force Majeure claim due to trucking strike, labor dispute and related civil disturbance in Spain causing inverter shipment delay that impacted project start date	On July 26, 2022, SCE accepted the Force Majeure claim and executed an amendment with the Seller to extend the Expected Initial Delivery Date from August 1, 2022 to September 1, 2022 SCE considers this claim closed
3	12035	SP Garland Solar Storage, LLC	5/19/2022 - Force Majeure claim due to high winds causing a power line disconnected at Garland Switchyard that impacted their ability to generate electricity	On March 30, 2023, SCE received notification from Garland that they are withdrawing their Force Majeure claim SCE considers this claim closed
4	12035	SP Garland Solar Storage, LLC	9/16/2022 - Force Majeure claim due to COVID-19 outbreak causing IGBTs (components in the inverters) replacment disruption that impacted their availabity to generate electricity	On December 20, 2022, SCE received a summary of details from Seller to further support its Force Majeure claim SCE is currently reviewing the information
5	12034	SP Tranquillity Solar Storage, LLC	9/16/2022 - Force Majeure claim due to COVID-19 outbreak causing IGBTs (components in the inverters) replacement disruption that impacted their availabity to generate electricity	On December 20, 2022, SCE received a summary of details from Seller to further support its Force Majeure claim SCE is currently reviewing the information

(1) Sonoran West Solar Holdings, LLC (ID 12042)

Sonoran West Solar Holdings, LLC (Sonoran) is a 200 MW lithium-ion battery energy storage project located in Blythe, California, originally executed as part of SCE's System Reliability RFO, Standard Track. The PPA was executed on October 28, 2020. The following Force Majeure claim was active during the Record Period.

On March 22, 2022, Sonoran informed SCE a Force Majeure event due to supply delay and shortage had taken place. The supply delay was caused by mandated power outages issued by the Chinese government. These power outages caused an interruption in the manufacturing of graphite; a component of the procured battery equipment. Sonoran requested Force Majeure relief of three months to extend the Initial Delivery Date from August 1, 2022 to November 1, 2022. On April 21, 2022, SCE requested further additional supporting documentation of the event.

On May 4, 2022, Sonoran submitted a supplemental notice and supporting documentation. On May 19, 2022, SCE accepted the Force Majeure claim and allowed the extension of Initial Delivery Date from August 1, 2022 to November 1, 2022. SCE considers this claim closed.

(2) Sunlight Storage, LLC (ID 12045)

Sunlight Storage, LLC (Sunlight) is a 230 MW energy storage project located in Desert Center, California, originally executed as a bilateral transaction. The PPA was executed on October 18, 2021. The following Force Majeure claim was active during the Record Period.

On March 28, 2022, Sunlight notified SCE of a Force Majeure event regarding shipment delays with the project's inverter due to a trucking strike, labor dispute and related civil disturbance in Spain, the location of the inverter manufacturer, which started on March 14, 2022. These events affected the Sunlight's ability to achieve commercial operation by the PPA's guaranteed commercial operation date of August 1, 2022. The trucking strike and civil unrest caused bottlenecks and congestion at the port and prevented the delivery of the inverters to the seaboard port for loading and shipment as originally planned. Sunlight eventually made alternative arrangements, and the 78 inverters originally scheduled to arrive at the project site between April 25 and May 12, 2022 were delivered approximately one month later, between May 23 and June 3, 2022. Sunlight attempted to mitigate the impact of the late deliveries on the project construction schedule by securing an alternate shipper to transport the inverters from Spain and adding double work shifts and performing work on weekends when the inverters arrived at the project site.

Accordingly, Sunlight projected the commercial operation date would slip one month, to September 1, 2022, and requested Force Majeure relief to extend the guaranteed commercial operation date, from August 1, 2022 to September 1, 2022. On July 26, 2022, SCE accepted Sunlight's Force Majeure claim and the parties executed an amendment to the PPA on August 4, 2022, which extended the expected initial delivery date by one month to September 1, 2022. SCE considers this claim closed.

(3) SP Garland Solar Storage, LLC (ID 12035)

SP Garland Solar Storage, LLC (Garland) is an 88 MW battery energy storage project located in Rosamond, California, originally executed as part of SCE's System Reliability RFO. The PPA was executed on April 22, 2020. The following Force Majeure claims were active during the Record Period.

On May 19, 2022, Garland notified SCE of a Force Majeure event regarding an outage that occurred on May 6, 2022, in the Garland Switchyard, when a power line disconnected due to high winds, that was not able to be restored until May 9, 2022, due to limited high-voltage specialty contractor availability. On May 27, 2022, SCE requested further documentation of the event. On March 30, 2023, SCE received notification from Garland that they are withdrawing their Force Majeure claim. SCE considers this claim closed.

On September 16, 2022, Garland notified SCE of a Force Majeure event regarding derates to the project capacity due to unexpected IGBTs (components in the inverters) failure. The Notice of Force Majeure states that a COVID-19 outbreak at a key manufacturing facility resulted in severe short-staffing and delayed production in replacement parts and caused unanticipated supply chain delays that hindered Garland's ability to get the parts needed to correct the failure. On September 21, 2022, SCE acknowledged receipt of Garland's notice and requested further details surrounding the event. On December 20, 2022, SCE received a summary of details from Garland to further support its Force Majeure claim. SCE is currently reviewing the information received from Garland to determine if the event falls under the PPA definition of Force Majeure.

(4) SP Tranquillity Solar Storage, LLC (ID 12034)

SP Tranquillity Solar Storage, LLC (Tranquillity) is a 72 MW battery energy storage project located in Cantua Creek, California, originally executed as part of SCE's System Reliability RFO. The PPA was executed on April 22, 2020. The following Force Majeure claim was active during the Record Period.

On September 16, 2022, Tranquillity notified SCE of a Force Majeure event regarding derates to the project capacity due to unexpected IGBTs (components in the inverters)

failure. The Notice of Force Majeure states that a COVID-19 outbreak at a key manufacturing facility resulted in severe short-staffing and delayed production in replacement parts and caused unanticipated supply chain delays that hindered Tranquillity's ability to get the parts needed to correct the failure. On September 21, 2022, SCE acknowledged receipt of Tranquillity's notice and requested further details surrounding the event. On December 20, 2022, SCE received a summary of details from Tranquillity to further support its Force Majeure claim. SCE is currently reviewing the information received from Tranquillity to determine if the event falls under the PPA definition of Force Majeure.

i) Dispute Resolution and Litigation

SCE did not have any BESS projects that had dispute resolution and litigation activities during the Record Period.

j) Contract Terminations

There were no BESS contracts that terminated during the Record Period.

E. Other Contract Administration Activities

Below are other contract administration activities:

1. CAISO System Emergency

The CAISO issued Energy Emergency Alert (EEA) 2 and 3[95] (CAISO System Emergency) during heat wave occurring on August 31, 2022 and in the month of September 2022. In parallel with the CAISO's actions, Governor Newsom also signed an emergency proclamation (Governor's Proclamation[96]) limited in duration during the heatwave from August 31, 2022 through September 7, 2022, followed by a Governor's Executive Order[97] to support freeing up additional capacity amid the heat wave. On September 2, 2022, in response to CAISO's request, the Department of Energy issued a Section 202c[98] emergency order pursuant to the Federal Power Act to the CAISO

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[95] Link to CAISO historical report of grid emergencies located at: Draft Grid Emergencies History Report - 1998 to Present.xlsx (caiso.com). CAISO Emergency Fact Sheet located at: Emergency-Notifications-Fact-Sheet.pdf (caiso.com).

[96] Governor's Proclamation of a State of Emergency GSS_9534-1E-20220831133826 (ca.gov), executed on August 31, 2022.

[97] Executive Order N-14-22, GSS_9534-1E-20220902143942 (ca.gov), executed on September 2, 2022.

[98] Department of Energy Order No. 202-22-1, Order 202-22-1_final.pdf (energy.gov), dated September 2, 2022.

(Department of Energy Order), authorizing certain units to operate at their maximum generation output levels in order to meet the CAISO System Emergency.

During the Record Period, in advance of the CAISO System Emergency, SCE took actions to secure an agreement with Watson Cogeneration to capture incremental capacity, which activity is reflected in Section D.2 in this Record Period. SCE's Energy Contracts Management group also took additional steps to secure incremental capacity and associated energy deliveries by: 1) identifying a total of 230 MW battery energy storage systems with NextEra Energy's Sunlight Storage, LLC project that could provide energy deliveries prior to reaching their commercial operation date by aligning test energy to be discharged during time of need, 2) waiving PPA obligations for Chevron USA, The Procter & Gamble Co., and Copper Mountain Solar 4, LLC to allow for generation above the contract capacity or for energy generation in excess of the settlement interval cap, where appropriate and if capable of generating during the requested period, and 3) identifying AES Alamitos Energy Center, LLC, AES Huntington Beach Energy, LLC, and Walnut Creek Energy, LLC could generate beyond emissions and other permit limitations with approval from the appropriate governmental entity or entities, pursuant to a Governor's Proclamation, Governor's Executive Order, or Department of Energy Order.

Incremental energy costs associated with these actions were covered under the PPA energy pricing terms since the contract quantity was not exceeded, or were minimal in nature[99]. For those projects delivering pre-commercial operation, there were no cost impacts since the commercial operation date had not been reached under the PPA and SCE was not the Scheduling Coordinator, therefore all CAISO market revenues were paid by the CAISO directly to the respective Scheduling Coordinator.

2. Community Choice Aggregator Implementation and RA Compliance Agreements

a) CCA CSRP RA Agreements

In 2019, SCE began working with certain CCAs whose program start dates were impacted by SCE's Customer Service Re-Platform (CRSP) project. SCE entered into bilateral

[99] Payment information is identified in Appendix II-L and its supporting workpaper.

agreements regarding CCA implementation and RA compliance (CCA CSRP RA Agreements) with three impacted CCAs in 2019 and two in 2020, as shown in Table II-29. The CCA CSRP RA Agreements addressed uncertainties that CSRP may cause in the timing of the CCA implementation start dates and the financial impacts of delayed CCA program launches, including the risk of CCAs procuring unneeded RA resources. All CCA CSRP RA Agreements were submitted for CPUC approval under Tier 3 advice letters as specified in Table II-29.

During the Record Period, SCE continued to administer the two remaining CCA CSRP RA Agreements. SCE activities associated with the CCA CSRP RA Agreements include managing the CCA's Year-Ahead and Month-Ahead RA compliance showings, coordination with the CPUC and the CEC regarding LSE allocations and settling any payments due.

Western Community Energy (WCE) defaulted on its CSRP RA Agreement in February 2021 and on May 25, 2021 SCE notified WCE that as a result of the Debtor's uncured payment default of the CSRP RA Agreement, the CSRP RA Agreement was terminated effective immediately. Later that same day, WCE filed for relief under the federal bankruptcy laws. The U.S. Bankruptcy Court initially enjoined SCE from withholding RA under the CSRP RA Agreement; however, on June 11, 2021 SCE was allowed to cease performance and implement the termination of the Agreement. On September 30, 2021 SCE submitted a Proof of Claim in the bankruptcy case for the WCE CSRP RA Agreement in the total amount of $7,603,860.16.

On February 15, 2022, the U.S. Bankruptcy Court approved a Settlement Agreement between SCE and WCE that required WCE to pay SCE $6,000,000 in settlement of SCE's secured claims in the bankruptcy case. The settlement agreement allocated $2,908,400 of the settlement payment to the CSRP RA Agreement, leaving $4,695,280.16 remaining as a general unsecured claim for the WCE CSRP RA Agreement.[100] The $2,908, 400 settlement payment was recorded to SCE's ERRA Balancing Account.

On or about October 2022, the bankruptcy court approved WCE to pay approximately 41 cents for every dollar of general unsecured claims, and SCE received a payment a total of $6,743,232.11

[100] *See* SCE's Advice 4813-E for details on the settlement agreement.

in resolution of its general unsecured claims across all the claims. SCE allocated this payment on a pro-rata basis to the general unsecured amounts as shown in Table II-30 below, for an allocated payment of $ 1,961,606.22 for the WCE CSRP RA Agreement, which it recorded in its ERRA Balancing Account. This left a claim amount of $ 2,733,673.94 for the WCE CSRP RA Agreement that was not recovered from WCE as a result of its bankruptcy and dissolution.

Table II-29 lists the CCA CSRP RA Agreements & Amendments administered by SCE during the Record Period.

Table II-29
CCA RA Compliance Agreements
January 1, 2022 Through December 31, 2022

	Community Choice Aggregator (ID)	RA Compliance Year	Executed Date	Advice Letter	CPUC Resolution & Disposition	Status
1	Desert Community Energy (10128)	2020	8/12/2019	4059-E-B	Approved in Resolution 5051-E, issued February 28, 2020	The CCA CSRP RA Agreement expired in accordance with the terms of the Agreement.
2	Western Community Energy (10127)	2020	8/15/2019	4058-E-B	Approved in Resolution 5051-E, issued February 28, 2020	Western Community Energy (WCE) filed for bankruptcy on May 25, 2021. The CCA CSRP RA Agreement terminated on or about June 11, 2021.
3	Clean Power Alliance [1] (10129)	2020	8/16/2019	4060-E-A	Approved in Resolution 5051-E, issued February 28, 2020	The CCA CSRP RA Agreement expired in accordance with the terms of the Agreement.
4	City of Santa Barbara (10130)	2022	9/15/2020	4303-E	Approved in Resolution 5159-E, issued October 8, 2021	The CCA CSRP RA Agreement was effective and actively administered during 2022.
5	Central Coast Community Energy[2] (10131)	2021	10/8/2020	4314-E-A	Approved in Resolution 5159-E, issued October 8, 2021	The CCA CSRP RA Agreement was effective and actively administered during 2022.

[1] Includes Phase V - City of Westlake only
[2] Includes Goleta, Carpinteria, and parts of unincorporated Santa Barbara County only

b) WCE Bankruptcy and Service Termination

On May 24, 2021, WCE declared a fiscal emergency and filed for Federal bankruptcy protection. Shortly thereafter, on June 10, 2021, WCE submitted a written notice of deregistration as a CCA with the Commission. WCE's notice of deregistration served as advanced written notice of WCE's mass involuntary return of its CCA customers to SCE's procurement service. Working closely with WCE, the Commission and the California Independent System Operator (CAISO)

to coordinate an efficient return of WCE customers to SCE's procurement service, on June 11, 2021 SCE entered into a Load Transfer Agreement with WCE and CAISO pursuant to which SCE assumed Scheduling Coordination of WCE's load on June 15, 2021. In total, 113,337 formerly WCE customer accounts were mass involuntarily returned to SCE and switched to SCE's Bundled Portfolio Service effective on June 15, 2021.

On July 12, 2021, SCE submitted Advice 4541-E to set forth the Re-Entry Fee calculation in conformance with SCE's Rule 23. The Re-Entry Fee is designed to enable a CCA to mitigate its incremental procurement cost exposure by giving SCE as the Provider of Last Resort ("POLR") at least six months advance notice of a mass involuntary return. This is because the Commission in D.18-05-022 found that six months is sufficient for the POLR to adjust its procurement portfolio to accommodate the additional bundled service load of the mass involuntarily returned CCA customers. In WCE's case, SCE received only five calendar days advance notice of the mass involuntary return, which is not sufficient to mitigate incremental procurement cost exposure. The Re-Entry Fees for WCE's mass involuntary return of its 113,337 customer service accounts totaled $14,715,892.

On September 30, 2021 SCE submitted four Proofs of Claim in the bankruptcy court as shown in Table II-30 below. On February 15, 2022, the bankruptcy court approved a settlement agreement between SCE and WCE that required WCE to pay SCE $6,000,000 in settlement of SCE's secured claims in the bankruptcy case. The settlement agreement allocated 50 percent (%) of the $6 million settlement payment for Claims 18 and 20 and 50% for Claim 21. These allocations are shown in Table II-30 below. SCE recorded the payments for Claims 18 and 21 in its ERRA Balancing Account, and the payment for Claim 20 as Other Operating Revenue ("OOR") consistent with SCE's accounting for payments of CCA Service Fees. Other payments toward Claims 18, 19 and 21 and are shown in Table II-30 below and were recorded in SCE's ERRA Balancing Account.

In October 2022, SCE began billing former WCE customers for the Re-Entry Fee amount unrecovered from WCE (the "Residual Re-Entry Fees") pursuant to Advice 4813-E approved effective July 8, 2022. Customers have up to 12 months to pay their Residual Re-Entry Fee allocation. Billed revenues for the Residual Re-Entry Fees are recorded in SCE's ERRA Balancing Account.

effective July 8, 2022. Customers have up to 12 months to pay their Residual Re-Entry Fee allocation. Billed revenues for the Residual Re-Entry Fees are recorded in SCE's ERRA Balancing Account.

Table II-30
Proofs of Claim and Recovery in WCE Bankruptcy Case

	CSRP RA Agreement	EEI RA Confirms	Pre-petition Servicing Fees	Re-Entry Fees
	Approved by CPUC in Resolution E-5159	**Commercial sale of RA to WCE pursuant to Edison Electric Institute (EEI) Master Power Purchase and Sale Agreement**	**CCA Servicing Agreement is a CPUC approved tariffed contract under SCE's Rule 23**	**Apply in a mass involuntary return of CCA customers to SCE's procurements service under SCE's Rule 23**
Amounts owed to SCE on 5/24/2021 (the WCE Petition date)	$15,823,100.10	$3,539,000	$91,600	$0
Secured?	Partially: $9,000,000	Yes: $4,123,600	No.	Partially: $147,000
BK ordered additional amounts incurred?	$556,483 for sale of Local RA for July compliance	$1,500,000 for sale RA for July compliance	No.	No.
Additional payments by WCE after 5/24/2021 but before the Settlement Agreement	$1,075,511	$920,000	No.	No, but see CAPP Revenues, below.
Contract terminated?	Yes, per BK court order on 6/11/2021	Yes, per BK court order on 6/11/2021	Yes, on 11/1/21	N/A
Contract damages for termination?	Yes, $1,299,607.4	Yes, $2,430,750	No.	No.
Residual amounts due, including contract damages, after SCE applied the collateral	$7,603,680.16	$2,426,150	$91,600	$14,568,891.88
Proofs of Claim (POC) filed in WCE BK case on 9/30/21	$7,603,680.16 (Claim 18)	$2,426,150 (Claim 19)	$107,306.68 (pre- and post-petition) (Claim 20)	$14,568,891.88 (Claim 21)
Revenues from CAPP monies applied to eligible arrearages of WCE former customers See Advice 4813-E for details				$2,180,002.77 (from total CAPP payment for WCE former customers of $2,552,130)
Payments and credits under WCE – SCE BK Settlement Agreement, approved by BK court on 2/15/22 See Advice 4813-E for details	$2,908,400	$0	$91,600	$3,000,000 plus $372,127.23 (remaining CAPP monies for WCE former customers)
Remaining General Unsecured Amounts in WCE BK case	$4,695,280.16	$2,426,150	$0	$9,016,761.88
Approx. 41 cents / dollar recovery in WCE BK case on General Unsecured Amounts	$1,961,606.22	$1,013,507.79	$0	$3,768,118.10
Post-petition Servicing fees payment for May 24, 2021 – October 31, 2021			$30,197.10	
Residual amounts not recovered from WCE BK estate	$2,733,673.94	$1,412,642.21	$0	$5,248,643.78

3. Central Procurement Entity (CPE)

In D.20-06-002, issued June 17, 2020, the CPUC identified SCE to serve as the Central Procurement Entity (CPE) for procuring the total local Resource Adequacy (RA) requirement on behalf of Load Serving Entities (LSEs) within the SCE Transmission Access Charge (TAC) area for the multi-year local RA program. Local RA compliance obligations reside with the CPE beginning in 2023. Local RA is a multi-year requirement with a three year forward showing of one hundred percent (100 percent) of obligations for Years 1 and 2, and fifty percent (50 percent) for Year 3.

The Decision further established that both procurement costs and administrative costs incurred in serving the central procurement function shall be recoverable under the CAM and directed SCE to submit the administrative costs in the ERRA Forecast and Review proceedings in addition to any contract management issues associated with CPE agreements.

SCE employees, management, and officers with access to CPE information are governed by competitive neutrality rules (CNR) and a strict code of conduct. CNR and Code of Conduct governs how confidential, market-sensitive information received by the CPE will be protected and describes the firewall safeguards implemented to prevent the sharing of information. Training is provided to all SCE personnel with access to CPE information and the relevant personnel must sign a code of conduct annually as a precondition to engaging in CPE activities.

The CPE contracts administered by SCE during the Record Period include local RA transactions contracted under short-term RA Confirmation Letters. Participating LSEs also submitted self-show attestations during the Record Period to self-show local RA attributes to the CPE for the 2023 through 2025 compliance periods for no compensation (the LSE retains system and flexible RA attributes). All new CPE contracts executed during the Record Period are reflected in Table II-31. There were no contract amendments, issues or terminations to report during the Record Period.

Table II-31
New CPE Contracts Executed
January 1, 2022 Through December 31, 2022

	ID	Contract Counterparty	Capacity (MW)	Type of Agreement	Date Executed	CPUC Resolution or Decision/SCE Advice Letter/Application
1	11297-3001	El Segundo Energy Center	274.31 (Units 5/6) 271.74 (Units 7/8)	SCE Central Procurement Entity - RA Purchase	8/18/2022	4865-E

4. California Water Code – Strategic Reliability Reserve Program

SCE and the California Department of Water Resources (DWR) executed a Summer Reliability Reimbursement Agreement on September 8, 2022, to reimburse SCE for the value of imported energy or capacity products that were (i) delivered or capable of being delivered between July 1, 2022, and on or before September 30, 2022, and (ii) were procured at above-market costs or in excess of procurement authorizations set by the CPUC and above the requirements needed to serve its bundled customers in support of summer electric service reliability. SCE's customers benefit from this reimbursement agreement by receiving reimbursable above market costs from DWR, as provided by the Strategic Reliability Reserve Program pursuant to the California Water Code section 80710, subdivision (b)(2), while providing important reliability to the grid during critical Summer months. Inclusion of this agreement is for awareness only, as SCE is not seeking cost recovery or approval for this agreement.

5. Supplier Diversity

SCE's Energy Contracts Management group supports SCE's compliance and participation with GO 156, which requires utilities to submit annual detailed and verifiable plans for increasing women, minority, veterans with a disability, lesbian, gay, bisexual and transgender owned business enterprises' (WMDVLGBTBE) procurement in all categories. SCE's Energy Contracts Management group actively reaches out to contract counterparties to encourage and foster new procurement opportunities for those groups. Many of our PPAs require that counterparties report to SCE their procurement activities with businesses certified as WMDVLGBTBEs. Twice per year, SCE sends a survey to its energy contract counterparts requesting this information and, in many cases, spends time discussing the survey and data collected with the counterparty. This information is analyzed and

compiled for publication in SCE's Supplier Diversity Annual Report. Energy Contracts Management also participates in annual meetings with Commission staff and the other IOUs, when requested, and supports various supplier diversity outreach activities and events throughout the year.

6. Enterprise Contract Management System and Training

During 2022, contract managers participated in training related to several topics, including procurement programs, and continued training on SCE's systems of record (Endur) for managing attributes and payments as well as ADEPT, a business process automation tool. SCE's Energy Contracts Management group continued updating and enhancing the Endur and ADEPT training handbooks during the Record Period. These projects/initiatives are on-going and will continue to achieve improvements and overall savings through enhanced efficiency and optimization.

7. Portfolio Optimization

In an effort to improve operational excellence, several initiatives were undertaken that focused on process improvements and obtaining value for customers. To optimize value in SCE's portfolio of contracts, contract managers proactively reached out to counterparties to consider amendments or termination agreements that would result in savings for both parties. Potential topics included performance assurance reductions (to more closely reflect the current market value of renewables), buy-out opportunities of high-cost contracts, and other topics. Counterparties provided a benefit to SCE customers in the form of a price reduction, upfront payment or elimination of future payments, additional run time hours, and lower startup charges and transition costs. Total customer savings related to these efforts in 2022 were approximately $14 million. Those amendments and terminations are reflected in the Contract Amendment and Contract Termination sections, respectively. Negotiated contract amendments and terminations are provided in sections above and Appendix II-L.

F. Contract Collateral

1. Conventional

a) Development Security and Performance Assurance

Conventional contracts have obligations for collateral to be provided to SCE. These obligations include different types of performance assurances. Some include mark-to-market

calculations and others are simply a fixed amount. Appendix II-N lists the collateral held in cash, letter(s) of credit, or parental guarantees, from a creditworthy entity acceptable to SCE, for these contracts on December 31, 2022.

2. PURPA and CHP

SCE has a variety of cash and non-cash deposits that are collected from non-investment grade energy suppliers in the procurement process to assure performance. There are two types of obligations for which collateral is held by SCE from PURPA and CHP contracts: Development Security and Performance Assurance. SCE has assigned its Risk Operations & Collateral Management group to handle the administration and tracking of the collateral posted for Development Security and Performance Assurance. The contract managers within SCE's Energy Contracts Management group still serve as the primary contact for collateral replacement, changes or questions; however, Credit Risk group and Risk Operations & Collateral Management group handles SCE's routine transactions with the counterparties. Appendix II-L lists the collateral retained and transferred by SCE to ERRA or PABA in this Record Period. Appendix II-N lists the collateral held for these contracts on December 31, 2022.

3. RPS

There are two types of obligations that collateral was posted for in the Record Period from RPS contracts: Development Security and Performance Assurance. Each obligation is discussed, in detail, below.

a) Development Security

SCE contract managers work closely with RPS project developers to assist them in meeting project milestones so they can achieve commercial operation and contribute to the state's renewable energy goals. New projects can face several challenges, including permitting delays and difficulty securing financing. As part of its contract administration activities, SCE diligently monitors the progress of new projects and provides on-going support to move these projects forward for the benefit of its customers. However, in order to mitigate the risk of a new project's failure to reach commercial operation, SCE requires counterparties to post development security to maintain the

incentive for the counterparty to complete the project and to defray some of the costs of replacing failed projects.

The administration and tracking of this collateral are assigned to SCE's Risk Operations & Collateral Management group. One significant milestone to be met by new projects is the posting of a required development security to ensure that the contracted project will be developed. Development security is typically posted in the form of cash or letter(s) of credit.

b) Performance Assurance

On or before a project's Commercial Operation Date (COD), RPS contracts require posting of "performance assurance," which is collateral for performance during the term of the PPA. This is distinct from "development security" described in the previous section, which provides collateral during the development of the project prior to COD. The collateral amount may be posted in the form of cash, letter(s) of credit, or a guaranty from a creditworthy entity acceptable to SCE. Counterparties may provide performance assurance in multiple forms as acceptable to SCE.

Appendix II-L lists the collateral retained and transferred by SCE to ERRA or PABA in this Record Period. Appendix II-N lists the collateral held in cash or letter(s) of credit and guarantees from a creditworthy entity acceptable to SCE for these contracts as of December 31, 2022, related to RPS project development security and performance assurance.

4. BESS

Similar to RPS contracts, BESS contracts have two types of obligations for which collateral was posted in the Record Period: delivery date security or development security and performance assurance. Each obligation is discussed, in detail, in the section above.

Appendix II-N lists the collateral held in cash or letter(s) of credit for these contracts as of December 31, 2022, related to BESS project development security and performance assurance.

G. Contract Compliance

1. Conventional

a) Insurance Verification

Specific conventional projects are required to obtain and maintain comprehensive general liability insurance during the terms of their power purchase contracts. SCE uses a third-party insurance management solutions company, InsureTrack InsureTech, LLC (InsureTrack), to monitor counterparty compliance with these requirements. During the Record Period, 6 conventional projects were actively monitored by InsureTrack. InsureTrack, in conjunction with SCE, ensures that these projects have:

- Obtained required insurance upon execution;
- Maintained insurance policies and insurance carriers that meet the contract's requirements; and,
- Maintained adequate insurance coverage throughout the terms of their contracts.

2. PURPA and CHP

Compliance programs have been developed to ensure that PURPA and CHP projects adhere to the terms of their contracts, and to integrate those projects effectively with the electric system grid. This section discusses the following contract compliance programs: (a) capacity performance; (b) metering energy deliveries; (c) protection equipment testing; (d) efficiency monitoring; (e) scheduled maintenance; (f) wind operations; (g) insurance verification; and, (h) forecasting and scheduling accuracy.

a) Capacity Performance Programs and Verification

SCE's capacity performance monitoring programs and activities assist in ensuring that SCE's customers receive the firm capacity for which SCE has contracted. There are two major programs: the annual contract capacity demonstration (CapDemo) program and the summer capacity performance (CapPerformance) program.

(1) CapDemo Program

The CapDemo program applies to those PURPA and CHP contracts that provide payment for firm capacity and contain a capacity testing clause. These facilities are required to achieve and reliably sustain 100 percent of their firm contract capacity for each metering interval (typically 15 minutes) during a specified period of testing (typically six hours during an on-peak period), or as otherwise specified either in the contract or other agreements between SCE and the counterparty. This performance test simulates the condition described in most contracts requiring the project to make best efforts to provide full contract output when a system emergency is declared. Most firm capacity contracts contain a firm capacity reduction clause that provides a remedy if the generator is unable to provide the required capacity during the test. Typically, the remedy is a reduction of firm capacity to the level demonstrated during the test.[101]

The steps involved in implementing the CapDemo program include scheduling mutually agreeable test dates, visits by SCE personnel to the facility to ensure that the test protocols are properly followed, or setting up the tests remotely, when feasible, analysis of the regular revenue meter data for pass or fail status, communicating the results to the project, and administering the appropriate remedy for those projects that fail. Demonstrations are generally performed during the summer season on-peak hours for the months of June through September. Longer test periods specified in a few of the contracts also include hours from the mid-peak and off-peak periods.

During the Record Period, SCE witnessed three initial demonstrations and sent notices of pass/fail status to all the facilities. Of the three projects that demonstrated capacity, two passed their initial demonstrations and one facility failed its demonstration. The circumstances regarding the single failure are as follows:

(a) Desert Power Company (ID 4008)

Desert Power Company is a small 0.60 MW run-of-the-river hydroelectric generator located near Bishop, California, and was originally executed as a negotiated

[101] SCE has historically experienced disputes with projects operating pursuant to PURPA contracts regarding the appropriate capacity reduction in the event of a CapDemo test failure.

contract. The PPA was executed on August 13, 1982. As in past years, Desert Power failed to demonstrate firm contract capacity in 2022. The capacity of the unit was restricted by continuing drought conditions that reduced the available water flow to the facility. Desert Power's nonstandard contract contains no explicit provisions for capacity reduction.

(2) CapPerformance Program

Most PURPA and CHP contracts with firm capacity provisions require that the project achieve a minimum performance factor (as more specifically defined in the applicable contract) of 80 percent of its firm contract capacity for the on-peak periods during the peak months of June, July, August, and September.[102] If the project fails to meet this minimum requirement for any month, it is placed on probation beginning the month following the failure. Probation generally continues through September of the following year. Therefore, depending on which summer month the project first fails, the probation period can last between 12 and 15 months, subject to SCE's discretion to shorten the period based on obtaining the best customer outcome for each case. If a project fails to meet the minimum performance factor requirement during any month of its probationary period, its firm contract capacity may be reduced and/or it can lose its eligibility for winter bonus payments pursuant to the terms of the contract. A project can return to normal status at the end of probation if it satisfies the peak performance requirement during all months of the probationary period.

During the Record Period, two PURPA contracts were subject to the summer capacity performance provisions for the months of June through September. Of those contracts, none of the projects failed their performance obligation in at least one summer month during the on-peak delivery period.

b) Metering Energy Deliveries

SCE uses meter and schedule data to calculate payments owed to PURPA and CHP projects that existed prior to the CAISO. Since these legacy contracts had no provision for CAISO metering, they were permitted to use their existing metering in place of CAISO metering for CAISO

[102] Many firm capacity PURPA and CHP contracts also contain provisions enabling projects to earn bonus payments for exceeding minimum contract performance requirements during both the summer and winter months. *See* "Performance Bonus" discussion in H.2.c of this chapter.

settlements until their contracts expire or are replaced. SCE uses its own metering along with a variety of quality control measures to create Settlement Quality Meter Data that is transmitted to the CAISO on a daily basis for settlements purposes. Once the legacy contract is replaced, the seller is required to comply with all CAISO tariffs including the installation and use of CAISO approved metering. SCE generally maintains its own backup meter in addition to the CAISO metering. The SCE meter also provides the data for retail billing when the project is not generating and instead is consuming energy from the grid.

(1) PURPA and CHP Projects within SCE's Territory

SCE uses three types of "interval" metering for PURPA projects located within its service area: (1) real time energy metering (RTEM); (2) basic interval; and (3) CAISO. Each of these meter types are described below in this section. The meter data provides three major functions: (1) billing for energy used; (2) payment for energy delivered; and (3) providing data to the CAISO for settlements purposes.

For the purpose of CAISO settlements, SCE provides settlement ready meter data to the CAISO for those legacy PURPA and CHP generators within its service territory that are not required to have CAISO meters. Readings from all these RTEM and interval meters are accumulated into hourly totals and aggregated according to the CAISO delivery point. Each delivery point, whether it has a single dedicated generator, or an aggregation of multiple generators is reported to the CAISO under a single global resource ID. Applicable loss factors are applied and the resulting data are compiled into a comma separated value (.csv) format file by SCE's MV-90 meter reading system and subsequently reported to the CAISO for settlement by uploading the data into the Market Results Interface Settlements system, previously known as OMAR. Generators that have CAISO meters installed have their meter data captured by the CAISO directly through a dedicated network referred to as the Energy Communication Network (ECN), or as in the case of two projects, through a traditional Internet Service Provider (ISP) for settlements. SCE uses either these same meters read by its MV-90-meter reading system or its own revenue meters read through the retail billing system, known as the Customer Service Re-Platform (CSRP). The CSRP became active on April 6, 2021 to replace the less

efficient and dated system known as the Customer Data Acquisition System (CDAS). The CSRP obtains the data needed to process payments. The CDAS remains as a historical database and this platform has not been removed. The meter data is transferred from the meter data systems mentioned above to Endur, which is used to generate payment statements for these projects.

(a) The RTEM Process

SCE uses the RTEM process to measure most production pursuant to PURPA and CHP contracts. Some installations have multiple meters. These RTEM meters generally measure energy sold to SCE, energy supplied to the facility by SCE, and reactive power (VARs) supplied by SCE. The RTEM meters store data internally, and the data are transmitted to a central computer every 15 minutes.[103] Depending on the best pathway available at the site, the data transmission occurs through the SCE-owned radio packet network called NETCOM, through a cell phone system, or through the domestic telephone system. If the communication system fails, the meters retain the data internally until the communication pathway is restored. The meters can also be read manually using a handheld device or laptop computer. The data are transferred from the field to the central computer and then to Endur, which is used to generate payment statements for these projects and to the MV-90 system for CAISO settlements.

(b) Interval Meters

Basic manually read interval meters are used on very small projects in areas still accessible by manual meter reading. These simple meters are all-electronic interval meters that contain an internal recorder. Each month, an SCE meter reader visits the facility to collect the meter data, using a laptop computer with an optical link that connects to the meter. The data is then transferred to a central computer via SCE's internal network where it is used for contract payments, CAISO settlement shadowing, and billing purposes for the business customer.

Some of the manually read interval meters are now being replaced with smart meters that have the same recording capability but have the added feature of being read remotely, thus eliminating the need for a meter reader to visit the site each month. The data from the

[103] The central computer also supports SCE's billing, generation grid operations, and energy accounting systems.

smart meters are automatically uploaded into the central metering database from which it is used for payments, billing, and CAISO settlements.

(c) CAISO Meters

CAISO meters are required on all projects created after the formation of the CAISO; however, a few exceptions are allowed for very small units. CAISO meters are installed and maintained by the facility owner. Maintenance is performed only by those parties certified by the CAISO. These parties are known as Meter Service Agents (MSA). Some installations have multiple CAISO meters. The use of multiple meters is for measuring each component of a facility's total generation or as a primary and secondary (backup) metering scheme.

CAISO meters are four-quadrant interval meters that measure forward and reverse watts as well as forward and reverse VARs. CAISO meters are programmed with applicable loss factors. The meters are capable of communicating with a remote system for data collection. This communication generally occurs through a secure internet-like network known as the ECN. In a few cases, a traditional Internet Service Provider (ISP) is used where the ECN is not readily accessible. Two projects leverage a traditional ISP. The CAISO remotely reads these meters for settlements. SCE also remotely reads these meters using its MV-90-meter reading system. As provided in a specific contract, the meter data are used for various purposes, including CAISO settlements.

(2) Out-of-Service Territory PURPA Projects

SCE meters PURPA projects outside of its service area(OSA). Most of the OSA projects are located within the area operated by the Imperial Irrigation District (IID) in southeastern California. Energy is delivered by the local utility on behalf of the generators to SCE over that utility's interties with SCE.[104] SCE receives the quantity of energy represented by and pays these PURPA projects based upon hour-by-hour energy delivery schedules from the delivering utility. The energy deliveries are compensated for line losses by the transmitting utility according to agreements with the generators. The schedules are established one day ahead and are adjusted in real time between

[104] The special administration procedures discussed in this section is not applicable to the Terra-Gen Dixie Valley (ID 3106) project, which is located outside of SCE's service territory, but directly connected to SCE's system and therefore is directly metered by SCE. This project is not discussed in this section.

SCE, the delivering utility, and the CAISO. The final schedule for each hour is retained in SCE's IAM Web Harness System, which was previously known as the Gen Manager System.

The projects located in IID's service territory are covered by a single aggregated schedule in IAM Web Harness. Because each project must be paid separately, IID creates a spreadsheet of hourly meter data and e-mails the spreadsheet on a weekly basis to SCE's Energy Contracts Management Settlements group. The metered values are collected by revenue meters owned by IID. The hourly meter data is uploaded to Endur on a monthly basis. For more discussion on SCE's payment administration of its OSA PURPA contracts, see Section II.H.2.d) of this chapter.

c) Protection Equipment Testing Program

The protection equipment testing program (Protection Program) provides for the uniform implementation of the standards and requirements contained in SCE's Rule 21 tariff, as applicable to PURPA projects interconnected within SCE's service territory. The Protection Program is intended to assure that any protection equipment owned by a party operating a facility pursuant to a PURPA contract that directly interfaces with SCE's transmission or distribution system is regularly tested in accordance with contractual requirements. Most PURPA contracts require that protection equipment be tested at regular intervals of one, two, or four years depending on connection voltage.

Non-compliance with applicable protection equipment standards may subject SCE and its customers to greater risk that generation equipment will not disconnect as required if it malfunctions. This could cause damage to the project's equipment and introduce unwanted and possibly harmful voltage fluctuations into SCE's system or could cause a portion of the SCE system to shut down, thereby interrupting service to customers. There are also some conditions that could cause harmonics and other power quality problems.

Compliance with this program is established by the project's submission to SCE of a report that indicates a licensed electrician inspected the protective relays. SCE may deny a forced outage claim for a project that does not provide the required reports because SCE will not have had proof that equipment was properly maintained as required by the Rule 21 tariff.

d) QF Efficiency Monitoring Program

In D.91-05-007, the Commission authorized the utilities to monitor the operations of cogenerators, as well as small power producers that use supplemental fossil fuel, to ensure that they follow FERC operating and efficiency standards. The program implementing this decision is known as the QF Efficiency Monitoring (QFEM) program.

Originally, state regulations permitted suspension of contract payments and disconnection of PURPA projects from parallel operation for failure to comply with FERC standards. Subsequent litigation and Commission decisions have modified the QFEM program, based on a determination that federal law preempted the state's regulations. Currently, only FERC can determine if a project is compliant and prescribe corrective actions in the event of noncompliance. However, PURPA projects are still required to submit operating data to utilities annually to demonstrate compliance with FERC standards. When it is cost effective, SCE will take measures necessary to file complaints at FERC with respect to projects operating pursuant to a PURPA contract that fail to come into compliance after notice. PURPA projects found to be out of compliance by FERC may lose their QF status and be ordered to refund overpayments to the utility.

During the Record Period, SCE determined that all PURPA projects that submitted complete operating, efficiency, and fuel use data for calendar year 2021 met FERC standards for that year.[105] SCE continues to follow-up with 18 PURPA projects that have not submitted data for various reasons as described in the table. These projects are identified below in Table II-32.

[105] Data is requested on an annual basis, therefore SCE received 2021 data in 2022.

Table II-32
Projects That Failed to Submit Operation
and Efficiency Data for Record Year 2022[1]

	ID	Project Name	Size (kW)	Notes
1	2178	Claremont Club	280.0	No reply received during record period.
2	2413	St. John's Hospital and Health Center	1080.0	Project terminated contract in record period.
3	4014	San Bernardino MWD	178.0	No reply received during record period.
4	4076	Camrosa County Water District	150.0	No reply received during record period.
5	4202	Bishop Tungsten Development, LLC	250.0	No reply received during record period.
6	4205	California Water Services Company	325.0	Project not operating.
7	4206	Isabella Fish Flow Hydroelec Proj LLC	860.0	No reply received during record period.
8	4209	White Mountain Ranch, LLC	290.0	No reply received during record period.
9	4216	City of Santa Barbara (Gibraltar)	750.0	No reply received during record period.
10	4222	Goleta Water District	250.0	No reply received during record period.
11	5512	Little Rock - Pham Solar, LLC	3000.0	No reply received during record period.
12	5605	Kettering 1	1000.0	No reply received during record period.
13	5606	Kettering 2	1000.0	No reply received during record period.
14	5607	Division 1	1500.0	No reply received during record period.
15	5609	Division 2	1000.0	No reply received during record period.
16	5610	Division 3	1000.0	No reply received during record period.
17	5625	US Topco Energy, Inc (Soccer Center)	3000.0	No reply received during record period.
18	5744	PVN Milliken, LLC	2943.0	No reply received during record period.

[1] Note: QF data is requested in Record Year 2022 for prior operating year 2021.

e) Scheduled Maintenance

The scheduled maintenance program provides for uniform implementation and verification of the scheduled maintenance procedures in each firm capacity PURPA or CHP contract. Under all SOCs, and some nonstandard contracts, PURPA and CHP projects are responsible for providing advance notice to SCE of reductions in capacity availability due to scheduled maintenance. PURPA and CHP projects that give proper notice of their scheduled maintenance outages receive an "allowable maintenance hours" credit to be used in calculating their monthly firm capacity payment. Projects that reduce or cease generation without proper notice do not receive scheduled outage credit and, as a result, may be unable to earn their full capacity payment. PURPA and CHP projects are required to make all reasonable efforts to schedule maintenance during SCE's off-peak winter months (October – May).

During the Record Period, two PURPA projects made a total of 130 requests to schedule maintenance, and four CHP projects submitted 11 such requests. SCE approved 127 of those requests for PURPA projects and 11 for CHP projects after first verifying the hours taken were in conformance with the schedule, contractual provisions, and maintenance procedures. The aggregate maintenance credit totaled 1,355 hours.

f) Wind Operating Programs

Wind generation from SCE's projects are primarily concentrated in the Tehachapi Wind Resource Area near Mojave, the San Gorgonio Wind Resource Area near Palm Springs, or out-of-state. During the Record Period, SCE administered one (1) PURPA contract with a wind generation project, with a total on-line capacity of approximately 20 MW. SCE purchased wind energy from 29 projects procured through solicitations required by the RPS program totaling approximately 3,823 MW of capacity during the Record Period.

Wind generation presents unique challenges due to its unpredictability, power factor demands, distributed location, time of delivery, and rapid ramp rates, among other factors. SCE had been performing a number of special administrative activities unique to wind generation to assure contract performance including turbine inventory, VAR monitoring / enforcement, wind generation forecasting, real time wind monitoring, and wind generation curtailments. The latter two of these activities have been transitioned to the Transmission Operations Organization. The annual turbine inventories have been eliminated due to the ability to monitor production using meter data and the time intensive nature of the inventory activity. The completion of the Tehachapi Renewable Transmission Project (TRTP) and the Interim West of Devers project have eliminated the recent need to curtail wind generation due to voltage instability and line overloads. With the elimination of these transmission-constrained real time curtailments, the need to notify, track and pay for these curtailments has been eliminated. All the above-mentioned activities apply to wind generation whether it was procured under the PURPA or RPS programs.

g) Insurance Verification

PURPA and CHP projects are required to obtain and maintain comprehensive general liability insurance during the terms of their power purchase contracts. SCE uses a third-party insurance management solutions company, InsureTrack, to monitor these requirements. During the Record Period, 30 PURPA projects and 6 CHP projects were actively monitored by InsureTrack. InsureTrack, in conjunction with SCE, ensures that these projects have:

- Obtained required insurance upon execution;
- Maintained insurance policies and insurance carriers that meet the contract's requirements; and,
- Maintained adequate insurance coverage throughout the terms of their contracts.

h) Forecasting and Scheduling Accuracy

Certain CHP contracts have provisions for evaluating the accuracy of project's energy and/or capacity forecast and assessing financial penalties associated with excessive forecast errors. Two (2) compliance programs related to forecasting and scheduling accuracy were in effect during the Record Period: Mean Absolute Error (MAE) and Scheduling and Delivery Deviation (SDD) Adjustments.

In the MAE program, a monthly mean absolute error between a project's day-ahead forecast and actual production is quantified and compared to a threshold. Exceeding the error threshold can result in a forecasting penalty, and multiple non-compliances can trigger a temporary de-rating of the project's firm contract capacity. SCE has four CHP projects subject to the MAE program. During the Record Period, one (1) of the projects failed the MAE requirements and penalties in the amount of $7,500 were assessed.

The purpose of SDD Energy Adjustments is to mitigate, for SCE and the project, any financial impacts due to excessive deviation of metered energy deliveries from the project's schedule. SDD Adjustments are based on differences between real-time energy prices and contract energy prices. Additionally, an administrative charge, based on CAISO's grid management charge for

uninstructed deviations, is assessed and charged to the project for any scheduling deviation outside of the performance tolerance band. During the Record Period, seven PURPA and CHP projects incurred administrative charges totaling $9,960 for generating outside of the SDD performance tolerance band.

3. RPS

Compliance programs have been developed to ensure that RPS projects adhere to the terms of their contracts, and to integrate these projects effectively with the electric system grid. This section will discuss the RPS compliance. In addition, this section includes a summary of REC retirement activities.

a) Renewable Capacity Verification

SCE's capacity verification activities for renewable projects are designed to ensure that SCE's customers can reasonably expect to receive appropriate quantities of energy in full compliance with the associated contracts. Renewable capacity verifications are generally a one-time event performed either prior to the contract becoming commercial or around the contractual firm operation date.[106] The activity generally consists of a site visit to verify the equipment listed in the contract has been installed, to collect and verify the meter unique identification number(s), and, in some cases, to collect meter data for a chosen interval. The verification is intended to determine the maximum capacity capability of the project. From the demonstrated capacity, the energy delivery performance requirements are derived.

During the Record Period, there was one renewable project that underwent capacity verification. This project is identified below in Table II-33.

[106] *See* "RPS Contracts that Achieved Commercial Operation" for a list of contracts that may have been eligible for a verification test. Note that due to different testing schedules established in each PPA, not all contracts in this table were tested during the Record Period.

Table II-33
Renewable Projects That Underwent
Capacity Verification for Record Year 2022

	ID	Project	Date of Capacity Test	Capacity (MW)	
1	1346	Santa Barbara County	6/4/2022	1.961	[1]
[1] Verification based on Demonstration Hour.					

b) Metering Energy Deliveries

SCE uses a combination of meter and schedule data to calculate payments for RPS projects that delivered energy during the Record Period. Generally, RPS generators are required to obtain CAISO-approved metering for their facilities. SCE will also install a settlement quality meter at all of the projects within its service territory to serve as a billing meter for energy used by the project and to serve as a backup and validation for the CAISO meter. The SCE meter is also used to account for renewable energy credits where applicable because it measures the actual generated energy without applying loss/credit factors which do not apply to renewable credits administered by the WREGIS organization.

CAISO meters are four-quadrant interval meters that measure forward and reverse watts and VARs. CAISO meters can communicate with a remote system through ECN, a dedicated secure network for data collection. The CAISO reads these meters remotely through the ECN. Two projects leverage a traditional Internet Service Provider (ISP) for settlements. SCE also reads these meters remotely, to check the data and to use the data in other ways as provided in the contracts.

SCE maintains its own meters at most of the RPS projects. These meters are used for retail billing, verification, backup, RPS reporting through WREGIS, and in some cases, monthly payments. The SCE meters are either real time energy meters (RTEMs) or standard interval meters.

For a more detailed description of the process surrounding the meters and data collection see Chapter II, Section G.2.b. for the PURPA and CHP generators.

c) Active Monitoring

D.10-06-004 requires SCE to (a) devise a method to actively monitor each seller's compliance with Standard Term and Condition 6 (STC 6)[107] and related contract terms, (b) administer the active monitoring, and (c) make an affirmative showing in each ERRA Review proceeding of its method for active monitoring and the results of that monitoring. This will demonstrate SCE's reasonable contract administration of all contract terms, inclusive of obligations prior to and after the project's commercial operation, as appropriate.[108]

SCE's method to actively monitor each seller's compliance with STC 6 consists of: (1) requesting the seller to provide a copy of the project's CEC pre-certification prior to initial project delivery or within 365 days after the effective date of the contract, whichever is applicable according to the contract, and requiring the project to attain full certification from the CEC shortly after the project begins commercial delivery; (2) monitoring changes in law or regulations that may affect RPS eligibility; (3) monthly monitoring of the CEC website to verify that facilities are RPS-certified via each facility's unique RPS ID (cross-checked to the CEC certification); and (4) verifying the RPS ID during WREGIS registration and routine maintenance. Additionally, SCE performs site visits, capacity demonstrations, and capacity verifications during the construction and commercial operation of each of the phases of the project to ensure that the project follows the contract.

RPS projects with contracts executed during the Record Period are in varying stages of providing a copy of the individual project's CEC pre-certification.

Currently, SCE's entire portfolio of RPS-eligible contracts consists of proven applications of landfill gas, biomass, digester gas, geothermal, small hydro, conduit hydro, solar thermal, solar PV, and wind technologies as generating facilities.

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[107] STC 6 requires that the seller warrant throughout the term of the PPA that (i) the project qualifies and is certified as an Eligible Renewable Resource (ERR) and (ii) the output qualifies under requirements of the California RPS. The only exception is upon a change in law, wherein seller is contractually obligated to use commercially reasonable efforts to comply with the change in law (paraphrased for simplicity, for actual STC 6 verbiage, *see* D.08-04-009, Appendix A, p. 6).

[108] D.10-06-004, p. 21, OP 2.

SCE's contract compliance includes regular monitoring of the CEC website to verify that facilities are RPS-certified. This review is embedded in the process for WREGIS registration and maintenance. There was one (1) project found during 2018 to have issues with its CEC Certification, which still remains unresolved as of the end of the Record Period.

(1) Terra-Gen Dixie Valley, LLC (ID 3011/3106)

When this project transitioned from a PURPA contract to an RPS contract, SCE discovered the capacity in the CEC Certification was outdated and the update was not submitted with the CEC in a timely manner. Per the RPS Guidebook rules, SCE expects the project to be ineligible for RPS counting for a period before the capacity update. However, the CEC processed the capacity update without changing the RPS eligibility in the CEC Certification. To ensure correct determination of RPS eligibility, SCE sent a notification letter in late 2018 to the CEC explaining the issue and to also confirm the RPS eligibility. SCE has followed up with the CEC numerous times; however, as of the close of this Reporting Period, SCE is still awaiting a response from the CEC.

Capacity verifications are discussed in detail in a prior section of this chapter. Due to the travel limitations that remained in place for a portion of the year for SCE employees in response to COVID-19, a total of four active monitoring site visits were physically conducted during the Record Period. These projects are identified in Table II-34.

Table II-34
RPS Active Monitoring
January 1, 2022 through December 31, 2022

	ID	Project	Site Visit During Record Period	Capacity Verification[1]
1	1346	Santa Barbara County	X	X
2	5805	Imperial Valley Solar 2	X	
3	5810	41MB 8me	X	
4	5889	Blythe Solar III, LLC	X	

[1] Not all projects require capacity verifications because they are either not yet constructed or operating, or they have already been verified in a prior Record Period.

d) Western Renewable Energy Generation Information System (WREGIS)

Pursuant to SB 1078 and Public Utilities Code §399.25, an electronic accounting and tracking system was developed to verify retail sellers' compliance with the RPS. This system, WREGIS, became operational in June 2007. SCE participates in WREGIS pursuant to Public Utilities Code §399.25 and is subject to the compliance requirements of the CEC and the Commission.

During the Record Period, SCE was account holder for 319 facilities registered in the WREGIS system. Those facilities were comprised of 379 individually-registered generating units representing all eligible renewable PURPA and utility-owned projects, and most RPS contracts. All other RPS projects register their facilities as their own account holder and then transfer their RPS credits to SCE for compliance purposes.

SCE's costs associated with registering and tracking renewable energy deliveries in WREGIS includes account fees, volumetric fees, and service fees for renewable power. SCE paid $166,078.30 in WREGIS fees during the Record Period.

e) RPS Insurance Verification

RPS projects are required to obtain and maintain comprehensive general liability insurance during the terms of their power purchase contracts. SCE uses a third-party insurance management solutions company, InsureTrack, to monitor these requirements. During the Record Period,

268 RPS projects were actively monitored by InsureTrack. InsureTrack, in conjunction with SCE, ensures that these projects have:

- Obtained the required insurance upon contract execution;
- Maintained insurance policies and insurance carriers that meet the contract's requirements; and,
- Maintained adequate insurance coverage throughout the terms of their contracts.

f) Wind Operating Programs

Please refer to Chapter II, Section G.2.f. for details regarding both RPS and PURPA wind operating programs.

g) Renewable Energy Credit (REC) Retirement

During the Record Period, SCE retired 11.2 million RECs corresponding to generation from vintage years 2020 and 2021.

RECs tracked in WREGIS must be retired before they can be counted toward meeting RPS targets. The RPS Eligibility Guidebook requires that WREGIS certificates, or RECs, be retired within 36 months from the initial month and year (vintage month and year) of generation of the associated electricity to be eligible for the RPS program. RECs may be retired across compliance periods if the retirement is within 36 months of the vintage month and year.

To ensure that the proper number of RECs are retired, SCE must compare, for every month and by project, the number of WREGIS certificates that are eligible for retirement with the amount of RPS eligible generation that was procured. Any discrepancy must be investigated, explained, and reconciled. Discrepancies usually arise from initial meter data errors that have resulted in prior period adjustments in WREGIS. These are adjustments in which 1) additional WREGIS certificates are created in a subsequent month (but labeled with the original vintage month) to account for a deficiency in the original vintage month when the additional certificates should have been created, or 2) creation of certificates is withheld in a subsequent vintage month to account for a surplus of certificates created in a prior vintage month. When a discrepancy is found, SCE must submit a prior period adjustment to the

WREGIS website and verify in the subsequent month that the proper number of certificates were created or withheld, as applicable, in WREGIS. For withheld certificates, SCE must manually track outside WREGIS the correct vintage month and year of the adjustment to ensure the adjusted RECs are retired within the 36-month window, since the vintage information of the adjusted RECs recorded in WREGIS does not reflect the true vintage month and year. In addition, SCE must submit WREGIS Adjustment Requests throught the CEC's RPS Online System, so that the CEC will reflect the true vintage month and year in the final verification report publication. When retiring WREGIS certificates, SCE must also identify RECs whose RPS eligibility has not been established and work with the generating project to resolve outstanding issues before retirement. If resolution is not possible before the reporting deadline, SCE excludes the RECs in question from retirement for the compliance period.

The actual retirement of RECs takes place on the WREGIS website. Several factors related to the WREGIS website make REC retirement a cumbersome, manual process. RECs are retired in batches, which are groups of RECs consisting of all the generation from a generating unit during a given month. In a typical record period, SCE's portfolio includes more than 400 registered generating units, which equates to more than 4800 batches of RECs to be retired. Since REC retirement is final, every batch selected must be double checked to ensure correct association with the generator and vintage month. In addition, each selected batch is checked for the correct number of total RECs. This is especially difficult for batches with prior period adjustments, as multiple batches may need to be added to form one complete month, or a batch may need to be split to different months. After the REC batches are selected, the correct retirement subaccount, retirement type, state, RPS compliance period, and retirement reason must be specified to complete the process. The WREGIS website allows a maximum of 300 batches to be selected per retirement action, but typically only around 100 batches are selected per retirement action. This is done to reduce the chance of batch selection error and to allow adequate time to double check selection quantity before the website times out. Therefore, the process must be repeated about 50 times if all REC batches from a typical record period were to be retired.

In summary, the REC retirement process is highly complex and involves a substantial amount of manual effort and rigorous processes to avoid errors and ensure accuracy. It is

SCE's former practice to hold all RECs from a compliance period in the active subaccount and retire those RECs in late spring/early summer following the end of the compliance period. In 2018, SCE started a new practice of retiring all RECs on an annual basis from the previous year. This practice was implemented for the purpose of workload balance between each year of the compliance period and reducing risk of RECs expiring prior to retirement. An exception to this new practice is that RECs with outstanding quantity or eligibility issues will be held off from retirement and retired as issues are resolved.

During the Record Period, there were no RECs that expired (went beyond the 36-month window).

In November of the Record Period, WREGIS rolled out a new interface for the website due to a switch to a new software vendor. The new interface went live, however not all functions are available or properly working. SCE dedicated time to learn the new interface and to support WREGIS staff, and SCE continues to support WREGIS staff with troubleshooting the new software issues. One area SCE has identified which it is currently monitoring, is that the filtering function for REC batches has become less effective, which makes the REC retirement process more time consuming. Since the majority of the REC retirement happens annually in June, the full impact on the REC retirement process is unknown at this time.

h) Curtailment of Renewable Resources

Many of SCE's RPS contracts contain a variety of curtailment provisions. Curtailment of resources may be a result of CAISO grid reliability events, outages by the transmission providers, or for economic reasons. Curtailments may include directing the resource to reduce output to any level less than its current schedule and may be of any duration greater than one 5-minute interval. Generally, if the curtailment is a result of CAISO grid reliability or an outage called by the transmission provider, whether planned or unplanned, the resource is obligated to comply accordingly, and the curtailed energy is not paid under SCE's contracts. Economic curtailments, however, are contemplated in most of the contracts and generally allow some form of reimbursement to the project. RPS contract provisions vary and may include simple "take or pay" methodologies, provisions including a portion of

"no cost" curtailments prior to a "take or pay" method or more complex provisions such as Day Ahead Market Clearing Price (DA-MCP).

During the Record Period, SCE implemented a systematic approach to monitoring and identifying the types of curtailments and calculating payment of curtailed amounts to support contract settlements in Endur. Approximately 742,000 curtailed intervals were analyzed and appropriately settled.

4. BESS

Compliance programs have been developed to ensure that BESS projects adhere to the terms of their contracts, and to integrate these projects effectively with the electric system grid. This section will discuss the BESS compliance.

a) BESS Performance Verifications

SCE's verification testing activities for BESS projects are designed to ensure that the constructed facility complies with the PPA defined performance attributes. The attributes evaluated may include, but not limited to, contracted energy, contracted capacity, discharging capacity, charging capacity, roundtrip efficiency and ramping capabilities. The tests may be performed before the initial commercial operation, and periodically during the term of the project, as applicable.

Table II-35 lists the projects that underwent initial commercial operation or annual capacity tests in accordance with the respective PPA during the Record Period.

Table II-35
BESS Performance Verifications
January 1, 2022 Through December 31, 2022

	ID	Project	Test
1	12034	SP Tranquillity Solar Storage, LLC	Initial
2	12035	SP Garland Solar Storage, LLC	Initial
3	12036	Edwards Sanborn Storage I, LLC	Annual
4	12038	McCoy Energy Storage, LLC	Annual
5	12039	Blythe Energy Storage II, LLC	Annual
6	12040	Blythe Energy Storage III, LLC	Annual
7	12042	Sonoran West Holdings, LLC (Crimson)	Initial
8	12045	Sunlight Storage, LLC	Initial

b) BESS Insurance Verification

BESS projects are required to obtain and maintain comprehensive general liability insurance during the terms of their power purchase contracts. SCE uses a third-party insurance management solutions company, InsureTrack, to monitor these requirements. During the Record Period, 28 BESS projects were actively monitored by InsureTrack. InsureTrack, in conjunction with SCE, ensures that these projects have:

- Obtained the required insurance upon contract execution;
- Maintained insurance policies and insurance carriers that meet the contract's requirements; and,
- Maintained adequate insurance coverage throughout the terms of their contracts.

H. Contract Payment Process

SCE applies a set of four policies to ensure that all PURPA, CHP, RPS, tolling, RA, BESS, DRAM, transmission, and gas contracts are paid accurately and on time. All payment documentation is placed in the identified network drives and updates to contract terms are placed into their respective settlement system (*i.e.*, Endur,[109] and/or the appropriate trading/transactional databases). These policies

[109] This includes User Defined Applications (UDAs) and systems developed for emissions trading.

are: (1) pay projects according to the terms and conditions of their contracts, as interpreted by relevant Commission decisions, orders, pertinent industry practices, and internal SCE controls, including those controls necessary to comply with the Sarbanes-Oxley legislation; (2) make payments in a timely manner according to the terms and conditions of the contracts; (3) subject to timely notification of errors in conformity with contractual terms, correct calculation errors for a time period up to that permitted under the contract and applicable statute of limitations; and, (4) promptly investigate the facts relating to payment variances and coordinate with Energy Procurement and Management's Energy Contracts Management group, as applicable. If adjustments are warranted, carry them out in a timely manner.

Depending upon the type of PPA/product (EEI, WSPP, ISDA, NAESB, ERR), there are numerous contracts that require the parties to exchange invoices each month. In the instances where counterparty invoicing is required and SCE disputes the correctness of the invoice or a portion thereof, SCE will pay only the undisputed portion of the invoice and communicate, in writing (via e-mail), the basis for the variance. Payment of the disputed portion of the invoice shall not be required until the parties resolve the invoice variance.

The sections below discuss the procedures, guidelines, and processes regarding the monitoring, validation, and calculation of Conventional, PURPA, CHP, RPS, BESS and DRAM contract settlements.

1. <u>Conventional</u>

The sections below discuss the administrative procedures, guidelines, and processes regarding the monitoring, validation, and calculation of RA, BESS, DRAM, gas, transmission, tolling and power contract settlement provisions.

a) <u>RA</u>

SCE compensates contracted generators using the unit availability quantity (in MW) filed in the CAISO/CPUC Supply-Plan Template, which occurs at T-45 days prior to the showing month. These RA availability quantities are used for calculation of a monthly RA capacity payment. Each payment is based on contractual parameters as specified in the contract terms and conditions. Adjustments or reductions to payments are made based on events of unavailability. Any non-availability charges or availability credits are captured in the CAISO Resource Adequacy Availability

Incentive Mechanism (RAAIM) process and are passed-through on the monthly invoice to the applicable counterparty.

b) BESS

SCE is currently paying under three contract structures for stand-alone battery energy storage system and battery energy storage system co-located with a renewable generator. Those contract structures include "RA only," "RA with energy put option," and toll. For RA only contracts, SCE only purchases the RA from the project. For RA contracts with energy put option, SCE purchases RA, and in years where the seller exercises its energy put option and for toll contracts, SCE purchases RA and all energy and ancillary services from the project.

For RA only and during RA periods in the RA with energy put option contracts, SCE compensates the seller monthly based on contractual parameters and timing. The monthly RA capacity payment is calculated based on the product of the delivered capacity and the contract price and follows the CAISO/CPUC Supply Plan restrictions stated in the RA section above. Adjustments or reductions to payments are made based on events of unavailability. In addition, for some RA with energy put option contracts, the seller compensates SCE for a monthly energy retention capacity payment. This is calculated as the product of the contract capacity and the contract price for the energy retention.

During put periods in the RA with energy put option contracts and toll contracts, the settlement is treated similar to conventional tolling projects. SCE compensates the seller monthly based on contractual parameters and timing. The payment consists of a monthly energy capacity payment, which may be reduced due to unavailability, if the efficiency of the project falls below contractual parameters, or if it is not fully available for RA compliance. In addition, there is an energy adjustment payment, which compares the actual efficiency of the battery energy storage system to the guaranteed efficiency factors outlined in the contract. There is also a variable O&M payment based on discharged energy and an annual variable asset replacement payment to compensate the seller for wear-and-tear on the batteries above a defined level of operation in the contract.

c) DRAM

SCE compensates either the Aggregator or Demand Response Provider (seller) for various products, including system capacity, local capacity and flexible capacity. The product monthly quantity and contract price for the type of products are indicated in a seller-provided table for the applicable showing month. SCE makes a monthly payment to the seller after the applicable showing month. The delivered capacity payment is equal to the product of the contract price and the demonstrated capacity for the applicable showing month.

d) Gas Transactions

SCE purchases physical and financial gas from market suppliers to deliver gas to generating facilities either under contract with or owned by SCE. These transactions are completed using various agreements including the NAESB, gas annex to the EEI, or gas annex to the ISDA. Payment provisions are covered under the NAESB and/or gas annex to a master agreement. Payment is based on a volume (MMBtu) and price (either fixed or identified by reference to a published index) per each individual transaction. Payments are typically made on the twenty-fifth day (25th) of the month following the month of delivery.

e) Transmission

SCE purchases transmission from market suppliers. These transactions are covered under the TREA or tariff and are paid based on the contractual obligations under the contract. Payment is based on volume (MW) multiplied by price (either fixed or identified by reference to a published index). Payments are typically made within twenty (20) days of receipt of invoice.

f) Power Purchase Tolling Agreements

Generators that have a tolling agreement with SCE are compensated using a combination of energy and capacity payment types varying from monthly capacity, reduced monthly capacity, variable O&M, and start-up charges. Each payment is based on contractual parameters. The generator is also paid a heat-rate adjustment payment, which calculates the difference between actual gas usage and contractual heat rates, as defined in the respective agreement. Adjustments or reductions to payments are made based on events of unavailability. SCE settles after-the-fact on a calendar-month

basis, with payments for the prior month being settled on the latter of the twentieth (20th) day of each month or ten (10) days after receipt of invoice.

g) Power Transactions

In addition to power purchase tolling agreements, SCE purchases power from market suppliers. SCE power transactions under the EEI, WSPP, or power annex to the ISDA are paid based on the contractual obligations under the contract. Payment is based on volume (MWh) multiplied by the identified index and is typically made on the twentieth day (20th) of each month following the month of delivery.

2. PURPA and CHP

The sections below discuss the administrative procedures, guidelines, and processes regarding the monitoring, validation, and calculation for PURPA and CHP contract settlement provisions.

a) Energy Rates for PURPA and CHP Contracts

Monthly energy rates are calculated based on the following components: contract specific Time of Delivery (TOD) heat rates, gas index, gas transportation rate, contract specific annual Variable O&M Charges (VOM), and Hourly Location Adjustment Factors (LA), as described below.

On August 1, 2009, the Commission implemented Resolution E-4246, which finalized a new market index formula (MIF) that changed how SRAC energy pricing is calculated and established new as-available capacity rates. Resolution E-4246 affects all PURPA contracts, both renewable and cogeneration that are paid SRAC pricing for energy and as-available capacity.

The new SRAC, effective January 1, 2012, includes an adder called the Hourly Location Adjustment Factor (LA).[110] The LA was implemented to replace the Generation Meter Multiplier (GMM); after CAISO's MRTU "go-live" in April 2009, CAISO discontinued publishing the GMMs because it had converted to a nodal market. The market utilizes locational marginal pricing (LMP) at various pricing nodes (PNodes) throughout the CAISO. The LA is equal to LMP(QF) minus LMP (Trading Hub), where LMP(QF) equals the hourly day-ahead LMP at the point of interconnection

[110] D.10-12-035; CHP Program Settlement Agreement Term Sheet, Section 10, pp. 45-48.

with the CAISO grid associated with the QF generating facility, and LMP (Trading Hub) is the hourly LMP of the trading hub where the generating facility is located (*e.g.*, SP15). The LA calculation applies to various PURPA and CHP agreements as follows:

- Legacy Amendments
  - Option A: Subject to LA
  - Option B: Non-renewable projects are subject to LA, renewable projects are not
- CHP RFO PPA: Subject to LA
- QF SOC: Subject to LA
- AB 1613 Agreements: Not subject to LA

As addressed in SCE's 2012 ERRA Review filing (A.13-04-001)[111], SCE executed numerous Legacy Amendments per the QF Settlement. These Pro Forma Legacy amendments were offered to all QFs that had existing contracts (Legacy PPAs or Legacy Agreements) with SCE as of the Settlement Effective Date; these projects are often referred to as Legacy QFs. The Legacy Amendments provided five options, called A, B, C1, C2, and C3 (as of 12/31/2015, the QF Legacy Amendments Energy Pricing Options for C1, C2 and C3 expired). The details of these options are explained further in Table II-36 below.

[111] *See* A.13-04-001, SCE-02, Chapter IX, pp. 7-13.

Table II-36
QF Legacy Amendment Energy Pricing Options

Legacy Amendment Option	**A**	**B**
Eligible Contracts	Legacy	Legacy
Incremental Energy Heat Rate (IER)	2012 = 8,225	2012 = 8,600 IER
	2013 = 8,125	2013 = 8,500 IER
	2014 = 8,125	2014 = 8,500 IER
	2015 = 2011 & 2012 Actual Heat Rate	2015+ = Market
	2016+ = Market	
GHG Risk	Buyer 100% 2013 - 2015 2016+ GHG cost embedded in the gas price, and therefore paid to Seller through the calculated SRAC energy pricing	Seller
Location Adjustment Factor	YES	No, if renewable QF

b) Capacity for PURPA and CHP Contracts

PURPA and CHP contracts receive a capacity payment based on production. There are three types of capacity payments eligible to PURPA and CHP projects. Those include Firm, As-Available, and Excess As-Available. The pricing for these products is generally based on forecasts at the time of execution or SRAC.

c) Performance Bonus – Capacity

Many firm capacity PURPA contracts contain provisions that enable the projects to earn capacity bonus payments to encourage on-peak production during summer months. Projects are eligible to receive winter bonus payments if they meet specified summer on-peak contract performance requirements. SCE ensures that only the firm capacity PURPA contracts that have met monthly and seasonal contractual requirements receive a bonus payment.

d) Out of Service Territory Projects

Several of SCE's PURPA and CHP projects are located outside of SCE's service territory (*e.g.*, the IID and PG&E service territories), where energy is typically delivered by the local utility to SCE over that utility's interties. SCE receives the quantity of energy represented by and pays the PURPA projects based upon hour-by-hour energy delivery schedules from the delivering utility.[112]

e) Line Loss Factor

During the Record Period, PURPA and CHP projects that received Commission-approved short run avoided cost (SRAC) prices for their energy deliveries (and did not execute a Legacy Amendment providing for a line loss factor of 1.00) continued to have the line loss factor methodology specified in D.01-01-007 applied to their energy payment calculations. The line loss factors for a particular PURPA or CHP contract include the project's distribution loss factor (DLF) and transmission loss factor (TLF), and, in some cases, a transformer loss factor (unrelated to D.01-01-007). Since the April 1, 2009 "go live" of MRTU, the CAISO discontinued posting generation meter multipliers (GMM)/tie meter multipliers (TMM) that are a component of the TLF calculation. Starting in May 2009, SCE replicated the April through December 2008 GMM/TMM data to use in the calculations for the same monthly settlement periods in 2009 and going forward.

f) Time of Delivery (TOD) Periods

During the Record Period, SCE managed active PURPA/CHP contracts that were paid using TOD Factors in the payment calculations. The TOD Factors for the delivery period are multiplied by the product of metered energy for that delivery period and the energy price.

3. RPS

The sections below discuss the administrative procedures, guidelines, and processes regarding the monitoring, validation, and calculation for RPS contract settlement provisions.

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[112] Other projects that are out-of-state are either dynamically scheduled to the CAISO or are directly connected to SCE's transmission/distribution system via generator intertie. Those projects, from a payment standpoint, are considered within SCE's service area.

a) Out of Service Area Projects

Some of SCE's RPS projects are located outside of SCE's service area (*e.g.*, the IID, PG&E, and out of state territories), where energy is typically delivered by the local utility to SCE over that utility's interties. SCE receives the quantity of energy represented by, and pays the RPS projects based upon, hour-by-hour energy delivery schedules from the delivering utility, or metered amounts per the contract settlement provisions.

b) Renewable Energy Credit (REC) Sales

SCE REC Sales are transacted under the EEI and Confirmation. SCE receives payment from the counterparty based on price multiplied by quantity.

c) Energy Payment Calculations

Many RPS contracts are paid for the energy delivered by the generator based on time of delivery and the contracted energy price.

(1) Time of Delivery (TOD) Periods

During the Record Period, SCE managed active RPS contracts which were paid using TOD Factors in the energy payment calculations. The TOD Factors for the delivery period are multiplied by the product of metered energy for that delivery period and the energy price.

4. Other Impacts to Payments

a) CAISO Charges

Certain contracts provide for CAISO charges, and in some cases CAISO revenues, to be the seller's responsibility. Some of those contracts include specific payment provisions during the start-up period through commercial operation, regarding schedule deviations, and in cases of a seller-initiated test. As the Schedule Coordinator for most of SCE's contract portfolio, CAISO charges and revenues are allocated and available to SCE. Upon receipt of the charges and/or revenues, SCE credits or debits the next payment to the generator depending on the activities that took place during the delivery month.

b) Scheduled Delivery Deviation Adjustments (SDD)

Certain contracts provide for SCE to calculate SDD adjustments in cases where SCE is the Scheduling Coordinator. For PURPA/CHP, the hourly SDD Adjustments are based on the difference between real-time LMP prices and contract energy prices. Certain tolling contracts use SDD as an uninstructed energy deviation charge. Additionally, a charge based on CAISO's grid management for uninstructed deviations is assessed and charged to the project for any scheduling deviation outside of the performance tolerance band identified within each contract. For Record Period charge results, see Section G.2.h above.

c) Scheduling Coordinator Fees

The QF SOC, CHP RFO, and the AB 1613 contracts provide for SCE to apply a monthly Scheduling Coordinator (SC) Fee for SCE's SC services if the generator elects to use SCE as their SC. The monthly fee is based on the generator's net contract capacity and the respective fee amount provided in the contract. The fee is a constant value that appears on each of the generator's monthly payment statements.

d) Mean Absolute Error (MAE)

The firm capacity QF SOC and CHP RFO contracts contain provisions for SCE to calculate the MAE based on a comparison of the generator's metered output and their day-ahead forecast, quantified and compared to a threshold. If the MAE is greater than 15 percent, or if the average forecast error for all hours of the month is greater than three MW or three percent of the Seller's Day-Ahead Forecast (depending on the contract), then an "MAE Failure" will be deemed to have occurred. In the event of a MAE Failure, the generator will be assessed a penalty. If the failure continues for several months, the generator may be either temporarily or permanently derated. For Record Period charge results, see Section G.2.h above.

e) Energy Delivery Performance Administration

Certain RPS contracts include provisions that require the sellers to meet certain minimum energy delivery obligations. The energy delivery obligation calculation may be performed on either an annual or multi-year basis depending on contract terms. A comparison of the actual energy

deliveries or the average annual energy delivery over multiple years to the contracted minimum amount determines if the energy delivery obligation has been met. Performance requirements for the delivery obligation differ by resource type. If in any term year a failure to meet the minimum delivery obligation occurs, then the seller is subject to a penalty using the amount of shortfall multiplied by a contractual rate. For Record Period charge results, see Section D.4.i above.

f) Economic Curtailments

Economic curtailments are contemplated in most of SCE's RPS contracts and generally allow some form of reimbursement to the project. Contract provisions vary and may include simple "take or pay" methodologies, provisions including a portion of "no cost" curtailments in MWh prior to a "take or pay" method, or more complex provisions such as Day Ahead Market Clearing Price (DA-MCP). Based on case-by-case contract language, SCE processes payments to compensate the Seller the month following an economic curtailment.

g) CAISO System Emergency

Certain short-term agreements were entered into in response to the CAISO System Emergency that resulted from the heat waves occurring in the months of August and September 2022. Per the agreements, compensation to the sellers allowed for supplemental payment for fuel where not otherwise addressed in the PPA, for generation in excess of a settlement interval cap, for generation above contract capacity, or for certain CAISO revenue to be passed through to the generator, during the defined heat wave period. For additional information regarding the CAISO System Emergency and the Record Period payments, see Section E.1 and Appendix II-L and its supporting workpaper.